Roberts Academic Medicine Handbook

A Guide to Achievement and Fulfillment for Academic Faculty

Laura Weiss Roberts

Editor

Second Edition

Springer

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For Teresita, mentor and friend

Foreword

If you are reading this book, you are likely pursuing a career in academic medicine where you will have the opportunity to improve the health and well-being of people around the world. There is nothing more rewarding.

But I believe the future is about much more than medicine as we have known it. Increasingly, we are able to predict and prevent disease. This new focus on maintaining health has been made possible by today's golden age of biomedicine where new tools and technologies are accelerating the pace of discovery.

You are entering academic medicine at this remarkably unique time in the history of biomedicine. Today, major breakthroughs don't just redefine our understanding of human biology and disease, they open whole new fields of study. This means that you have unparalleled opportunities to make a difference, and this book will help you along your way.

The authors of the chapters that follow do an extraordinary job of covering all the topics that might be of interest to anyone embarking on a career in academic medicine—from managing time and writing a book proposal to developing administrative skills and recognizing unconscious bias.

When I reflect on my career, I wish there had been a resource like the *Roberts Academic Medicine Handbook* to guide me through the challenges of clinical and laboratory supervision, preparing an IRB application, engaging in fundraising, and the like. I'm delighted that the young people in the field of academic medicine today have this resource so they can fully devote their energy and intellect toward their passions for research and clinical care and creating this more healthy future.

You are dedicating yourself to one of the few professions where we can have a profound impact in diverse ways. It is something from which we all can take pride. We share an optimism that we can help build a better future for all people. We believe in the power of new ideas and new approaches. And we believe we can turn medicine on its head.

The ever-evolving field of biomedicine often precludes a defined career path. Veering from your intended course should not be taken as a sign that you are lost. I encourage you to follow unmarked paths, to explore uncommon territory, and to head off into new directions. It is rare that we will know with certainty how the accumulation of all our learnings, the evolution of our passions, and the dynamic field of biomedicine will converge. And with the ever-accelerating rate of innovation, this is truer than ever.

My unique path began during a bioengineering class as an undergraduate student at Brown when I became fascinated and inspired by the vestibular system. This delicate but powerful trio of canals in the inner ear regulates balance and one's sense of orientation. It enables you to contort yourself into odd positions to get into a car without falling down and is why the world doesn't look like it is bouncing around when you run. The vestibular system is tremendously complex, to say the least, and I loved it.

I dove headfirst into studying the vestibular system, forming a relationship with Jay Goldberg, PhD, a pioneer in understanding the vestibular system who is now professor emeritus at the University of Chicago. Then, between my surgical residency at Duke University and otolaryngology residency at the University of Chicago, I spent 4 years in Dr. Goldberg's lab exploring the labyrinth that is the inner ear. As I pursued a greater understanding of the vestibular system, I had no idea that I would one day lead an academic medical center.

This contributes to what I find so rewarding about academic medicine. As your interests evolve, so too can your career. The key is understanding from where you derive your passion. For me, the transition away from research and clinical care into an academic leadership position stemmed from a desire to have a broader impact on biomedicine and health care.

I am not alone in having an indirect path. I have many classmates and colleagues who have forged distinguished, successful careers that they never could have imagined at the beginning or middle of their career. Having an idea of what you want and how to get there is important, but knowing how to adapt to and embrace changes to your plan is just as crucial.

It may be impossible to see three steps ahead or even the next step in your career in academic medicine, but it is important to keep in mind that your current step is likely not your last. As someone in the beginning or middle of your career, you have ample opportunity to define how you will utilize your passion and skills to make a positive impact in the lives of individual patients or for the health and well-being of people around the world.

I spent 11 years after graduating from medical school pursuing postgraduate training, including 4 years in Dr. Goldberg's lab. My wife wondered whether I would qualify for Social Security before I got a real job. But I truly am grateful for all of my training and attribute to it much of the impact I have had throughout my career as a researcher, patient care provider, and leader in academic medicine.

I have found common among all those who have had successful academic medical careers an intense intellectual curiosity. In many fields but particularly medicine where we regularly embrace innovation, discovery, and whole new fields of study, career advancement stems from a commitment to being a lifelong learner. Following your passion and drawing from your experience will help you both in the laboratory and in the clinic.

I recall vividly spring 1995, when a man came to my office and explained that he was suffering from a bizarre set of symptoms. When he sang in the shower, he would see the shampoo bottle, the loofah, and the shower head moving in a circular motion. When I tested him, I saw that his eyes moved upward and counterclockwise when he heard a sound. I suspected that the

vestibular system was involved. And when I saw a patient with similar symptoms a few weeks later, my suspicions grew that these patients had holes in their superior semicircular canals, one of three tiny canals found deep within the inner ear.

For years, many who had this condition were misdiagnosed and were often subjected to unnecessary surgeries or were mistakenly told that their problem was psychological. Many fell into depression. My experience in clinical and basic research enabled me to crack this mystery, correctly diagnosing this condition which I named superior canal dehiscence syndrome. In short order, my colleagues at Johns Hopkins and I developed a corrective operation. I am delighted that all my training could manifest itself in a way that has helped hundreds of people who have suffered from this debilitating condition.

Something else happened early in my career. Strong scientists came to work with me in my lab. They brought new ideas and constantly challenged me to push forward and explore new areas. I found I enjoyed mentoring them, learning from them, and building a research and clinical program that stretched far beyond what I could do individually. That was my first step into leadership: a step that occurred because of opportunities that were opened up to me by the people with whom I had the privilege of working.

Like me, it is likely that the transformative moments in your career will happen outside of when you expect them. I encourage you to stay on the lookout, stay curious, and stay centered on your motivation.

Reading this resource is evidence that you have a desire to grow and be fulfilled by your career in academic medicine. For this, I commend you. However, I will caution that this book does not provide step-by-step instructions, nor should it. The insights drawn from our authors, some of the most accomplished clinicians and scientists in our field, will complement your individual experience and goals and help you find a path that challenges and invigorates you. Significantly, it will help you continue academic medicine's tradition of improving the health and well-being of humankind and allow you to participate in the bold vision of proactive health care.

This book will be a career-long resource for you, but it is not intended to be your only resource. We all need real-life mentors, people with patience and perspective who can help you along your path. Keep an eye out for them. And seek out your colleagues, your students, supervisors, and especially those who might disagree with you—those with experiences, assumptions, values, and beliefs that differ from your own.

As you overcome challenges, I encourage you to take time to reflect on your achievements. It is from trying moments that we strengthen our resolve and better understand the true extent of what we can accomplish the next time we are faced with a challenge.

I am grateful for all of the authors who have contributed to this invaluable compendium. I would like to give special thanks to Laura Weiss Roberts, MD, this book's editor. Through these authors' wise words and Dr. Roberts's vision for creating this resource, you—the future leaders of academic medicine—will better navigate your careers, balance your personal and professional lives, and deliver the next generation of health care.

To our readers, I wish you the best of luck. In a book filled with insights, I'd like to share one more. It is simple but too often overlooked: enjoy this incredible and noble journey. You are making a substantial difference in the world. Thank you for all you do and all that you will do.

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Part I

Approaching the Profession of Academic Medicine

How to Find Your Path in Academic Medicine

Laura Weiss Roberts

> Although the world is full of suffering, it is full also of the overcoming of it. –Helen Keller

Academic medicine creates a better future for humanity. Medical school faculty work across five domains to fulfill this awesome responsibility: (1) the advancement of science, (2) engagement in clinical innovation and service, (3) the fostering of multidisciplinary education, (4) collaboration to address societal needs, and (5) the nurturing of leadership and professionalism. Medical school faculty hold many roles within academic medicine. Faculty investigators seek to understand the biological basis of health and disease and the psychological, cultural, and social determinants of illness. Academic clinicians, as clinical innovators, apply scientific evidence in the care of patients and utilize scientific evidence to establish better clinical practices and to create more effective systems of care for entire populations. Medical school educators confer knowledge, build competencies, and inspire students across the health professions. Faculty members work with diverse partners to define and address concerns affecting the health of local and global communities. Leaders in academic medicine help to prepare the next generation of leaders to offer expertise and wise judgment on broad policy efforts, scientific inquiry, and organizational responses to issues of importance to human health. Individually and collectively academic medicine faculty members have stepped forward to address vast health problems that affect all people, present, and future. On the shoulders of academic medicine rides the hope that the world's next generation will live better, longer lives with fewer burdens and less suffering.

It is clear upon entering the profession of academic medicine that the path ahead will be one of great purpose and hard work. Three aspects of the profession are immensely valued by experienced faculty but may be overlooked by early-career faculty: First, the work itself is creative and complex. Second, the colleagues are extraordinary. And third, the environment of academic medicine continuously—perhaps relentlessly—encourages faculty members to question, to learn, and to extend themselves. *Meaning*, *effort*, *creativity*, *colleagueship*, and *growth* define the experience of a life dedicated to academic medicine. Taken together, these elements give rise to careers of unimagined achievement and distinct worth.

> A hero is someone who understands the responsibility that comes with his freedom. –Bob Dylan

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So, how does one choose the path of academic medicine? An aspirational "calling" to help humanity through discovery or healing will draw some to this field. For many, a love of teaching will make alternative careers—a future without connection to students each day—far less compelling. Academic medicine will provide the optimal, most exciting, or the only setting for others' scientific work. For some who are drawn to academic medicine, the opportunity to pursue the multiple missions of science, patient care, teaching, collaboration, and leadership will be irresistible. For yet others, entering academic medicine may simply feel intuitive and logical; moving from the role of student to the role of faculty member in a familiar context surrounded by friends may become an obvious next step in their careers. All of these influences may play some part in the decision to choose academic medicine.

My sense is that nearly all early-career faculty members experience, as I did, an unsettling combination of feeling overly schooled, yet still underprepared. Decades of formal education, as it turns out, are insufficient for some of the unexpected and labor-intensive everyday duties of the instructor or assistant professor. Writing letters of recommendation, sitting on committees—or, worse, seeking committee approvals— formatting one's curriculum vitae, obtaining a "360" evaluation, undergoing compliance audits, fulfilling quality performance metrics, preparing a grant, crafting a book proposal, and the like are not among the duties that an early academic thinks of when aspiring to better the human condition. Moreover, dynamics among faculty may be rather unexpected: the esteem, the size of office or laboratory, and the financial compensation accorded to an early-career faculty member may seem just a bit thin after all the years of training. Managing one's duties and dynamics and becoming a graceful self-advocate are, one quickly learns, essential to one's success in an academic career. Without some savvy handling of these "fundamentals," it will be difficult to turn to the bigger work of academic medicine.

Recognition of the importance of these basic, but typically untaught, skills for faculty members across academic medicine serves as the origin of this handbook. The text is organized into eight sections that encompass major domains, duties, and developmental aspects of faculty life: approaching the profession of academic medicine, getting established, approaching work with colleagues, writing and evaluating manuscripts, conducting empirical research, developing administrative skills, advancing along academic paths, and ensuring personal well-being.

Every section of this book is salient for *all* academic faculty members, no matter their specific training and duties. The clinical educator should understand the process that translational scientist colleagues undergo in competing for research grants, for example, and the laboratory scientist should understand the nature of bedside teaching. Such understanding will foster collegiality and will ensure greater fairness in accomplishing the many citizenship tasks of academic environments, such as when serving on a Promotion and Tenure (or "P & T") committee. The topics of individual chapters are wide-ranging, derived from my own observations and impressions of what early-career faculty "need to know" to navigate the course ahead. In this second edition, renamed the Roberts Academic Medicine Handbook, chapters have been revised and brought up-to-date. Examples of a chapter from each section include how to manage time effectively, how to give a lecture, how to approach the relationship with a mentor, how to write for publication, how to prepare a first grant application, how to negotiate, how to develop a national reputation, and how to manage personal finances. New chapters have been added in this edition on preparing a book proposal, engaging with social media, public speaking, and fundraising. A chapter on creating a culture of belonging and support in academic medicine—a key responsibility of faculty members at every stage in their career—has also been included in this edition. My hope in envisioning and assembling this handbook is that it will assist faculty members to be effective and personally fulfilled as they progress through their careers in academic medicine.

Whatever you are, be a good one. –Abraham Lincoln

People who flourish in academic medicine possess certain qualities that allow them to adapt

to the diverse and specific ecologies of medical school environments. Years ago, Dr. Hilty and I observed that our most successful colleagues have several common attributes: beyond having a sense of purpose and willingness to work hard, they are creative, organized, and tenacious; they foster good will; and they are open to opportunity [1]. As I have seen exceptional careers become damaged and devastated in my many years as an academic faculty member, I have come to understand that professional integrity, presupposed in the prior list, should be made explicit as a "necessary precondition" for effective academic careers. With experience in leadership roles, I also now include among the characteristics of the strongest faculty the ability to communicate the value of one's work to others, as well as an awareness of one's limitations and willingness to compensate, adapt, or reposition accordingly. Knowledge of the overall organization and governance of medical schools and understanding of how medical school realities are shaped by county, state, and federal resources, regulatory agencies, and public policy are also qualities that help faculty do well as they mature within the field. Dedication to the success of others within an academic organization (students, staff, peers, near-peers, or deans) and outside of the academic organization (affiliated institutions, community partners, professional colleagues, or governmental or nongovernmental entities) is another discernible quality of great academic faculty members. All of these characteristics allow a faculty member to thrive in medical school environments, advancing their careers but also supporting the value of these organizations in society.

Indeed, although they represent the "universe" for academic faculty, medical schools are relatively few in number and vary greatly. The Association of American Medical Colleges (AAMC; www.aamc.org) is an organization that represents all of the accredited medical schools in the USA and Canada, their major teaching hospitals and health systems, and key academic and scientific societies in the two countries. At the time of this writing, the AAMC has 154 medical schools in the USA and 17 in Canada, with more schools launched and moving toward accreditation by the Liaison Committee on Medical Education, a joint endeavor of the AAMC and the American Medical Association. The AAMC estimates that 173,000 full-time faculty members, 89,000 medical students, and 129,000 resident physicians work within these academic medical organizations. Given that the population of the USA today is estimated to be 328.7 million people and the population of Canada is estimated to be 36.1 million people, the number of medical schools is small by any count, and the ratio of faculty-to-general population is strikingly low. Keeping the academic workforce robust, given its responsibilities to the many people it serves, is thus essential.

Medical schools must meet clear standards but are quite different in their scope of activities, priorities, settings, finances, governance, and cultures. All provide high-quality education through remarkably diverse curricula. All must have teaching-related clinical services in general and specialty areas. Some medical schools have robust federal research funding for science, whereas others have nearly none. Some medical schools are financially sturdy, while others find themselves frequently near fiscal collapse, trading program closure for the opportunity for the organization to survive another week. Some medical schools have as their primary task educating rural care providers to serve the health of neighboring communities, and some see their foremost duty as driving forward the most innovative basic and translational science that will transform our current understanding of human health and disease. Some medical schools ("medical colleges") are independent and free-standing, and others reside on a university campus embedded in a health sciences center with companion nursing, dental, and other health professional schools. Culturally, some medical schools take great pride in their elite standing, while others, some of the best schools among them, have a much more down-to-earth nature.

Such diverse environments suggest the value of a diverse set of people suited to the work of academic medicine. Scientists, clinicians, teachers, leaders, and "mosaics" all belong. Success as a faculty member will thus involve looking for

the "best fit" between the person and the organization and, more specifically, the person at a particular point in his or her professional development and the organization at a particular point in its history. Extraordinary ("top tier") institutions can help advance stellar careers through exceptional mentors and facilities, but for some early-career faculty, it may be difficult to get the recognition and opportunities that they would receive as "bigger fish" in a "smaller pond." More modest institutions may not have the resources to afford the larger commitments needed by their talented, let alone their "superstar," faculty, however. Institutional history is also relevant in that academic entities that have grown through investments in basic science or, alternatively, in clinical expansion are likely to adhere to their past successes in future decisions. Academic programs that have thrived by taking "high-risk, high-gain" commitments are likely to be bolder, whereas fiscally strapped entities or those that have, let's say, just undergone investigation by the federal government for human subject compliance concerns may be very conservative in their decision-making. These factors, though they may seem far removed from the everyday life of the individual faculty member, shape the milieu and can greatly influence the academic work that each person undertakes.

In thinking through whether a particular academic setting will help support the development of one's academic life, an early-career faculty member should look for several features of the environment. The most basic elements include the presence of a mentor or mentors to provide guidance and the presence of some basic resources necessary to complete one's academic work (e.g., access to a laboratory, access to a methodologist or quantitative expert, access to patient populations, access to students, and the like). Collaborative colleagues will enrich the academic environment further. If the productivity and workload expectations are rigorous but reasonable and if there is a supervisor or even an opinion leader who values one's work, then the environment may well be sufficient. If there is one special aspect of an environment that is more important than all of the rest, it is, in my

view, whether there is a positive culture of curiosity, exploration, opportunity, and forgiveness that allows faculty members to learn, to expand their expertise, and to take on new responsibilities. One caveat is as follows: if the constellation of duties undertaken by the faculty member is not well thought out, even the optimal academic environment will not support academic success. Carefully evaluating what is possible in the pairing of a faculty member and the institution/institutional role is therefore essential.

Beyond thinking about the context of one academic program or one organization, it is valuable to entertain the possibility of making certain key moves over the course of one's professional life. These moves may occur within an institution, for instance, in seeking a new leadership role, or may involve transitioning to a new faculty post at a new institution. Both kinds of change can be disruptive, and no one recommends "job-hopping." That said, intentional and well-judged moves can bring immense opportunities for both faculty members and the institutional environments in which they serve.

> Far and away the best prize that life has to offer is the chance to work hard at work worth doing. – Theodore Roosevelt

The profession of academic medicine requires constant sustenance and renewal. For academic faculty, the present time in history holds the greatest promise in terms of scientific discovery, clinical innovation, educational advances, mutualism with other societal stakeholders, and true leadership. Each individual entering academic medicine can anticipate an exceptional career—one that is rich and exciting professionally and fulfilling personally. Our profession is nevertheless fragile. Resource concerns, erosion of the public trust, and inadequate numbers of people entering and remaining in scientific and clinical careers, in particular, threaten academic medicine. The significance of the fragility does not pertain to the interests of individual institutions or to what may be perceived as petty concerns of "guild" subspecialties or disciplines—the real meaning is far greater because the consequences reach forward to the future. Our capacity to bet-

ter the lives of people throughout the world and shape the health of their children will be lessened if academic medicine is allowed to languish. More positively stated, though it has been in existence for less than a century, the modern model of academic medicine has already brought about enduring good for humankind, and though the specific configuration of organizations may evolve, its value is certain to continue.

Inspiring exceptional young physicians and scientists, supporting them as they find their professional "calling" and fostering their development in academic medicine, taken together, therefore, represent sincere commitments for our field. I said at the beginning of this chapter that academic medicine exists to help humanity, but it exists too because of the people who have committed their lives to it. For this reason, I end this initial chapter of the *Roberts Academic Medicine Handbook: A Guide to Achievement and Fulfillment for Academic Faculty* with a statement of appreciation for our early-career colleagues, individuals who have already sacrificed and accomplished much and are choosing to join the authors of this volume on a professional path in academic medicine. We welcome you to this endeavor, the work of imagining and creating a better future, and we thank you for stepping forward.

Words to the Wise

- Consider the five missions of academic medicine—where do your interests, strengths, and commitments fit?
- Take a good look at your colleagues and mentors: What can you learn from their career choices? What can you learn from their successes and failures?
- What practical skills do you need to progress in your career?
- How do you envision the different phases of your professional life in academic medicine? Is this a good fit for who you are and who you will become?
- How does your department compare with other departments nationally?
- What future do you envision in academic medicine?

Ask Your Mentor or Colleagues

- What kind of academic setting might be best for me?
- How can I prepare myself for the everyday duties of a new career in academic medicine?
- What are my strengths? Do I have limitations that I should try to remedy or compensate for?
- What are the predictable decision points in an academic career path?
- Who else should I be talking with to help me think about my career and professional growth?

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How to Build the Foundation for a Successful Career in Academia

Upinder Singh and Linda M. Boxer

Joining the faculty ranks of an academic institution is the ultimate goal of many who go to medical school. For many, this seems an uphill battle, and financial, social, and lifestyle pressures are causing increasing number of graduates to abandon this goal. However, such a goal remains attainable, worthwhile, and desirable and offers a challenging career filled with great rewards. A career in academic medicine is never routine or boring and provides enormous flexibility, yet enough intellectual stimulation and opportunities for growth to sustain interest and excitement for a lifetime.

In this chapter we outline some strategies that can pave the path to success while keeping in mind that each academic physician will have a unique and personal journey. Some factors that predict success are so obvious as to seem formulaic and repetitive, but still deserve discussion. Absolute requirements for the job are (1) possessing motivation and willingness to work hard, (2) focusing on goals in an efficient and organized manner that allows one to set priorities and achieve measurable success, (3) being prepared to network in one's field and obtain funding, and (4) having adequate protected time and aligning with the goals of the department and institution. Other skills are more nuanced and not so immediately obvious and relate to the ability to get the first academic job and to grow and mature in the position. These skills include the ability to deal with challenges and take risks and to understand one's strengths and weaknesses and learn from mistakes. Additionally, the ability to find mentors for different aspects of one's career and to be flexible enough to accommodate new opportunities and challenges are keys to continued professional development and satisfaction.

Is This the Right Faculty Position?

In searching for a faculty position, a key predictor of future success is alignment of one's goals with those of the department and institution. Determine what an institution values and whether those priorities fit your short- and long-term goals. If your interests are not in line with the institutional vision, do not take a position just because you are enamored by the aura of the institution. Before accepting a faculty position, it is critical to agree with your chief or chair on how your effort will be divided among the three major academic missions of research, clinical care, and teaching. You will most likely spend significantly

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more time in one of the three missions. Likewise, the faculty position will be structured with a major focus on one of the missions. To accept a position that is not designed to allow you to spend the preponderance of your time on the mission that is of most importance to you and your career development is a recipe for disappointment and failure. In your discussions on the faculty position, be clear about the expectations that the chief or the chair has for what constitutes success. Spend time to develop a realistic budget for your research needs for at least the first 3 years, and negotiate with the chief or the chair for this support. You will also need salary support during this time. Ask to see the offer in writing and make certain it is clear. Do not be afraid to ask for the resources and protected time that you need.

Once at the right place, finding colleagues who have similar aspirations will provide the essential intellectual support needed to develop your own scholarship. We do not live in a vacuum and certainly cannot succeed in one. Getting adequate support to develop your scholarship (protected time and resources being two important considerations) is a key factor, as are clear expectations of how your time as a new faculty member will be spent (e.g., what proportion will be research, clinical care, teaching, administrative). Many early-career faculty fall into the trap of overcommitting to too many service tasks early in their careers. The desire to be a good citizen is laudable, but the necessity to protect one's time during the early years of establishing a research program cannot be overstated.

Establishing Your Identity

Your research mentor has been a great guide for you and helped you develop as a scientist, writer, thinker, manager, and maybe even leader. However, as in all relationships, there is a time when some important and tough conversations must occur:

> Your angle: I am going out into the world and need to establish my scientific identity and I want to talk about how I will separate from you—what scientific projects would be yours and what work will be mine?

> Your mentor's angle: Great! I am excited for you to begin your own career. But your work has been some of the best in my lab—I am not sure how much of it I can give to you!

In the ideal world, the mentor's and trainee's goals, visions, and plans are completely aligned, but in the real world, where science is tough, funding is difficult, and the competitive spirit drives all of us, the issue of separation and differentiation can often be challenging. To avoid misunderstandings, the best approach is to (1) have frank and honest conversations, (2) broach the topic early, (3) set up expectations on both sides, and (4) have regular follow-up. Another consideration is to have a specific time period when you are still working closely with a mentor but you are pursuing an independent project. This can be best accomplished when you have independent funding and will depend on the collaborative and collegial nature of your mentor. Keep in mind that science is difficult to predict. Even if your mentor and you agree to divide work, eventually, your mentor's projects may collide with yours. Be prepared for this situation, but do not let fear of it hold you back from tackling the best and most interesting scientific questions. If your mentor has taught you well, you are prepared with the skills to be a friendly colleague, collaborator, and even competitor!

One special consideration is when you take a faculty position at the same institution as your mentor. Although such an arrangement has many advantages (e.g., you are already familiar with the environment, have scientific colleagues around you whom you know, can easily set up your own lab, and you and your family do not have to move across the country), one disadvantage is continued association with your former mentor. In the eyes of your colleagues, will you be a new faculty colleague or simply the great senior postdoc of your mentor? This perception is not absolute and can be overcome, but you will have to make and follow a plan to overcome this perception successfully. Keep in mind that this separation is not just for the sake of your ego—it is for the sake of your career. When the time arrives for decisions on promotion and tenure, you will be judged on how you differentiated

from your former mentor and whether you have established a research program that is unique, independent, and additive to the program of your mentor. In other words, what do you bring to the table that your mentor did not?

Setting Priorities and Focusing on Them

Once you have navigated the first few busy (and stressful!) years of life as a new faculty member, your thoughts will soon turn to the next steps—reappointment, promotion, and tenure. Have a discussion with your chief or chair on the criteria for reappointment and promotion. Different faculty lines are designed to emphasize each of the three academic missions, and the requirements for promotion will differ among the lines (see chapters "How to Understand Criteria for Academic Promotion on "Traditional" and "Research" Tracks" and "How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks"). You have previously made certain to enter the line that is the best fit for your goals and interests. Therefore, the criteria for promotion will likely align with your priorities. Once you have an understanding of the criteria for promotion, ask your mentors for their advice and feedback on what your priorities should be. Know the metrics on which you will be judged so that you can determine your readiness for and success in being promoted. Get as many perspectives as possible—ask, ask, ask. Ask those around you who have recently navigated this hurdle, ask mentors and supervisors what areas you should prioritize, and ask scientific colleagues for their insight and guidance. Among the abundance of advice you receive, common themes will emerge—keep those in mind as you set your goals and priorities.

It is very important to have protected time during your first several years on the faculty. Protected time will allow you to develop your scholarship, clinical practice, and/or teaching. When you are asked to take on a new project or assignment, consider how this work will help you attain your goals. Although some good citizen-

ship activities are desirable and necessary, it is not reasonable to expect an early-career faculty member to engage heavily in these types of activities. With the advice and support of your mentors, determine which activities will be most beneficial for your career development without taking too much time away from your academic mission endeavors. Be focused and merciless about committing to new assignments or projects. Will they help or hinder you in your long-term goals? Taking on new projects that will ultimately help you is not being selfish—it is being smart.

Mentors, Mentors, and More Mentors

The importance of mentors as key predictors of success cannot be overstated (see chapter "How to Approach Mentorship as a Mentee"). Academic medicine is complex, and listening to the advice of others who know how to negotiate the course will help ensure your success. You cannot have too many mentors, but do not expect them to seek you out. Go and find them. Keep in mind that you will need mentors for many aspects of your academic life—three areas that are the most obvious are research, clinical care, and teaching. However, academic physicians also need and benefit from mentors in other areas—maintaining work–life balance, writing well and effectively, public speaking, and so on. It is valuable to have a mentoring team—one mentor does not have to fill all these varied roles. Keep in mind that your need for mentoring will also change over time, and the input and guidance you needed as a new faculty member will be vastly different from the guidance you need as you take on leadership roles. A good place to start in the search for mentors is with your chief or chair and/or your assigned mentor. Several of your mentors will likely be at your institution, but do not limit your mentorship support to colleagues at the same institution. For example, you may need to identify a mentor for your research from investigators in the same research area as yours, and it is quite possible that there will be no one at your home institution in

your research field. Your research mentor from your time as a trainee may be able to assist with finding a mentor at another institution. Many institutions offer formal training in teaching skills, which is a valuable resource. It may be possible to identify a mentor to assist with developing your teaching abilities from among the faculty who participate in the training program. As you engage in clinical care, you will likely identify more senior clinical faculty who can serve as mentors and role models.

The best mentors provide honest feedback and advice, pointing to areas for improvement as well as helping you navigate the maze of academic medicine. A mentor who can identify areas for improvement and provide support and advice during the process is very skilled, and you will be fortunate to have such mentors. Stay flexible and be open-minded—many informal mentoring relationships can develop with senior colleagues. Although one does not often consider the need for support and advice on how to become a mentor as one begins a career in academic medicine, mentorship is an important requirement that will develop as you start to work with trainees in research and/or clinical care (see chapter "How to Be a Good Mentor"). One often unrecognized but great benefit to having wonderful mentors is that they can help you develop your mentoring skills. What aspects of a mentor were fantastic? What other habits were less than ideal? Look back at your experience and learn from it. Take the best of what you experienced and contribute to the next generation by being a great mentor. Many faculty members find the process of mentoring and developing early-career colleagues to be one of the most rewarding aspects of a career in academic medicine.

"Tooting Your Own Horn": Be Your Own Best Advocate

As scientists we are often taught to be modest—for example, analyze the data carefully, do not overcall your results, and do not be too broad and generalize beyond what this experiment shows. Although that approach works well in science, it can also hinder you when it is time for you to "sell" yourself. Remember that although your mentor, chief or chair, and other colleagues may do their best to promote you, the person who can best "pitch your product" is you. You need to be your own best advocate. Your job is to do great science, be a good mentor, communicate your data effectively and energetically, and network well with colleagues and collaborators. In addition, you need to keep track of what you have done for the institution (e.g., invited seminars, teaching responsibilities, committees, clinical work, mentoring students) and have that data for your supervisor. Having a systematic way to keep track of what you have contributed to the academic mission of your institution is key. You must toot your own horn—or at least provide the data to your chair so that he or she can toot a horn on your behalf!

I Do Not Look Like Other Faculty Members

The special challenges of being an underrepresented minority faculty member or a woman faculty member deserve mention. Identifying people whom we look like or to whom we aspire to emulate is an important factor in shaping our thoughts about our potential (see chapter "How to Cultivate a Culture of Belonging in Academic Medicine"). Seeing women or underrepresented minority faculty who have successful academic careers and succeed in leadership positions gives the younger generation confidence that they too can have this career and be successful at it. As with many situations, success breeds success. An institution that has shown the commitment to recruit and retain underrepresented minority and women faculty members will have greater success with recruiting new faculty members in these categories. The awareness of the importance of having a rich, blended faculty at all ranks has been steadily increasing, and most nationally ranked institutions have special programs focused on the recruitment and retention of faculty who are women and underrepresented minorities.

What About My Significant Other?

It is now the norm that recruitment of a faculty member will involve assistance with career opportunities for his or her significant other. It may be a dual recruitment into the same department or different departments at the academic institution or help with locating an appropriate position in the area. This recruitment issue is particularly challenging not only for the couple but also for the institution. Many academic institutions have a person or an office to assist with issues related to dual-career couples. A significant question for the faculty applicant is when to raise this topic. As a candidate for a position, you should not be asked whether you have a significant other or family. You need to determine the appropriate time to begin this discussion. It may be reasonable to discuss this topic with the chair or the chief at the second visit or at the time you receive a formal offer. You and your significant other should decide in advance what assistance is needed, what kinds of positions would be appropriate for the other member of the couple, and what compromises you are each willing to accept. Dual-career couples face challenges at every stage of their training and career as they move forward in their professional lives. They may undergo a number of moves to different institutions, and these moves are often driven by the career of one member of the couple. How to balance the effect of a move on the career of the other member of the couple is difficult and must be handled with sensitivity on the part of all involved. This is another area in which mentors can be very helpful, especially those mentors who are members of dual-career couples themselves.

When Mistakes Happen

As accomplished as you are for winning the search for the faculty position, you will have areas of weaknesses or limitations that can be worked on and improved, just as everyone has. It is helpful to ask your mentors and others who know you well in different settings to assist you in evaluating your strengths and areas that require improvement. As you begin to work on your weaknesses, do not neglect your strengths. These are the personal characteristics that got you to where you are now and serve as the foundation of your success—do not neglect them, but enhance them and add to them. These can continue to be built upon, and you want to maintain them as areas that are strong for you. Once you have identified some limitations or weaknesses, work with your mentors on strategies to deal with them or to turn them into strengths. As an example, stubbornness is usually identified as a trait that is limiting, but you can learn to develop this trait into persistence, which is much more useful and can be a positive force.

As an early-career faculty member, you will feel the need to appear confident and knowledgeable. We all hope that each step along the path of an academic career will be filled with successes, but you will undoubtedly make mistakes along the way. You may identify a mistake or someone else may point it out to you. In either case, the best approach is to admit the mistake and work with your mentors to determine what you can learn from it. With this knowledge you can move forward and avoid making a similar mistake. The most worrisome aspect of mistakes is to fail to learn from them and to continue to err in the same way. Understanding your strengths and weaknesses and learning from your mistakes are crucial to continued personal and professional growth. To paraphrase a famous quote: those who cannot learn from failure are condemned to repeat it.

Continue to Take Risks

What brought you to where you are now was the ability to take scientific risks, think in new ways, and ask the big and important scientific questions. Creativity is valued in academic medicine, and success often results from the use of novel approaches. Once you are in a faculty role, it is important not to lose this perspective. Although the initial focus may be in pursuing some safer route, one needs to be creative, willing to try new

approaches, and open to new experiences. Having a mixture of high-risk/high-reward projects in addition to those that are likely to succeed is generally the best approach. The safer projects are those that are guaranteed to get papers published and lay the foundation for grants and funding. Advice from an experienced research mentor will be valuable in assessing the balance of research projects in your portfolio. The colleagues that surround us are often catalysts for initiating new projects, and although having plans for your research program is important, it is also important to be ready to take on new opportunities when they present themselves. As we take on each new challenge, we learn from it, grow, improve, and develop.

With your mentors, you will chart a path for success as a new faculty member. Throughout your career, however, you will be presented with opportunities that you did not foresee or necessarily seek. Although these may not be part of your plans for career development, it is essential to remain open to new possibilities. You can assess a new opportunity with the assistance of your mentors and determine whether it is one you choose to pursue. It is important to appraise whether you will thrive in the new role or option, and how it will affect the other areas of your work, including research, clinical care, and teaching. It is beneficial to take on challenges and to learn from them. Clearly, the most important goal of an early-career faculty member is to focus on the three major missions and make the strongest case possible for promotion. Therefore, any new opportunity must be judged in this context.

Work–Life Balance: Do Not Ignore It!

The importance of work–life balance and making time to "recharge" cannot be overstated (see chapters "How to Care for the Basics: Sleep, Nutrition, Exercise, Health" and "How to Recognize and Avoid Burnout"). Remember, this is a marathon, not a sprint. Everyone needs to have time to recharge, both intellectually and emotionally. People are most creative when they have the mental freedom to think, explore, and

ponder. Stifling the creative spirit by not allowing oneself to recharge is a common mistake among young scientists. There cannot be perfect work–life balance every day, every week, or even every month—months with a grant deadline, for example. A careful self-assessment should be performed on a routine basis so that the balance of work and life is maintained. See what others are doing to maintain some level of harmony and find examples you want—or do not want—to emulate. Then figure out your personal solution. A career in academic medicine, particularly as a new faculty member, comes with substantial pressures and stress. You will need to develop methods to handle stress and maintain a healthy lifestyle. Not all approaches to stress management are healthy. You can learn from your mentors and colleagues how they minimize stress and maintain a healthy balance between work and other aspects of their life. A career in academic medicine can be very rewarding. You have intellectual freedom and can make a positive impact in a number of areas. As a new faculty member, your entire career lies ahead of you. With hard work and support and advice from senior colleagues, you are off to a great start.

Conclusion

It takes an enormous amount of motivation, hard work, perseverance, and determination to reach the point where one is offered a faculty position. However, the hard work is not done, and the next steps (e.g., getting your scholarly program established and productive) are often just as challenging. Apply the same strategies and approaches that got you this far: be efficient; commit to the time it will take to build your career; make plans, including a timeline for obtaining research grants and writing papers; and network with others in your field by going to meetings and interacting with the leaders in your area of scholarship. Your mentors will provide support and advice, but you must be committed to building your career and spending the time that is required for this. When you are at work, maintain your focus on the tasks at hand. Learn to be as efficient as possible, seeking guidance and

training with efficiency if necessary. Determine what is important for your career success. Make a timeline for the submission of grants supported by strong preliminary data and for the preparation of manuscripts. Be certain to attend important meetings in your field of scholarship, and make an effort to meet the leaders in the field. Your research mentor can help facilitate these meetings and your invitations to meetings to present your research. Promotion requires visibility in your area of scholarship, and investigators in the field will be asked to critique your scholarship and assess your likelihood for continued success. Maintain time for yourself and your family—and keep your creative spirits flowing. Most important, take time to reflect on why you love the job of academic medicine and enjoy the process!

Words to the Wise

- You cannot have too many mentors.
- Be certain to obtain sufficient protected time to develop scholarship.
- Set priorities and focus on them.
- Make certain your goals fit with those of the department and the institution.
- Success requires motivation and hard work.
- Understand your strengths and weaknesses and learn from your mistakes.

- Do not be afraid to take risks.
- When taking on leadership roles, consider professional leadership coaching.
- Identify colleagues at similar life stages as peer mentors.
- Do not neglect other aspects of your life; work–life balance is the key to long-term success.
- Focus on personal wellness; this is an essential component of long-term success.

Ask Your Mentor or Colleagues

- Give me honest feedback—how do you think I am doing?
- What are the next steps for my career development?
- What was the biggest mistake you made in your first position?
- What was your best decision in your first position?
- What is the best advice you can give me at this point in my career?
- How do you maintain a balance between work and the rest of your life and how do you deal with stress?
- When do you think I will be ready for a leadership role? Will you recommend me to others for this?

How to Cultivate a Culture of Belonging in Academic Medicine

Kyle Lane-McKinley and Laura Turner-Essel

Tomorrow belongs to those of us who conceive of it as belonging to everyone; who lend the best of ourselves to it, and with joy. It takes all my selves, working together, to integrate what I learn…into my consciousness and work. –Audre Lorde [1]

In 1995, the social psychologists Mark Leary and Roy Baumeister published a review of extant empirical research [2] that supported their hypothesis that the need to belong is a fundamental human motivation. In so doing they summarized and put a name to a great deal of past research into the human need for interpersonal bonds, positive attachments, and affectively pleasant interactions which had persisted in psychological scholarship since the inception of the field. For the lay person, such scholarship might by summed up in the commonsensical observation that "humans are a social animal." Yet, Baumeister and Leary sought to identify empirical evidence to support their hypothesis.

They found the evidence that they were looking for in a variety of sources, from a study of Christmas card habits to a study of the impact of loneliness on the immune system [2]. In the years since, their belonging hypothesis has taken root across a number of fields and has generated a great deal more research and scholarship. This is true particularly in the wake of acceptance of Thomas Joiner's interpersonal theory of suicide, which holds that a thwarted sense of belonging is a contributing factor to suicidal behavior. While there is little consensus as to what exactly "belonging" consists of, there is a great deal of research that demonstrates that individuals who have a strong sense of belonging flourish and that those who have a thwarted sense of belonging flounder.

It may be obvious to most readers that a sense of belonging is fundamental to the well-being of individuals and groups. Indeed, one current trend in academic medicine is a focus on general wellness and well-being and an acknowledgment that some of the most basic human needs are, in fact, quite critical to sustaining health. Unfortunately, while the need for belonging is universal, the experience of belonging in academic medicine is far from universally shared.

In the United States, academic medicine, like other STEM fields, has historically been inaccessible to women, people of color, and others with marginalized social identities. For example, Provident Hospital and Training School, the first black-owned hospital and nursing school for black women in the United States, was opened in 1891 in response to racism in medicine that made it difficult for black health care providers to train and practice [3]. Today, 130 years later,

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data still shows disparities: fewer physicians in practice identify as racial or ethnic minorities than individuals in the general population [4]. The pipeline of new physicians coming into the field is markedly more diverse than the field at large, at least in terms of gender and ethnicity [5], and yet the percentage of women graduates from medical schools has plateaued at around 47%, well below the numbers needed to achieve gender parity within the profession in the near term. The situation is decisively less diverse in the highest ranking portions of academic medicine, particularly from an intersectional perspective: among the 1742 chairs of clinical science departments surveyed in 2015 by the Association of American Medical Colleges, 1427 were white men, whereas only 64 were women of color (Fig. 1) [6].

And while there has been greater progress in achieving gender equity in academic medicine than in many other professions, that relative equity has yet to achieve parity in terms of financial compensation or job promotion [7]. Research shows that one of the reasons for these ongoing disparities may be a failure to signal to women, people of color, and first-generation students that they belong in academic medicine [8].

In a 2013 study examining the effects of exposure to information about successful women

Fig. 1 Chairs of clinical science departments, 2015. (Created with data from "The State of Women in Academic Medicine: The Pipeline and Pathways to Leadership, 2015–2016," AAMC (https://www.aamc.org/download/481206/data/2015table11.pdf). Copyright Roberts Ethics Lab, 2018)

total number of chairs of clinical science departments = 2019

■ chairs of clinical science departments held by white men

■ chairs of clinical science departments held by women of color

■ chairs of clinical science departments held by all other demographics (men of color, white women, and unknown gender and / or ethnicity)

physicians on female premed undergraduate students, Rosenthal and colleagues not only found that young women exposed to such information reported a higher interest in a medical career than those who were not exposed to such information, they also found that the same young women reported a greater sense of belonging in medical fields [8]. Here, belonging is theorized as the feeling that one fits in or is accepted in an environment. It is reasonable to assume that the key findings would similarly apply to the more elastic definitions of belonging described above. Thus, one important and relatively easy way to improve the sense of belonging in academic medicine among groups who have historically been excluded is to provide greater access to role models whose life experiences mirror those of students who might otherwise feel as though they do not belong – particularly women, those who identify as a gender minority, people of color, and first-generation college students.

Unfortunately, medical students may not have access to role models who share their own experiences. As described above, most faculty members in US medical schools identify as white and male. In 2018, only 25% of full professors in US medical schools were women; however, 79% of full professors were white [23]. This is partially the result of a recursive pattern; students who feel that members of their social group do not belong in academic medicine are unlikely to proceed to become professors in the field. Thus, it is perhaps unlikely that most institutions will ever achieve perfect equity of mirror mentorship, but this needn't prevent us from acknowledging that some students are disproportionately likely to wonder if they are welcome and to undertake specific efforts to foster a culture of belonging.

When Good, Rattan, and Dweck [9] examined men's versus women's feelings of membership and acceptance in domains of mathematics, they found that a sense of belonging was shaped in part by received stereotypes about women's innate abilities in mathematics. In studying the impact of these stereotypes on undergraduate students at an elite university, Good and colleagues parsed the stereotypes into two sets of beliefs and examined how the reiteration of such beliefs, particularly by teachers and mentors, contributed to ongoing gaps between male and female pursuit of careers in mathematics fields. The first set of beliefs was characterized as "environmental entity theory," referring to the belief that the mathematic ability or intelligence of any given individual is a fixed and permanent entity. The second set of beliefs was characterized as "environmental stereotyping," referring to the sense that entire groups of people (women in this study, but similar stereotypes exist for African-American, Native American, and Latinx students, among other historically marginalized groups) are innately bad at math [9; p 708]. The authors theorized connections between these persistent beliefs or stereotypes and a "culture of talent" that pervades mathematics fields and results in a number of unwelcome outcomes. While Good, Rattan, and Dweck examined the impacts of stereotypes and the "culture of talent" in mathematics, it is easy to see how these unexamined stereotypes and beliefs apply similarly in academic medicine [9].

Taken together, the studies by Rosenthal and colleagues and Good, Rattan, and Dweck and the body of research that they represent tell two sides of a complex picture. On one hand, we see that when young women are exposed to stories of successful women in a field, the young women experience a greater sense of belonging in that field and stated interest in pursuing careers in that field improve. On the other hand, we see that when young women are exposed to negative stereotypes which imply that women are somehow categorically or biologically inferior in certain intellectual domains compared to men, those young women have a sense of not belonging in those fields. In both cases, the sense that women belong or do not belong is shown to be shaped not so much by their abilities, but by social and environmental cues about who is part of the community. These same cues about belonging apply equally, although differently, to people of color, as shown below. Thinking critically about the manner in which individuals and institutions convey such cues, whether consciously or unconsciously, can provide signals for how to modify behaviors

and environments in order to better create a culture in which members of all social identities feel that they belong.

Belonging in Medical Students and Residents

Research suggests that academic performance is negatively affected by the belief that one does not belong in a given field [8, 9]. Efforts to improve the culture of belonging in medical education are likely to improve academic outcomes for those who have been excluded from medical fields in the past. Education researchers have, for decades, examined factors that influence students' sense of belonging within a given institution, program, field of study, or cohort. A review of relevant literature on the subject and reflections on best practices in undergraduate education reveals a few approaches that could make a substantial difference in students' assessment of whether they belong in academic medicine:

1. *Acknowledge the challenges*. It will come as a surprise to no one that medical school is a challenging experience. The vast majority of medical students struggle with one or more aspects of their education. And yet, the experiences that students have when confronting challenges are likely to be dramatically different from one another, shaped in part by their social identities, and reflective of whether or not they perceive themselves to belong in academic medicine. As Yeager and colleagues have shown (2016) [12], when encountering a challenge or setback, a student who believes herself to belong in the course, discipline, or institution will interpret the challenge as a common experience and strive to overcome it. That interpretation initiates a recursive process which sustains the student's engagement and leads to overcoming greater challenges and thus to higher achievement. In contrast, research by Steele (1997) demonstrated that when students enter an academic environment in which their racial and/or gender identity groups are generally stereotyped to perform poorly, they will face the additional burden of disconfirming this stereotyped perception [10]. This burden of countering stereotypes requires substantial cognitive resources and has been shown to undermine female and underrepresented minority students' exam performance and level of identification with the academic environment [11].

A student who maintains membership in a group facing social disadvantage in higher education, whether that membership is based on ethnicity, gender, class, sexuality, ability, or other social identity factors, has been cued in advance to question whether she truly belongs in the course where she is encountering challenges. Given those cues, she is likely to have a different experience when she encounters challenges or setbacks, possibly wondering if she doesn't fit in or cannot succeed regardless of how hard she tries. This type of interpretation equally leads to a recursive pattern: here, the student's determination that she does not, in fact, belong may lead to withdrawal, isolation, and diminished results as well as negative psychological effects [12, 13].

Given the persistence of these self-reinforcing patterns and the breadth of their potential impact, it is best for educators to signal to all of their students that they do, indeed, belong in academic medicine and that while they will encounter challenges, those challenges can be overcome. Some students are predisposed to believe that they belong in academic medicine; they may have family members who are successful doctors or professors, and they are disproportionately likely to encounter educators and leaders in the field whose social identities match their own. A white male whose parents and grandparents were medical doctors is unlikely to conclude that he is not welcome in academic medicine, for example. Other students, by contrast, are disproportionately unlikely to have family members in STEM fields or to encounter educators and leaders in the field whose experiences mirror their own. Openly recognizing this, and addressing it head-on, helps to alleviate the "burden of proof" that disproportionately falls upon students from

historically marginalized groups. Emphasizing the normality and surmountable nature of challenges facing new medical school trainees is helpful to all students, especially to those already harboring doubt that they are a good fit for the environment.

2. *Spread the mission*. Administration and leadership must encourage all members of the institution to understand belonging as central to the educational mission, not as an afterthought or a type of favor designed to benefit only those students identified as "disadvantaged." Educators are likely to feel that their teaching is already welcoming to all students, precisely because they do not personally harbor any conscious malice or ill will toward students from historically marginalized groups. The absence of malice is not the same as actively signaling belonging. Institutional commitments to racial and gender equity signal to faculty and students alike that inclusion and belonging are shared values backed by the authority of the establishment, existing in alignment with the mission of the institution. In this way, all students can be welcomed to contribute to a culture of belonging in tandem (and not in competition) with their educational goals.

3. *Foster belonging by interrupting bias*. For the purposes of this chapter, "belonging" is understood as not only the absence of signifiers which might signal to a student that she is not welcome in a classroom or discipline but also the positive presence of signals which help the student believe that she is a welcome and integral part of an academic community. We refer to such active attempts to make people feel welcome as "reaching out," and below we have provided a list of practical tactics for integrating such attempts into the academic environment. Because of the pernicious ways in which unconscious bias undermines a sense of belonging, strategies for interrupting implicit bias are integral to this task.

Elsewhere in this collection is a chapter dedicated explicitly to examining the role that unconscious bias on behalf of faculty members plays in shaping the experiences of women and racial or ethnic minorities in aca-

demic medicine and how we might counteract those biases by recognizing, interrogating, and reframing them (see chapter "How to Recognize and Address Unconscious Bias"). For our purposes here, we are more specifically interested in how unconscious bias may thwart a culture of belonging and how specific practices of belonging and inclusion may be helpful in the broader effort to undo the negative impacts that unconscious biases have had in the field of academic medicine.

Devine et al. (2012) tested the implementation of five habit-breaking strategies for reducing implicit bias in a 12-week longitudinal study and found significant reductions in implicit bias among participants [14]. In adapting the five strategies studied by Devine et al. to the broader task of cultivating a culture of belonging, we have expanded these strategies to include concrete suggestions for how faculty members might reach out to students and trainees who are likely to question their belonging:

(a) *Stereotype replacement*. This strategy involves replacing stereotypical responses with non-stereotypical responses. Using this strategy to address personal stereotyping involves recognizing that a response is based on stereotypes, labeling the response as stereotypical, and reflecting on why the response occurred. After considering how the biased response could be avoided in the future, the biased response is replaced with an unbiased response. A similar process can be applied to societal (e.g., media) stereotyping.

(b) *Respect for the gender identity of students*. Supporting the belonging of transgender and gender nonconforming individuals includes, but is not limited to, learning the preferred personal pronouns of all members of a class or research team and respecting those pronouns. For more on this subject, see the breakout box on pronoun declarations.

(c) *Counter-stereotypic imaging*. This strategy involves imagining counter-stereotypic others in detail. These others can be abstract (e.g., smart Black people), famous

(e.g., Barack Obama), or non-famous (e.g., a personal friend). This strategy makes positive exemplars salient and accessible when challenging a stereotype's validity.

(d) *People-first language*. Language and terminology which emphasizes the personhood and humanity of members of particular social groups first, such as "people of color," or "a person who uses a wheelchair," makes it clear to students that individuals of any and all social identity groups are recognized in their shared humanity, first and foremost.

(e) *Individuation*. This strategy relies on preventing stereotypic inferences by obtaining specific information about group members. Using this strategy helps people evaluate members of the target group based on personal, rather than group-based, attributes.

(f) *Step-up, step-back*. This strategy involves self-recognition of the ways that each of us have been socialized to engage with groups and conscious efforts to push our comfort levels. For those who have been socialized to be quiet observers, or who might wonder if they do not belong in a group, this means "stepping up" to have a more active role. Conversely, for those who have been trained to be the louder voices in the room, this means "stepping back" to share the spotlight and listen to others.

(g) *Perspective taking*. This strategy involves taking the perspective in the first person of a member of a stereotyped group. Perspective taking increases psychological closeness to the stigmatized group, which ameliorates automatic group-based evaluations.

(h) *Conflict mediation*. By acknowledging differences of opinion and experience within the learning environment and facilitating conversation in which individuals with differing perspectives can hear one another, leaders in academic medicine encourage healthy debate, which strengthens science and health outcomes. Ideally, individuals come to respect one another's positions, even if they do not come to agreement.

(i) *Increasing opportunities for contact*. This strategy involves seeking opportunities to encounter and engage in positive interactions with out-group members. Increased contact can ameliorate implicit bias through a wide variety of mechanisms, including altering the cognitive representations of the group or by directly improving evaluations of the group.

(j) *Rejecting the deficit model of education*. The assumption that students and trainees come to the academic setting "empty" to be filled from the cup of knowledge possessed by the instructor not only devalues the prior experiences of students but also reduces knowledge and understanding to abstract and quantifiable information. In rejecting "deficit models," educators foster an environment in which all members of an educational community are there to learn from each other.

Administrators and faculty members invested in fostering a sense of belonging among trainees could adopt these practices to better counteract their own unintentional biases and could also integrate these strategies into the fabric of their training programs and workplaces in order to cultivate belonging for all members of the medical community. Such simple interventions, especially when coupled with larger systemic shifts in policy and institutional culture, can have a significant and lasting impact on learners' experience and successful entry into the field.

4. *Encourage dialogue*. When literary theorist Benedict Anderson described the notion of "imagined communities" in 1982 [22], he was primarily thinking of the manner in which citizens of a nation come to imagine themselves as sharing a community despite dispersal and separation over great distances. Looking particularly to the role of nineteenth-century national novels in the emergence of such imagined communities, Anderson was keen to note the role that newspapers played in shaping the shared and simultaneous experience of events. Additionally, he noted the ways that particular phrases or terms began to relay specific and shared meanings to readers and, by extension, to the broader community of citizens.

Pronoun Declarations

The past decade has witnessed a remarkable shift in the social acceptance of Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) individuals within broad sectors of American life. For transgender and nonbinary individuals, gains in social acceptance have coincided with an updated diagnosis of gender dysphoria in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, a reflection of social and cultural struggles of the LGBTQ community and advocacy within academic medicine. Even as the American Psychiatric Association has formally recognized that the harms associated gender dysphoria stem from social stigma and prejudice against transgender and nonbinary individuals, rather than from those identities themselves, many members of academic medicine have lagged in understanding how to put their intellectual acceptance into practice in educational, clinical, and professional contexts.

Welcoming transgender and gender nonconforming individuals into these contexts proceeds from a crucial shift in the way that we relate to gender. Rather than assuming a person's gender and pronouns based on their visual gender presentation, we can discover those aspects of a person based on their stated preferences. Put simply, rather than telling, we can ask. In educational and professional contexts, the simple act of asking can generally be accomplished in a destigmatized manner simply by including personal pronouns as part of how we introduce ourselves. When a new class or research group first convenes, for example, each participant, including the professor or PI, can introduce themselves with their name, background, and the personal pronouns that they are most comfortable with, such as "he/him," "she/her," "they/them," or "ze/zir." Such introductions may feel awkward at first, particularly to cisgendered individuals who have never questioned their gender identity, but awkwardness passes quickly as all members

of a community become accustomed to the notion that they can be fully themselves in context of academic medicine.

Because gender identity is not reducible to either biological markers or the visual presentation of gender norms, occasionally misgendering an individual is all but inevitable. Everyone makes mistakes – the key is to acknowledge and apologize for mistakes without defensiveness. As leaders in academic medicine, it is important not only to acknowledge and apologize for our own mistakes but also to take note of, reach out, and, where possible, make a polite correction when others make mistakes as well. This sets a tone of respect for all persons' autonomy in regard to gender identity and relieves transgender or gender nonconforming individuals from the burden of pointing out transphobic language or misgendering behavior. In this way, the work of creating an environment where it is clear that members of the academic community who are transgender or nonbinary belong is shared by all members of the institution.

Anderson's notion that communities of individuals who are too numerous and too dispersed to ever actually meet one another develop a sense of commonality through shared texts and shared discourse is helpful to the task of creating a greater culture of belonging in academic medicine. First, it highlights the manner in which access to shared language and understandings are important for inclusion and participation in what have come to be known as "discourse communities." Second, it serves as a reminder that the emergence of highly specific discourses can tend to be divisive or exclusionary.

Linguists and anthropologists have been particularly keen to observe the emergence of highly specialized language in medical science in recent decades, as well as the particular and uneven language used in addressing patients, as chronicled by Wilce (2003) in a survey of

medical discourse. Wilce noted that "the emergence of the scientific article; clinical chart note; medical textbook and atlas; historiettes ("little histories"); and case studies fusing fictional-narrative and scientific features enabled medicine to constitute itself as a science and tool of power" [15]. But, he explained, contemporary medical writing is predisposed toward an informational style and case-derived statistics. This evolution in medical writing is suggestive of possible changes in medical education. Just as the published discourse of peer-reviewed journals has necessarily grown increasingly specialized to cope with the proliferation of specialized knowledges, medical education may conversely serve as a site for articulation of shared discourses, ideas, and principles which unite all members of the field, regardless of specialty.

STEM fields generally, and academic medicine in particular, are notoriously rife with highly specific terms, abbreviations, and acronyms. Such specificity is largely inevitable in fields which are highly specialized almost by definition, both out of convenience and as an artifact of the discourse communities discussed above. And yet, there are likely aspects of study within even the narrowest subspecialties that would be of interest to readers across the medical sciences or even the public at large. Researchers across all of academic medicine are likely to have reflections on ethical questions of justice, beneficence, and autonomy in their work. Sharing these reflections with colleagues in other specialties or with the public at large not only broadens the community of individuals who can engage meaningfully with the subject but also creates the possibility for dialogue and collaboration. This, in turn, could lead to new breakthroughs. Discussions can be framed in language which is accessible to the broader public. Such efforts reinforce public trust in academic medicine and scientific inquiry, which is crucial to the viability of the field.

5. *Kindle safer spaces*. The notions of "safe spaces" and "trigger warnings" have gained national attention in recent years. Some in the media and politics have pushed back against the notion that the spaces of academic learning might be emotionally unsafe for some students or that educational materials might trigger emotional responses from students who have suffered traumatic experiences in their pasts. Without indulging too much of this debate here, it is notable that everyone seems to agree that educational spaces *should* feel safe to all students and that educational materials *should not* trigger adverse reactions, which is to say that the debate is largely about whether claims that some spaces do not feel safe and that some content might be triggering are legitimate or not. We believe that students would not go to the trouble and reputational risk of articulating these claims if their experiences were not real and serious.

Of course, it is probably impossible for an educational space to be completely safe for all students all of the time. In recognizing that, many social activist groups have modified the nomenclature to reflect the stated intent and aspirational character of the anti-oppression frameworks that they deploy, referring to "safer spaces" rather than "safe spaces" [16].

It is helpful to consider that "safer" spaces are not necessarily comfortable spaces, especially when directly addressing sensitive and sometimes controversial social realities of identity. This may be especially true for those that have historically benefitted from unjust and unequitable social policies and structures. Thus, facilitating difficult conversations with the ultimate aim of creating a more inclusive environment may initially feel uncomfortable for some, and shifts in institutional culture required for true diversity will be accompanied with a sense of distress for those accustomed to holding privileged positions. This distress is to be expected and is ironically a sign of progress. It is also critical to realize that historically, academic and professional spaces have been crafted (both intentionally and unintentionally) to feel "safe" only for dominant groups – namely, upper middle class, heterosexual, cisgendered white men – in both the content and process of education and evalua-

tion, at the expense of all other social groups [17]. It is likely helpful for educators to think about how to make their classroom spaces relatively safe and their educational practices relatively egalitarian while acknowledging practical limitations to these aspirations.

6. *Practice cultural humility*. Worthington et al. (2015) explored the relationship between humility and well-being, ultimately concluding that the benefits of humility are substantial for both the individual and those around them [18]. Here humility is characterized by an accurate self-appraisal of strengths and limitations, interpersonal modesty, and a "warm, other-oriented self-focus" [19]. Worthington and colleagues define cultural humility as a relational humility regarding people or groups from cultures different from one's own and note that such an attitude includes respect for others as individuals with their own idiosyncratic beliefs or preferences while recognizing the substantial role that cultural backgrounds play in shaping individual experience.

   For effective mentorship of underrepresented racial or ethnic minorities, the attitude of cultural humility goes beyond notions of cultural competency discussed above to include a recursive introspection into the mentor's position within institutions and within society. Cultural competency proceeds from a well-intentioned standpoint of developing awareness and literacy in a culture other than one's own, which can indeed prove important in signaling that historically underrepresented groups belong within a discipline. Cultural humility extends such inquiry to an attitude of self-reflection and self-critique in which the mentor re-evaluates power imbalances between the mentor and mentee in pursuit of mutually beneficial outcomes and justice for everyone involved [20]. In contrast with a view of culture as finite and knowable, which reductive versions of the cultural competence model might lead one to, cultural humility encounters culture as mutable, evolving, and present in the lived experience of each individual of a cultural group. The mentor or educator becomes attuned to the likelihood that she will learn something new from each student she encounters. As Walters et al. (2016) note about cultural humility, "as a first step in building a positive working alliance, this model requires the mentor to relinquish the role of cultural expert to the trainee" [21].

It is hardly coincidental that this description of the role of cultural humility in creating a more egalitarian classroom environment runs parallel to that described above in the section on rejecting the deficit model of education. Each of these suggested strategies for creating a culture of belonging calls on members of the institution to examine their underlying epistemological assumptions about the status of knowledge and the role of the teacher/student or mentor/mentee. Similarly, each strategy demands that teachers and mentors return to this process of examination periodically in order to recursively check in on their successes and shortcomings. To the extent that such iterative processes of re-examination can be integrated into the culture and workflows of academic medicine, these strategies thereby constitute the limit case for how best to cultivate a culture of belonging within academic medicine.

7. *Encourage multiple domains of belonging*. Throughout this chapter we have examined the benefits of developing a culture of belonging in academic medicine and explored some likely areas where such a culture might be extended. The benefits of a culture of belonging are manifold, extending to individual members of our institutions, to communities within and across such institutions, to the institutions themselves, and even to the broader pursuit of knowledge. There is one paradox at the heart of belonging that we have not yet examined and which may leave some members of our communities particularly vulnerable. This paradox can be characterized as the fragility of a single point of belonging.

   Let us unpack the concept through an anecdote: imagine a prototypical student at a medical school. Imagine that she became interested in the ideas of biological sciences at a young age and found that she excelled in her studies. Without any family members who attended

college, she is driven to become a medical doctor, a commitment which is made that much more ambitious because she is a member of an underrepresented racial minority and has never encountered a doctor who looks like her or her family. Despite these challenges she went on to attend an elite institution for undergraduate study and has been accepted to a prestigious medical program. Upon arrival at this program, she struggles to develop meaningful relationships with mentors or members of her cohort. The rigor of her studies and the pressures to advance quickly have left her little time for outside interests. Both her undergraduate institution and her professional training have taken her far from the region where she grew up, so she struggles to maintain close connections to family members. Moreover, few members of her family have interest or vocabulary to converse in the matters which fill her mind and take up her time. For many years she has derived a strong sense of belonging from her role as a student and her career pathway in medicine. And yet now, just as the scholastic pressures reach a zenith, she feels as though she has no one to speak with about her everyday life experiences. She does not feel as

though she belongs, even within academic medicine, and that sense of not belonging is all the more troubling precisely because she has derived so much of her sense of belonging from that one identity.

The paradoxical vulnerability of a single and strong domain of belonging is not unique to the experiences of historically marginalized communities. A white man from a middle-class background might also become solely identified with his identity as a doctor or medical researcher. However, in a society dominated by white masculinity, he is disproportionately more likely to encounter additional domains of belonging – interests and activities which welcome and invite him in. Cultivation of a broader culture of belonging thus entails the fostering of opportunities for belonging which are open to everyone but particularly attuned to the experiences of those who have historically been signaled that they do not belong.

As Fig. 2 illustrates, an individual can experience various levels of belonging in different contexts. Belonging can be mapped onto a number of domains (Fig. 3) both in one's personal and professional life. Belonging

Fig. 2 Belonging. (Copyright Roberts Ethics Lab, 2018)

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Fig. 3 Multiple domains of belonging. (Copyright Roberts Ethics Lab, 2018)

Multiple domains of belonging

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requires that individuals feel safe and respected, that individuals feel they are a valued member of a larger group, that individuals feel they have proper emotional support, and that individuals feel that the challenges they encounter are difficulties which can be overcome. Here educational and professional domains of belonging are depicted as separate from personal and community life, although these separations are somewhat arbitrary. It should also be noted that the number and scope of these domains will undoubtedly differ across individuals.

From the perspective of educators, mentors, and policy makers, the key message is to foster a culture of belonging wherever possible (the classroom, the research team, the academic department or discipline, and the home institution). By listening to students' experiences, organizational leaders can more effectively promote those practices which will help to signal belonging across numerous domains (including community organizations, cultural affiliations, church groups, etc.).

Words to the Wise

- Openly acknowledge the challenges facing all medical students and residents, but especially those with membership in historically marginalized groups. Institutional leaders must develop their own awareness of and reflection upon the larger social pressures and dynamics which are often reproduced in education and training settings.
- Explicitly declare belonging as a valued element of your institutional mission.
- Commit to actively interrupting bias on individual and systemic levels within your organization. Viewing bias as a learned habit and not a personal flaw helps to address bias more practically and effectively.
- Encourage sharing and exploration of thoughts and ideas across specialties and fields in order to broaden students' sense of belonging, and accountability, to scholars and communities far beyond their immediate discipline.
- Use language and communication strategies that emphasize the worth, value, and dignity of people first and foremost. This includes

recognizing when difficult or uncomfortable conversations need to happen, for the growth and well-being of all.

- Encourage students and residents to cultivate a sense of belonging and identification across multiple life domains, not just professional domains. Leaders should model this as well.

Ask Your Mentor or Colleagues

- In what domains have you felt a strong sense of belonging and inclusion (see Fig. 1), and what specific factors or experiences signaled to you that you belonged?
- Have you ever experienced a thwarted sense of belonging? How did you respond?
- What responsibilities does an individual have in achieving a personal sense of belonging in medicine, and what responsibilities lie with the training institution or department?
- How can one integrate bias interruption and cultural humility into their daily work and learning activities?
- How can mentors and mentees with very different identities still foster a strong sense of belonging?

Key Definitions

- Belonging: the human emotional need to be an accepted member of a group or community
- Stereotype threat: phenomena whereby worry about conforming to a negative stereotype leads to underperformance on a test or other task by a member of the stereotyped group
- Cultural humility: a relational humility (modesty, lack of arrogance) regarding people or groups from cultures different from one's own
- Implicit bias: preconceived opinion in favor or against a thing, person, or group which operates below conscious awareness
- Identity: an internalized system that integrates an individual's inner self and the outer social world into a congruent whole

- Community: a group of people with a common characteristic, history, or interest functioning in relationship with one another

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Part II

Getting Established

How to Prepare the Best Possible Curriculum Vitae

Heather Kenna Hall

The curriculum vitae (CV) is critical for early success in academic medicine. The CV should chronicle the academic physician's developing career in a way that provides a detailed overview of one's particular expertise and skill set in a clear and organized fashion. Over the course of a career in academic medicine, the CV can grow from a few pages in length to double-digit (and sometimes triple-digit) pages.

Learning to prepare a good CV early in one's career will aid the academic faculty member throughout his or her professional life, because the CV and its subspecies (e.g., bio sketch, resume, dossier) are vital to the scholar in academic medicine for achievement of institutional advancement and research funding [1, 2]. Some experts recommend maintaining two versions of the CV—one, a short summary of training and experiences, and the other, a longer version with more detailed information about scholarly work. Because of the nature of the medical profession, in which the years of preparation are highly structured and generally comparable from institution to institution, a chronological format for the academic medicine CV is often preferred.

Despite its multiple purposes, the CV must be restructured or rewritten, or at least reviewed, for each purpose for which it is to be used. For example, if the academic physician is submitting an application for membership in a community organization, it might not be appropriate to include a lengthy list of publications in the CV, whereas it would be imperative to include this information in a CV submitted to obtain an academic position.

Commit to Keeping the CV Updated

For the early-career academic faculty member in medicine, the CV should be valued as a "living document" that is kept updated in a systematic, chronological manner. Although this may seem to be a daunting task, with effort and a bit of planning, one can develop a system to track CV data in a way that works well for individual schedules and lifestyles.

Find a way that works well for tracking data for the CV. Consider using a CV database, such as in Microsoft Excel or Endnote, to which publications, conference proceedings, lectures, honors and awards, committee work, and community service (among others) might be added in an ongoing fashion. Or use an old-fashioned box or accordion file to collect hard copy evidence of talks, papers, committees, teaching, and other academic activities. The key is to periodically review one's files to update the content of the CV. However one can achieve this task, it will

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reward the academic physician with a blossoming textual history of one's work—a history that clearly communicates one's unique interests and expertise.

Consideration of CV Format

In academic medicine, the CV should summarize education and training in one's field, as well as one's scholarship, leadership, and other qualifications specific to the missions of academia (i.e., education, research, clinical service). CV length will vary depending on individual academic achievements (e.g., publications, conference proceedings, lectures, institutional and professional service). Although the content in one's CV should follow an institution's suggested format and emphasize data related to the institution's mission and goals, the CV should generally always contain the following:

- Demographic and academic data: Name and contact information, academic and faculty rank and positions, education and training, board certifications, licensures (if applicable), and military service. For privacy purposes, it is strongly recommended that personal information, like date of birth, place of birth, or Social Security numbers, never be included on one's CV for any reason. If an institution requires that this information be included in some fashion, include it on a separate page that can be included only for confidential institutional purposes.
- Professional affiliations and leadership: Professional society memberships, including offices held and committee responsibilities.
- Faculty roles and activities: Typically includes research, education, and clinical roles, along with community service and local leadership roles.
- Scholarly representation and recognition: Bibliography (e.g., articles, book chapters, books), presentations at professional meetings, research grants and awards, manuscript review and editorial service, and grant review service.

Subheadings are helpful to organize the content of the CV and make it easy for reviewers. Presented in the appendix is a simple, sample CV formatted to reflect Professional Experience, Education, Credentials, Bibliography, Teaching and Mentoring, and Professional Organization Membership and Service. Other section subheadings may also be used, as needed, to reflect more unique categories of experience and/or expertise. Avoid duplication of listings of activities across subsections where possible.

In preparing the CV, consider the mission goals of the institution for which it is geared. Inclusion of one's h index, metrics on the impact factor of a given journal at the time of publication, or other "altmetrics" may serve well for an institution with a major focus on scholarly research [3]. Is the institution strongly committed to community partnership? If so, the candidate might consider creating a special subsection in the CV to highlight specific work in this area (e.g., community lectures on disease X or syndrome Y, local volunteer service).

Be sure to check the CV formatting requirements specific to a particular institution. For example, some institutions require publications to be clustered and subtitled in a particular way, such as "Peer Reviewed" and "Non-Peer Reviewed" or "Invited," as opposed to a larger combined, chronological list of publications and other scholarly activities that may also include conference proceedings and lectures. Some institutions prefer that the physician's name be in bold within the bibliography to aid reviewers with respect to authorship order.

"Team Science" Annotations in the Bibliography and Research Funding Sections

Authorship practices across disciplines in academic medicine follow a traditional pattern in which the first author listed is the primary author and the last author listed is the senior author associated with the work [4]. There is a growing prevalence of collaborative "team science" scholarly work in academic medicine, which can create a challenge for reviewers (e.g., grant or

academic committee members) to determine the nature of individual substantive contributions to middle-authored works listed in a CV (i.e., those not first- or senior-authored). As such, annotations are increasingly used in bibliographies to provide clarification. Annotations also allow the opportunity to *highlight* unique contributions across studies and collaborative work. This practice may be especially useful for early-career academic faculty members, who may have a greater proportion of middle-authored publications on their CVs and wish to highlight their work on a substantive paper in a high-impact journal. Annotation format and content may vary but usually include a brief statement of one's role in a publication, such as involvement in the conception and design of a study, acquisition of data, statistical analysis and interpretation of data, and/or drafting of the manuscript. As one's career flourishes and publications increase in number, annotations may be reserved for use in more recent and/or higher-impact papers. The following provides an example from an (fictional) annotated middle-authored paper:

- Forte C., Smith J.,[1]* & Klein, A. (2011). Adrenal gland dysfunction in patients with vascular dementia. *International Journal of Dementia Research*, 43(7), 29–38.

In some situations, a brief "blanket" description of authorship practices may obviate the need to annotate individual bibliographic citations. For example, consider a physician whose role is the same across multiple collaborative works and who participates extensively in the organization and performance of multicenter clinical trials coordinated by a national group. For this academic faculty member, relevant bibliographic entries might reference a single footnote briefly describing the recurrent individual role in trial design, implementation, analysis, and authorship. Similar to "team science" annotations on scholarly research products are annotations on research grants and contracts involving a Co-Investigator or other supporting role. In these cases, it may inform the reviewer if one includes a brief annotation about their specific role if not clear from the "Co-Investigator" title, such as service as a Study Physician on a clinical trial or clinical interpretation of patient measures or outcomes. Avoid lengthy explanations or statements within the CV and refer reviewers to one's personal statement if detailed information would be helpful or provide supplemental information on a scholarly product or research project.

The Bio Sketch

Many research grant and award applications require a bio sketch, much like a shortened version of the CV that summarizes your training and experiences. With more experienced applicants who have extensive publications, the bio sketch can be used to highlight specific nuances of the academic's expertise as relevant to a particular grant application. The National Institutes of Health provides an overview of the bio sketch on its Web site (see Suggested Reading at the end of this chapter). The newer NIH bio sketch format includes a personal statement, as well as a section on ones's "Contribution to Science." It is recommended that earlier career academic physicians work with institutional research grant management professionals and academic mentors to develop this section to best highlight areas of focus and scientific themes.

The Personal Statement

Almost every application process requires a personal or autobiographical statement, whether as a separate document or in the form of a cover letter, of varying length. The personal statement in an NIH bio sketch, generally about one-third to one-half of a page in length, is meant to summarize the academic physician's experience and expertise in a relevant field and succinctly convey his or her particular value to an intended proposal [5]. Generally speaking, a personal statement should not simply reiterate one's CV but rather should serve to complement and supplement the CV with a description of the academic physician's qualifi-

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[1]Conducted patient interviews and statistical analysis of data and drafted sections of the manuscript.

cations and strengths in narrative form. Like a CV, the personal statement is written for a specific purpose or position, and it aims to convey to the reader how and why the academic physician is qualified for the position to which he or she is applying. The academic physician may want to emphasize the reason for his or her interest in a particular specialty at a particular program or institute.

The personal statement should highlight items in the CV that make the academic faculty member well prepared for a particular position. It is the physician's opportunity to expand upon activities listed in the CV but deserving of greater description so that the reader can appreciate the breadth and depth of one's involvement in the proposed study. The academic physician may also choose to relate significant personal experiences, but only if they are relevant to the application. Lastly, the personal statement is the appropriate place to specify one's professional goals. It offers the opportunity to outline clear, realistic, and carefully considered goals that will leave the reader with a strong impression of one's maturity, self-awareness, and character.

The importance of good writing skills for the personal statement cannot be overemphasized. The quality of the writing in the personal statement is at least as important as its content. Be sure to write in complete sentences and avoid abbreviations, repetitive sentence structure, and jargon. Use a dictionary, thesaurus, and spell-check program. Remember, in the early part of one's academic progress, the personal statement is the closest thing the reviewers have to knowing the academic faculty member personally.

Words to the Wise

- Remember that an application form is limited to the few things that a particular institution wants to know about everybody, whereas the CV allows the opportunity to present information that is unique. Add all key accomplishments and activities in the initial draft. In subsequent drafts, remove information that may not be pertinent.
- Resist the temptation to append explanatory sentences or language, which will distract the reader from the basic information being presented. The language of a CV should be abbreviated and succinct. Express yourself in the personal or biographical statement.
- Be honest! If accomplishments are lacking in a particular category, leave out the category rather than try to create accomplishments to fill in the space. Be specific about the level of participation in a project or an activity, but avoid being misleading.
- Remember that first impressions leave lasting memories. Typographical and grammatical errors, inconsistent formatting, and other presentation flaws reflect poorly on the academic faculty member. Be sure to closely review the final CV draft, and seek editorial scrutiny where possible. Ask colleagues and/or mentors to review the CV and provide additions and revisions.

Ask Your Mentor or Colleagues

- Can you look over my CV and give me feedback on its content and format?
- What strengths and weakness do you feel are reflected in my CV?
- Do you think I am on track for success? If not, what would you recommend that I do?
- Are there any institutional or other professional resources that you suggest I utilize to help me reach my academic goals?

Appendix: Sample CV

Janet Doe, M.D.
101 Main Street
San Francisco, CA
Phone: 555-555-5555
Cell: 555-666-6666
E-mail: email@email.com

PROFESSIONAL EXPERIENCE
Attending Physician
2010 to present
San Francisco General Hospital
San Francisco, CA
Clinical Assistant Professor
2010–2018

Department of Psychiatry
University of California, San Francisco
Clinical Associate Professor
2018 to present
Department of Psychiatry
University of California, San Francisco

EDUCATION
B.S. in Biology, 2000
University of California, Berkeley
M.D., 2004
School of Medicine, University of California, San Francisco
Residency in Psychiatry, 2004–2008
San Francisco General Hospital
Fellowship in Child and Adolescent Psychiatry, 2008–2010
Stanford University Department of Psychiatry and Behavioral Sciences

CREDENTIALS
American Board of Psychiatry and Neurology
Board-Certified in Psychiatry, 2009
Board-Certified in Child and Adolescent Psychiatry, 2011
California Medical License #ABC123, 2008

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Peer-Reviewed Publications
Miller S, Doe J, Johnson D. (2017). Psychiatric medication efficacy in toddlers. *Journal of Family Practice, 23*, 1–14.
Doe J, Smith A. (2018). A community study to preventing drug abuse in children. *Journal of Drug Abuse Research, 17*, 22–30.
Presentations
"Conduct Disorder and Drugs of Abuse"
Annual Meeting of the American Psychiatric Association
May, 2016
"Current Treatment Models for Adolescent Drug Abuse"
East Bay Community Foundation
February, 2018

TEACHING AND MENTORING
Instructor, *Introduction to Clinical Interviewing* (Medical Students)
Fall semester of 2015, 2016, 2017

Department of Psychiatry
University of California, San Francisco
Mentor, McCarthy Medical Scholars Program
2015 to present
University of California, San Francisco
Course Director, *Pediatric Psychopharmacology* (Psychiatry Residents)
2017 to present
Department of Psychiatry
University of California, San Francisco

PROFESSIONAL MEMBERSHIPS AND SERVICE
Member
2010 to present, American Medical Association
2015 to present, US Psychiatric Association
2017 to present, US Association of Women in Psychiatry
Service
2015 to present, Manuscript Reviewer, *Journal of Alcohol Research*
2017–2018, Grant Reviewer, Foundation for Drug Abuse Research

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Suggested Reading

National Institutes of Health bio sketch samples.: http://grants.nih.gov/grants/funding/phs398/phs398.html.
National Institutes of Health Office of Intramural Training & Education: https://www.training.nih.gov/careers/careercenter.
Purdue Online Writing Lab: http://owl.english.purdue.edu/owl/resource/642/01/.

How to Interview for a First Academic Position

Robert P. Chayer and Jon A. Lehrmann

One of the most important conversations that an academic clinician may ever have in his or her career could be the first one. The initial interview may well be key in regard to defining the clinician's role, impact, and eventual success. The ability to determine one's alignment with academic goals and fit within a department can jump-start a career. The initial interview is a critical conversation that initiates what could be a lifelong relationship and defines a potential new faculty member's value, worth, and salary. Despite its significance, clinicians and scientists routinely receive little training or practice in preparation for the initial interview. Perhaps more importantly, they do not learn about the process of negotiating a contract. While it is true that all physicians interview for medical school and for a residency, interviewing for the first academic medicine job is very different. In interviewing for medical school and residency, there is an assessment of overall fit from both sides of the interview, but unlike interviewing for an aca-

demic position, salary is not negotiated, and there is really no negotiating over the specifics for the job. Both medical school and residency are essentially temporary arrangements. With careful negotiation, in contrast, the academic faculty member could be establishing a relationship that would serve him or her well through an entire career. This chapter introduces and discusses best practices in the interviewing process and common missteps. For information on negotiating, see chapters "How to Evaluate a Letter of Offer or Contract" and "How to Negotiate."

Assessment

What kind of job would be ideal? Perhaps the first and most important step in the interview process is assessing exactly what kind of job one is looking for and what additional factors are critical (or merely important). The candidate should take time to focus on his or her interests, needs, and goals. It is time well spent to sit down and write out the perfect job scenario. This exercise should include at least location (city/department), inpatient/outpatient balance, on-call requirements, nature of the clinical work, variety of the patient mix, opportunities for mentorship and/or interaction with colleagues, established faculty development programs, opportunity for advancement, protected academic or research time, and stability of job or of job funding. Other factors to explore

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that may affect the selection of job opportunities include location or employment, needs of a significant other or other family members, or perhaps locating colleagues in a specific area of research interest and finding a department that has the technology or research support to help one become successful. List all of these factors and rank them by value/priority. It is helpful to be clear about what exactly one is looking for. Academic jobs can vary significantly depending on the medical field, the culture of the department, and the size and flexibility of the department. The candidate also needs to understand his or her strengths, weaknesses, and preferences (see chapter "How to Prepare and Strategize for Academic Promotion").

Assessing a department's strengths, weaknesses, culture, and its overall fit in relation to one's own research/academic interests is another critical task to accomplish during the interview. For example, mentorship is critical for academic and personal development. Does a particular department (and associated medical school) have potential mentors that fit the needs one has identified, and do these individuals provide the opportunity for mentorship?

It is valuable to know some "insiders" in a target department to get the necessary information and begin to assess the department's potential "fit." Consider asking current colleagues or faculty whom they might know at the institutions of interest. It may also be beneficial to review alumni Web sites to look for former classmates who may be at an institution. A perspective from someone not actively engaged in the recruitment process may provide the most unbiased look at an institution or at least will provide one more valuable point of reference.

Is the faculty role under consideration an internal position (a position within the department where one is currently training or working) or an external position? Each presents unique benefits and challenges. In an internal position, the candidate is already known to the department leaders and has a known reputation regarding the quality of work and work ethic. It is hoped that this will be an advantage. Additionally, there will be an increased comfort level interviewing for an internal position. Potential future managers and colleagues and the departmental culture are already well known. These factors of familiarity may have value, but they also can prevent one from taking a critical look at a job, leading to prematurely limiting options and potentially leading to not adequately preparing for a job interview (the "they already know me" factor). It is advantageous to interview at several different jobs and receive, at minimum, a couple of offers before getting serious about negotiating the particulars of a job. This practice gives leverage in negotiating (as is discussed later in the chapter) and allows the job seeker to compare best practices, benefits, and options [8]. When looking at an external position, one has a fresh start in establishing a relationship. The candidate may be courted more actively. The opportunity to build new relationships in a new department is exciting. On the other hand, one will not know the unspoken issues, and the culture in the new department may well affect one's career satisfaction. Again, if possible, it is good to have an inside connection when looking at a department.

Preparation

It is critical to do research in advance when looking at a potential job. Preparation and research should include assessing people and programs in the department. This preparation can be done by reaching out to people known to the candidate who are familiar with the department, those who are trainees from the department, or those who are current or past employees from that department [1]. Additionally, review any data available on the Internet. Learn what research and academic work the leaders in the department are doing and have done. Read some of their recent papers. Often an itinerary may be received in advance of a visit. Look up each of the faculty members who will be involved in the interview and jot down a few notes about the academic work they have done. Do some research about the current Chair and Dean, which might give some perspective as to the direction of the department and medical school. Doing this advance preparation is impor-

tant from a knowledge perspective and will make an interview more productive. This process will provide some basis and background to compare the feel of the initial interview to the information garnered from the research—do they mesh? The advance preparation will help give the candidate some confidence in interview interactions. It can also impress those conducting the interviews as they see the careful preparation as evidenced by well-thought-out and informed questions.

One should definitely check the Association of American Medical Colleges (AAMC) median salary for someone at the targeted faculty level in a particular region. The AAMC publishes an annual report of academic salaries which can be accessed and purchased online [2]. This information can provide a clearer expectation as far as what salary might be expected within academic medicine. Do not be surprised that there is a significant difference in salary between an academic position and other salaried medical positions. Understand that private practice or salaried positions in nonacademic settings may be more financially lucrative but leave less opportunity for flexibility, typically involve less diversity in the work, usually lack opportunities for mentoring, offer fewer opportunities for sharing with colleagues, and may require significantly higher work volumes.

A fairly common technique for interviewing that uses objective questions to assess faculty candidates is called performance-based interviewing or behavioral interviewing [3]. Reviewing several of these questions while formulating "best" answers from your past experiences can be very helpful. Practice interviewing with a colleague or a mentor before going to an interview to help the preparation and build confidence.

Another important step in preparation is to carefully review your social media presence. Many potential employers are reviewing social media platforms and looking for issues including inappropriate photos; evidence of drinking or drug use; poor communication skills; discriminatory comments related to race, gender, or religion; or derogatory comments about previous programs or employers. These red flags may prevent a program from extending an interview [4].

Starting the Conversation

Once you have decided that you are interested in an academic job, write a cover letter that conveys your interest and explains how your previous experience and anticipated career goals fit into the work of the department. Conveying how departmental values mesh with your values can be a good practice in this letter. The length and level of detail of such a letter should increase with applications for higher-level positions. This cover letter should accompany an updated curriculum vitae (CV) (see chapter "How to Prepare the Best Possible Curriculum Vitae"). Submitting an outdated CV shows a lack of preparation and can be read as a lack of true interest or nonchalance about quality of work; at worst, it could be read as a sign of being disorganized or a procrastinator.

If you are interested in pursuing a job in a particular department or institution, but no jobs are currently being advertised, do not hesitate to contact department leaders. Do this significantly in advance of an anticipated change (a year or more in advance is common). Often, departments may not know their future situation completely, and simply letting them know you are interested can get them thinking about you. Department chairmen sometimes can even create a position if they have advance notice and a candidate provides the right fit for the department. Sometimes there is unexpected turnover in a department, and contacting the Chair and sending in a cover letter and CV may put a candidate in the running.

The Interview

First impressions are critical. Despite how obvious this piece of advice may be, in their academic roles, the authors still do see candidates dressed in a disheveled fashion or ready for a nightclub and not the workplace. Always dress professionally and conservatively [5]. Be very professional and polite with all the staff, especially with the contact person and the person who is putting together the itinerary. An interview "killer" could occur if an administrative assistant tells the Chair that a candi-

date was rude, disrespectful, or very self-centered in interactions with staff. Turn off cell phones and pagers before going into an interview. Be very cautious should your interview include a meal where alcohol is served. It would be possible to undo all of one's careful preparation with an imprudent remark when even mildly disinhibited. If a candidate is asked about weaknesses or what is especially challenging, a response that he or she has no weaknesses can come across as the candidate not being introspective or being overly confident. This can often have a negative effect. Employers want to hire faculty members who are willing to work on self-improvement and growth [6].

If you are well prepared, there should not be any surprise questions. Expect to be asked about current job expectations and vision and how these are anticipated to change 5 years from now. Be prepared for questions about any lapses in employment history. Display a degree of flexibility throughout the interview process. Do not expect every interviewer to have read the CV and do not take it personally if they have not. Be prepared to communicate your past experience and accomplishments. It is typical to be interviewed by the Chair later in the process, and sometimes not until a second visit. Anticipate that by the time of a meeting with the Chair, there will be communication from those with whom one has spoken earlier in the process. The Chair should communicate the department's degree of interest in the candidate. Before leaving the meeting with the Chair, clarify the subsequent steps and define what the next conversation will be.

Follow-Up

Immediately after the interview, write down the pros, cons, and concerns about the position. This practice will help in days to come when comparing two jobs or simply in preparing for a second interview. This process will facilitate clarity about questions that require follow-up. It is a best practice to promptly handwrite a personal thank-you note to each interviewer.

Second interviews differ from first interviews in that they are more focused and they give the opportunity to clarify specifics and details about the clinical assignment, academic appointment, and expectations regarding academic work, benefits, and salary. The departmental support structure and office logistics should be laid out. Benefits to be explored should include insurances (malpractice, life, disability), protected academic time, support for any further education (such as working toward a master's degree in public health or hospital administration), book money, license fees, board exam fees, support for continuing education conferences, and so on [7].

Other Unique Circumstances and Sensitive Issues

When an agreement has been reached (see chapter "How to Evaluate a Letter of Offer or Contract"), expect that a background check will likely be a necessary part of the process. Be aware too that during the interview there are questions that are illegal and should not be asked. These include the candidate's age, marital status, membership in clubs or organizations, and citizenship [8]. Interviewers should not ask if one has been arrested or make queries about disabilities or weight or height [8]. Questions that can be asked include: Are you authorized to work in the United States? Would you be willing to relocate? Have you ever been convicted of a specific crime (named here)? Are you able to perform the essential functions of this job?

Conclusion

To summarize, the interview process is a critical part of securing academic employment. Preparation and presentation are key factors. Advanced research surrounding the department or medical school/university as well as the leaders and departmental members is essential to achieving success in the interview process. Review your interests and needs so as to be clear and direct about your priorities. To present well, it is important to dress in a professional way and have a pleasant, professional manner with all of

those with whom you come into contact. Your research and the answers to questions during the interview should help you assess whether the job is the "right fit." Listen to what the department needs and suggest how you will be a clear asset and contribute to meeting the needs. The end result of this process should be the offer of a position that holds anticipation and excitement both for the individual and for the institution and, ideally, the beginning of a fruitful and satisfying academic career.

Words to the Wise

- Know the academic work of the Chair and key faculty members.
- Utilize professional behavior and appearance.
- Anticipate and practice writing out answers to performance-based interviewing questions.
- Send thank-you notes to each interviewer.

Ask Your Mentor or Colleagues

- What do you feel would be the best fit for me in an academic job?
- What do you see as my strengths and weaknesses, and what would be the best way to convey and frame them in an interview?
- Would you be willing to practice a "mock" job interview with me?

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How to Evaluate a Letter of Offer or Contract

Laura Weiss Roberts

Introduction

The letter of offer or contract documents the intent of a hiring institution to engage a candidate. The process of making a good decision regarding any offer starts long before the candidate receives the document. Decisions are made within the broad context of one's cumulative life experiences, education, and work experiences and are influenced by family and mentors, travel and cultural experiences, and even one's spiritual and religious background. All of these factors frame the priorities that the academic physician brings to the decision-making process. In this chapter, we focus on the approach for a typical clinician educator agreement, as an illustration of an academic letter of offer.

The candidate must recognize that he or she is often influenced by more immediate experiences, potentially to the detriment of seeing things from a broader perspective. If the candidate only considers his or her experiences at a recent job or during a recently completed residency or fellowship, the candidate will likely not make the most informed decision. The candidate must also consider work–life balance, income expectations, and desires for a blended career or a more focused career. As noted by Harolds [1]:

> Before entering into a contract negotiation, it is important for the job seeker to carefully analyze whether the job and the area it is located in are right for him/her and the family. Income, fringe benefits…time off, how hard and fast one is expected to work…whether the job will likely help the individual achieve his/her career goals, whether the type of practice is of high quality and professionally satisfying, the friendliness and likability of the atmosphere and team members, the retirement package, the type of health and malpractice insurance, whether there is mentoring, and whether or not teaching or research is available or required are all important factors.

The clearer these priorities are for the candidate, the greater the likelihood that a good decision will be made regarding a new position as a faculty member. Clarity on these issues is helpful not only during the search for a new position but also throughout the academic faculty member's career. These priorities can be a touchstone to which the academic faculty member returns during the critical phases throughout his or her career.

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Using the Search Process to Prepare for Reviewing a Letter of Offer or Contract

Throughout the process of searching for, interviewing for, and considering a new position, the candidate must prepare for the next phase of the job acquisition process, namely, the review and negotiation of a letter of offer or contract. Scientists and physicians in academic medicine typically feel overwhelmed and underprepared for negotiation, especially early in their careers [2]. For this reason, candidates should explore potential openings at an array of institutions and should seek to learn what they can about the kinds of roles that may exist and optimal approaches to negotiation (see Chapter "How to Negotiate"). Moving on to negotiate and develop a shared understanding about a position with the hiring institution – an understanding that will be captured in a written letter of offer – should be viewed as an opportunity to explore the position and possibilities for growth and career advancement. Rather than viewing negotiation as a difficult or even adversarial process, candidates will be well-served to view the activity as positive. Negotiation can be seen as a process that places great emphasis on fairness and shared accountability, as two parties communicate and identify shared interests and mutually agreed-upon options [2]. The negotiation process that leads to a letter of offer and, at times, iterative revisions of the letter will serve as the foundation of the relationship with the hiring institution.

The letter of offer is the official declaration of intent by the hiring institution. Before receiving such a letter, the candidate should be well along in the mental process of deciding whether the institution is right for him or her. The candidate's due diligence during the interview and negotiation process will go a long way to ensuring a good fit. The goal of any recruitment process is for the candidate and the hiring institution to find their best match. By the time the candidate receives a letter of offer, he or she should have a basic understanding of the hiring institution, including its organizational structure and its employment environment, and the role the candidate will play within the institution. Thoughtfully accumulating specific employment-related information throughout the interview process will facilitate this phase of the process. A 2×2 decision grid listing the institutions that one is considering and some of their key characteristics is an example of a simple tool to use throughout the interview process. Whether or not this is one's first experience with a letter of offer, this phase of the job selection process is important and warrants thoughtful and deliberate effort over enthusiasm to close the deal.

The more a candidate knows about an institution before the interview, the more information the candidate will glean about the institution during the interview. Specific questions, prepared in advance, can increase one's confidence that one has adequate information available for the deliberation phase of the hiring process. The candidate will find it much easier to gather information about an institution during site visits, where the structured and spontaneous opportunities are numerous. Trying to find information after the interview is more challenging.

Before beginning the interview process, the candidate would benefit from meeting with 2–3 senior faculty members or mentors to receive their thoughts and guidance on the interview and selection process, job characteristics, employment models, and so on. Ideally, these advisors would have insight into the candidate's skills and career aspirations and their advice would be specifically tailored to the circumstances. If one is working with a recruitment firm, utilize the firm's expertise in outlining the key characteristics of the institutions being considered. The decision about whether to use legal counsel to review a letter of offer or contract should be made before starting the interview process. If the candidate decides to use legal counsel, the candidate should hire and meet with the individual before the interview process begins. The perspectives of legal counsel will help prepare the candidate to get even more out of the interview. The candidate should be sure to hire an attorney with considerable academic or health-care experience, who knows the unique issues related to higher education and/or health-care institutions and scientist or physician employment and compensation.

Use the entire interview process to prepare for reviewing a letter of offer. Careful assessments of one's personal goals, accumulation of external input from experts, careful accumulation of information to compare and contrast opportunities, and thoughtful discussions of life goals with people one cares about are all essential elements of the process. The use of checklists and decision grids will make the process easier. Recognize that components of the recruitment process—interviews, second visits, and offers—are often overlapping, which makes clearly defining key decision criteria all the more important. The candidate may find his or her schedule full or time limited at the critical phase of the process when deciding whether or not to accept a job offer. While the interview process itself will help in creating some clarity, the candidate should not use the interview process alone in making a decision. When considering multiple job offers, each with its own time limit for a response, there will often not be adequate time for deliberate introspection.

Be sure to ask for an official employee handbook at the time of the initial interview. Often these are not offered during the initial interview without special request. The information in an employee handbook can be invaluable and easily perused during the trip back home. During the immediate post-interview period, take the time to review any materials obtained during the interview, update the decision grid, and develop specific follow-up questions to be answered during a second interview or letter of offer review. This is also the time to jot down the key characteristics of the institution, both positive and negative, to serve as a reference for subsequent site visits and discussions with institution leaders.

The use of social media in the recruitment process has become commonplace. Institutional websites can certainly provide basic information. Web-based services such as LinkedIn and Monster may provide networking opportunities, content resources, answers to frequently asked questions, and so on. Be aware that prospective employers can, and likely will, access significant professional and personal information about a candidate that is available on the Internet.

Once the Offer Is Made

After a verbal offer has been made and accepted pending the review of a letter of offer or contract, one may feel excited, enthusiastic, and impatient to get started. However, it is important to take adequate time during this phase to be sure that one understands all the elements of the employment agreement. The signed letter of offer or contract, as well as any referenced employee handbooks, codes of conduct, and standards of care, makes up the legally binding employment agreement, which supersedes any verbal offers or commitments made during the recruitment process.

During the negotiation phase, keep lines of communication open and active with the hiring chair or chief. There is often a lag between the time that the verbal offer is made and the time that the written letter of agreement or contract and employee handbook materials are received. One can use this window of time to send a carefully constructed email message or a letter to one's new boss that describes, in one's own words, what one believes the job elements and expectations to be. This correspondence represents an opportunity to communicate what one has heard as it relates to the job elements and expectations and what one thinks is most important. Be certain to watch grammar, spelling, and tone in this critical email message or letter. Highlight the key deliverables expected to be covered in the written contract or letter of offer. Taking this proactive step will often shorten the negotiation process and bring clarity to key elements of the job opportunity.

Recognize that there will be negotiable and nonnegotiable components of the letter of offer or contract. Leaders in larger institutions may have less ability to negotiate certain components of the contract, such as health and insurance benefits, some aspects of compensation, restrictive covenants, and issues around retirement. Ask for clarification about what components of the letter of offer or contract are negotiable. If an attorney has been engaged, set up time now to sit down and review the letter of offer or contract.

The Contract/Letter of Offer

The format of the written employment agreement will vary by institution. The agreement may be a formal contract or a letter of offer. Either will be supplemented with legally binding amendments as articulated in employee handbooks or similar vehicles. There is no legal difference between a written contract and a letter of agreement; both carry the weight of a formal contract. The amount of detail in these documents will vary. Some may not have enough specificity and will require a request for further detail and specifics in writing. Some of these documents will be developed at a central institutional contracts-and-human-resources level; others will be created at the hiring-department level. What is critical is whether one feels that one has adequate detail in these documents for the purposes of negotiation and ultimately acceptance of the offer.

The key components of the letter of offer/contract include terms, terminations, and restrictive covenants; academic rank; duties and responsibilities; and compensation. Each is discussed in turn in the subsequent text.

Terms, Terminations, and Restrictive Covenants

Most academic contracts are annual and self-renewing on the basis of reasonable performance. It is critical to understand the elements of performance assessment and the bilateral obligations for contract termination. In some states, employees may be terminated without cause. In some institutions, tenure does not actually confer guaranteed employment for life. In many institutions, confidentiality policies and procedures related to termination of employment may not exist [3]. Although it may seem grim to think about termination at the start of an employment relationship, it is wise to understand one's rights and responsibilities prior to joining a new employer.

Causes for termination are typically outlined in the employee handbook. Often not articulated in adequate detail are the review process, due process obligations, and access to fair hearing com-

ponents. Resignation by the employee typically will require 3–6 months of advance notification to allow for transfer of patient care and academic and research obligations. There can be a financial penalty for inadequate notice for the costs of this responsibility transfer. Many contracts and employment relationships include a process by which the institution can initiate a nonrenewal or a termination process outside of a grievance process, such as in the form of a nonrenewal clause in the contract typically with 1-year notice. This process would be used if a faculty member had performed adequately but was not felt to be a good fit for a long-term faculty position. Academic rank, tenure, and specific clauses in individual contracts may affect the institution's latitude in such a nonrenewal process. As a result, many medical centers do not have severance agreements, although these can be negotiated in individual circumstances.

Employment agreements are commonly applied to all new faculty members and are used to protect the business interests of the hiring academic institution, while the faculty member is employed or after the employment relationship ends. Such agreements usually have three components: a confidentiality provision, a non-solicitation clause, and a restrictive covenant. The confidentiality provision prevents postemployment solicitation of other employees and/or patients, and the restrictive covenant outlines restrictions on postemployment competition with the academic center. Understanding these agreements in detail is critical, and legal authorities feel that these agreements are enforceable if reasonable. Although considering termination and restrictive covenant issues in the excitement of starting a new job can feel uncomfortable—as if one were anticipating a negative outcome—the reality of these issues warrants adequate review and understanding before signing a contract, not when faced with the need to use such components.

Academic Rank

The academic rank that the department chair or division chief will recommend on a candidate's appointment to the faculty will not typically be

a point of contention or negotiation, especially for an initial faculty position. In the case of an academic physician making a midcareer position change, however, it will be important to clarify academic rank criteria at the new institution and come to an agreement with the hiring chair or chief as to the academic rank for which the candidate will be recommended. In most institutions, the final decision will be made by the rank and tenure committee, notwithstanding the proposed academic rank by the hiring chair or chief. If maintaining one's current rank or moving up an academic rank is critical in the selection of a new position, be sure to raise that issue during the recruitment process.

Duties and Responsibilities

The candidate should expect and request the most detail about the duties and responsibilities section of the letter of offer or contract. As previously recommended, the candidate can facilitate this section by sending an email message or letter to the hiring official with details about the candidate's understanding of the duties and responsibilities. Specifics matter. For example, the distribution of work effort should be defined, including both floor and ceiling, as well as expectations regarding average work hours (e.g., no less than 20% of time will be spent in clinical care, not to exceed 50% of an average work week of 55 hours).

The more common components of duties and responsibilities for academic clinicians will include the following items:

- Distribution of work effort: Determine clinical, educational, research, and administrative work, academic service (membership on committees), and community service. Who determines the distribution of work, what influence does the candidate have on it, and what are the intervals between reallocations?
- Lines of communication and authority: Clarify with the division chief or department chair who specifically one's superior is and to whom one must account for job responsibilities in each of these areas. Although most often one will be accountable to the division chief or department chair, be aware of co-management environments such as clinics that have medical directors; research laboratories and core laboratories that have directors; and hospital services in which responsibility is shared with hospital directors. Each of these could create confusion regarding time allocations, measurement of accountabilities, and resource allocations.
- Measurement of performance: For academic clinicians, measurements could include clinical productivity, clinical outcomes, patient satisfaction, clinical utilization, and expense management (expense/RVU). For researchers, typical measures would include obtaining grant support, with timelines and financial amounts explicitly defined; publications; participation in national study groups; evaluations from postdoctoral students; and participation in academic service. For educators, measurements would include learner evaluations, publications, and curriculum development. Knowing if any of these measures of performance are linked to compensation or incentives is critical. Who determines performance measures, who completes the evaluations, and how often performance measures are reviewed and updated should be outlined.
- Infrastructure and support expectations: These will differ depending on the clinical, research, administrative, or educational focus of the candidate, but they need to be spelled out in adequate detail, including office, lab, or clinical space; support staff (administrative, research, or clinical); and technical support, including IT. For clinicians, issues such as call, vacation, or illness coverage should be understood. Finding out after starting a position that one's clinical workload has gone up by 50% because a clinical colleague has broken a hip and needed surgery can be an unexpected and unwelcome surprise. To maximize efficiency, productivity, compensation, and satisfaction, adequate support staff in the clinical environment is as critical, as are adequate lab space and research associates for the researcher. Check if clinic or lab overhead is linked to compensation.

Compensation

Compensation includes base salary, incentives, and bonuses. Compensation strategies will vary depending on the academic role in the institution. Common forms of compensation for academic clinicians include the following:

- Fixed salary: The benefit is predictability. The downside for the hiring institution is accountability for performance and productivity. The downside for the faculty member is the lack of incentives or bonuses based on exceptional performance.
- Base salary with a variable component: This increasingly common compensation method blends a level of predictability with the ability to set performance-based metrics that link to compensation, including productivity, patient satisfaction, clinical outcomes, and expense management.
- Production-based compensation based on total clinical collections minus a fixed expense rate.

Be sure to understand the formulas by which incentives and bonuses are determined, timelines for payout, and who is in charge of setting the incentives and determining the metrics and how often they are adjusted. National benchmarks for salaries and benefits can be obtained from groups such as the Association of American Medical Colleges (AAMC) and the Medical Group Management Association (MGMA).

There are a number of reimbursements and fees that should be spelled out in the letter of offer or contract. Fees could include parking fees, use of campus services such as core labs, video services, and data analysis/statistical support. Reimbursement for items such as computer and IT support, practice-related expenses such as license fees and professional association dues, work-related travel, continuing medical education, and professional society expenses should be explained. These are typically negotiable. Transition expenses including relocation expenses, both personal and research lab related, should be negotiated. In some institutions, tuition support for employees and dependent children and/or housing benefits may be included with some faculty roles, but not others. These issues should be made explicit in the letter.

If it is possible that the candidate may generate intellectual property through his or her academic work, he or she should fully understand the intellectual property policies of the hiring institution—clearly, an area that requires special expertise. The institution may, however, consider this policy a nonnegotiable area of the employment relationship.

Employee Handbooks

Employee handbooks are a key component of the overall employment package and should be carefully reviewed. The handbook will be referenced in the letter of offer or contract and is considered a binding part of the agreement between hiring institution and the faculty member. The handbook is developed at the institutional level, and questions for clarification should be directed to the human resources department. If the handbook is obtained during the interview visit, the candidate will have time to review it in detail and identify areas for clarification during subsequent visits or during the contract negotiation phase.

Key components of the handbook are as follows:

- Health insurance
- Wellness incentives, including health club discounts
- Life insurance
- Disability, both short- and long-term
- Malpractice insurance
- Vacation and sick time benefits
- Retirement plan options, including times of vesting
- Child care and elder care provisions
- Other benefits, such as tuition support or housing assistance
- Employer policies and procedures

It is worth spending a little time reviewing the key components of the institution's policies and procedures on such diverse issues as grievance and due process, Health Insurance Portability and Accountability Act (HIPAA) information and other confidentiality agreements, and codes of conduct or related professional behavioral policies. The academic physician will be held to these standards, and it is the appropriate expectation of the hiring institution that the candidate be aware of them, understand them, and apply them in the work environment.

It is often these key elements of an employment relationship that are least understood by the department chair or chief who will be guiding the candidate through the recruitment process. Department administrators and members of the central human resources office of the institution are excellent resources on the specifics of the employment relationship. Asking for a scheduled time with a human resources representative as part of the interview process will be helpful in one's final review of the letter of offer or contract.

Finally, a few comments on whether to obtain legal advice: Contractual language may be nuanced. Lawyers will help with important clarifications and legal elements of the letter of offer or contract. In this context, attorneys do not typically negotiate for higher compensation – rather, they are helpful in identifying ambiguous or problematic aspects of a letter or contract that may lead to future issues. When is it appropriate to hire a contract lawyer? It depends on the complexity and duration of the contract, issues such as employment agreements that include restrictive covenants and control over intellectual property, and the legal expertise and comfort of the physician.

Words to the Wise

- Preparation matters. Spending time understanding one's personal and career objectives, key components of job satisfaction, and critical employment requirements before beginning the interview process is important.
- Categorize the key components of employment (e.g., work responsibilities, benefits, compensation, call coverage), and keep a comparison grid that allows one to look at the various opportunities in a systematic and organized way.
- Once given a verbal offer, and before receiving a formal letter of offer, prepare and send a written summary of the job and its key elements as one understands it, which will help set a framework for the formal letter of offer and negotiations of key points.
- Spend time with the employee handbook and understand key areas of basic employee benefits (e.g., health insurance, disability insurance, malpractice coverage).
- Be willing to negotiate key elements and to ask for clarification in writing of key elements such as compensation, distribution of work effort, work expectations, and bonus programs.
- Be sure to speak with the human resources staff members at your hiring institution in order to understand the implications and nuances of the institution's policies and procedures around hiring, evaluation, termination, retirement, and other elements of the employment agreement.

Ask Your Mentor or Colleagues

- What is the greatest lesson learned from your own recruitment and employment experiences?
- What components of your employment agreement do you wish you had had a better understanding of during the recruitment process? What effect has that had on your career, finances, and/or satisfaction?
- What is the one thing you wish you had known in advance of your first job search that you would like me to know?
- Can you recommend any specific resources that I should use?

Appendix: Sample Letter of Offer for an Academic Physician

[Date]

Dear Dr.:-----------------

We are pleased to extend to you an offer of appointment to the full-time faculty in the Department of----------------------, anticipated to commence on------------------.

Your appointment will be proposed at the rank of Assistant Professor. Policies governing faculty appointments are contained in the enclosed *Information for Faculty* handbook.

Your initial contributions to college and departmental missions in the areas of patient care, teaching, research, and administration/service will be as follows:-------------------------.

Patient care: Your primary clinical assignment will be----------------. In addition to this inpatient work, you will devote approximately six (6) hours per week to the Department's------------Program----------------directed by------------------. You will be expected to participate in the on call rotation, with duties consistent with your team members. We anticipate this will be--------------------.

Teaching: In your role, you will be expected to participate in the multidisciplinary educational programs of the Department, to include---------.

Research: In your role, you will be expected to collaborate with faculty involved in clinical trials and other clinical research protocols on average for four (4) hours per week.

Administration/Service: You will be expected to participate, to the extent that you may be reasonably called upon, in administrative and/or service functions of the Department and the Medical School.

Your salary for the -------- academic year will be at the annual rate of $ --------. Thereafter, your compensation will be reviewed at least annually, and sources of funding and FTE allocations may change that may affect your salary.

The Department will cover the registration fee for the--------board certification examination should you choose to take it. We encourage you to do so. This reimbursement may be considered taxable income to you.

Faculty Practice Plan; Clinical Services Agreement; Compliance with Medicare and Medicaid Laws and Regulations; Mandatory Education: You will become a member of the------------and be subject to its rules and the Faculty Practice Plan. You will also be required to enter into a Clinical Services Agreement and Restrictive Covenant with------------and to comply with and attend educational sessions on Medicare and Medicaid laws and regulations. All patient care performed by you will be billed through the Faculty Practice Plan, and the resulting income will be the property of-------------------. A Faculty Practice Plan billing number will be issued to you prior to your engaging in any patient care activities.

The-----------------has adopted a Code of Conduct, a copy of which is enclosed. As a condition of employment, you must acknowledge that you have received, read, and understood the Code of Conduct. The acknowledgement form is also enclosed and must be signed and returned.

Additional Conditions of Appointment. This offer of appointment is also subject to the following:

1. Your agreement to comply with the bylaws, policies, and procedures of----------------, including the *Information for Faculty* handbook, and the Code of Conduct
2. Your obtaining and maintaining an unlimited----------------medical license and DEA registration
3. Your acceptance by the-----------------for professional liability (malpractice) insurance coverage
4. Your obtaining and maintaining medical staff membership and clinical privileges at the hospital(s) where you will be assigned
5. Your eligibility to participate in the Medicare and Medicaid programs, and your ability to be credentialed for treatment of managed care patients; and------------------

Your anticipated start date is dependent on the satisfaction of all conditions specified in this letter. Because the process is time sensitive, it is important that you complete and return all required forms promptly. If you accept the terms

and conditions of the appointment contained in this letter of offer, please sign and return one copy of the letter within the next 2 weeks, accompanied by the Code of Conduct acknowledgement form, Clinical Services Agreement, Professional Liability Self-Insurance Questionnaire, and Credentialing Application completed according to the enclosed instructions.

Upon receipt of your signed acceptance of this offer and other required materials, and the satisfaction of all other conditions of appointment, we will forward our recommendations to our Dean's office for consideration.

Very truly yours,

Chair,

Department of----------------

Enclosures

ACCEPTANCE OF OFFER OF APPOINTMENT

I accept the offer of appointment described in this letter subject to all its terms and conditions.

Signature

Print name: ------------------------

Date: ------------------------

References

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3. Poses RM, Smith WR. How employed physicians' contracts may threaten their patients and professionalism. Ann Intern Med. 2016;165(1):55–6.

Suggested Reading

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How to Be Organized and Manage Time

Robert K. Jackler

Time keeps on slippin', slippin', slippin' Into the future. –Steve Miller Band

Avoiding the Overcommitment Trap

Success as an academic physician requires demarcating protected time for scholarship and defending it from intrusion by other duties. If an academic physician demonstrates ability in any arena (clinical, educational, administrative), he or she will inevitably be invited to take on more and more responsibilities. For example, if one has made worthwhile contributions to a task force or ad hoc committee, rest assured that one will receive at least twice as many of such invitations in the subsequent year. Both medical schools and their affiliated medical centers have an insatiable need for physician engagement in administrative activities.

The foremost cause of overcommitment in academic medicine is the tendency of early-career faculty to be "too nice" when it comes to seeing patients. In eagerness to build a clinical practice, the inclination is to accept every overbooked patient, consult request, and procedure invitation.

The gradual squeezing out of academic time by burgeoning clinical activities is by far the leading cause of "infant mortality" among promising young physician-scientists. Aside from the natural tendency of many physicians to gravitate toward patient care, economic incentives often come into play. Many university compensation plans reward clinical revenue generation more generously than time spent in research or education. In many fields, a majority of new faculty members find that their clinical role expands to the degree that they become primarily clinicians and teachers with little time remaining for scholarly endeavors.

Simply put, the most important word in an academic physician's lexicon is *no*. Learning to graciously decline proffered opportunities in a manner that does not diminish the inviter's opinion of you is a crucial survival skill. One useful strategy is to thank the inviter for considering you, acknowledging that the task is most worthwhile, but that to accept the offer would mean giving up another worthy activity. It is essential to be polite, firm, and resolute in declining because those seeking your involvement will often attempt to negotiate lower levels of engagement which, once accepted, will inevitably follow a slippery slope to greater and greater levels of time commitment. It is far better to one's reputation as a faculty member to say no up front than it is to accept an assignment and be unable to fully meet its requirements.

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The *Peter Principle* permeates the culture of academic medicine. If an academic physician is both very busy and very effective, he or she will inevitably be asked to engage in more and more responsibilities. The fortunate paradox is that if one is widely recognized to be very busy, it makes it that much easier for others to accept one's polite refusal of offers for more work. The take-home point is that it is wise and prudent to have others see you as heavily committed, but not so overcommitted that they would not consider offering you an opportunity that would further your career goals. A corollary to this principle is knowing when and how to disengage from a lower priority commitment to free up time to enable you to accept an activity of higher priority. Usually the best rule of thumb is transparency—an honest explanation of one's reasons for withdrawal will usually be well received.

Experienced academic physicians can offer helpful advice on managing commitments. This subject is one of the highest-priority subjects to seek mentorship (and protection) from your division chief and/or department chair. They can even provide political "cover": "My Chair asked that I not see clinic patients on my research days." "My Chief does not want me to take on any more committee assignments at this time."

Making Effective Use of the Interstices of the Day

> Day: A period of twenty-four hours, mostly misspent. –Ambrose Bierce

Only a fraction of each working day is spent engaged in patient care, teaching, research, or administration. In aggregate, the interstices of the day add up to a considerable opportunity to enhance your productivity. Examples of these time fragments include the wait between patient visits and operating room cases, anticipating the start of a meeting or a class, and time spent on hold. It also includes transit time such as waiting for elevators and in cafeteria lines. In total, this often-underutilized time resource is likely to amount to some 15–20% of the workday. It is important to first acknowledge that these time intervals are often used for the worthy purposes of socialization with coworkers or catching a few moments of relaxation. However, if they are spent productively, they may ultimately facilitate more time with family or on recreational activities.

It helps to have readily available "bite-sized" pieces of work to fill in the day's gaps. In the modern era, managing the electronic mail inbox, a few messages at a time, lessens the need for a lengthy session to handle a sizeable accumulation. In the clinical arena, between time can be used to complete charting or dictation and manage an electronic medical record inbox. Interstices are also a good opportunity to absorb a few research papers, review/edit a manuscript, or return a phone call or two. Meal breaks, when not used for meetings or socialization, are an opportunity to accomplish some worthwhile tasks to lighten the load at the end of the day.

Walter Dandy, an eminent Johns Hopkins neurosurgeon of the first half of the twentieth century, used to take the train from Baltimore to Chicago and back merely to provide time to catch up on academic writing. Many of today's academic physicians spend a considerable amount of time either in airplanes or in terminals waiting for airplanes. This represents a precious opportunity to work on scholarly projects in a focused and uninterrupted manner. For example, the present chapter was written on an airplane while travelling to and from a family trip over the winter holidays. The reader, no doubt, joins my wife who made the observation that had I better managed my time, this work would not have been necessary.

Most physicians have daily commutes by car. Using hands-free devices, one may use this time as a prime opportunity to conduct telephone discussions. It is also an opportunity to make use of digital audio recordings that are available of continuing medical education programs, grand rounds, and scientific meeting proceedings.

Limiting Interruptions and Distractions

> Happiness can only be found if you can free yourself of all other distractions. –Saul Bellow

Some people can only be productive in a linear environment—that is to say, working in a quiet place, on one thing at a time, with neither interruptions nor distractions. Clearly, such individuals are not well suited for a life in academic medicine. However, even those relatively tolerant of a nonlinear work environment find too many interruptions and distractions to be a source of stress that can lead to job dissatisfaction and even "burnout." It is essential to train staff members to batch lower priority items needing attention rather than continuously interrupting you. Pagers, cell phones, and texting are helpful tools in modern medicine, but if they are used in an undisciplined manner, they can tempt staff to offload problems onto faculty (at their convenience) rather than organize them to enhance faculty efficiency. Working with one's clinic staff and academic administrative assistant to establish guidelines for how and when to interrupt is time well spent. Use of electronic mail for lower priority issues enables the academic physician to address them at his or her convenience.

While academic physicians have little choice but to learn tolerance for the chaotic work of clinical medicine, their scholarly endeavors necessitate a quiet environment with minimal disturbances. This is the reason so many papers and grant proposals are written in the evening or over weekends at home, at times to the detriment of family life. Whenever practical, establish a well-defended portion of each week for scholarly activities that will not be disturbed save for truly urgent reasons.

Faculty members who make themselves readily available at all times will tend to see this privilege used more and more heavily. If one is easy to reach, colleagues and staff will tend to follow the path of least resistance and hand off issues needing attention. One secret of avoiding excessive entanglements is to selectively make it harder to be reached. One does not want to be perceived as the most convenient recipient of transferred workload. For example, tell the clinic staff to batch all nonurgent calls and messages until clinical days. When a breakthrough call is received that could have waited for a clinic day,

push back gently, but firmly, lest the interruptions to academic time inevitably proliferate.

One useful device to limit distractions is the closed office door. If one's staffs understand that a closed door signals that one is busy and that interruptions should be limited to compelling cause, they will help to defend one's time for academic activities. Another useful demarcation is time clearly indicated as "in the lab." An understanding among clinical and academic staff that time dedicated to research is sacrosanct will tend to keep it so. It helps to set parameters among the staff, residents, and fellows about the circumstances under which such time limits can be breached. At times staff and trainees will inevitably intrude for manifestly unnecessary reasons. Effectively managing trivial intrusions of precious academic time is crucial. A polite, but firm, explanation about how difficult it is to finish an experiment, write a paper, or complete a grant with multiple interruptions that could have waited usually hits the mark.

Multitasking: Beneficial or Deleterious?

For better or worse, multitasking has become a fact of life in academic medicine. It used to be considered impolite for a medical student to read a newspaper during a lecture, even seated in the back row of the lecture hall with the paper folded discretely on his or her lap. Times have certainly changed. The proliferation of portable digital devices such as cell phones, notebook computers, and tablets has fundamentally altered the cultural acceptability of multitasking. Many residents and faculty attend grand rounds with computers open in front of them, which they engage with frequent bursts of rapid fire typing. It is a losing battle to attempt to regulate or forbid multitasking. It is helpful to encourage trainees to engage in content-relevant multitasking (e.g., PubMed rather than Facebook). Experience gleaned through directing random Socratic questions at learners makes it clear that at least some are fully capable of absorbing multiple simultaneous information streams while still effectively

tracking the educational activity while others are clearly distracted and unengaged.

This phenomenon is not entirely generational; almost all leaders at a university's multi-day dean's retreats use their laptops throughout. Multitasking at lectures, meetings, and retreats has become so endemic that it is now virtually the cultural norm. One consequence is that while lecture rooms used to fill from either the front or the back, today the most precious real estate in a lecture hall is the discrete back corner of the room with access to power plugs on the side wall.

To some degree, the ability to pay attention and comprehend multiple inputs simultaneously is variable among individuals. If you have this ability, then using it judiciously will be of benefit. Academic life is full of opportunities to multitask. Multi-participant teleconferences are ideal because no one needs to know you are multitasking (unless you type too vigorously).

Planning and Organizing

I skate to where the puck is going to be, not where it has been. –Wayne Gretzky

A minute spent on planning is worth an hour later. It pays time dividends to organize one's efforts to build in quality up front rather than having to reconfigure one's efforts later. For example, when preparing a grant submission, scan the technical requirements and format instructions before starting. At best, mistakes can be a source of delay and wasted effort; at worst, a reason for disqualification. Similarly, when preparing a manuscript, consult the journal's instructions for authors. Reconfiguring a completed manuscript can lead to considerable time lost.

Although it is no one's favorite thing to do, spend time learning the basics of regulatory compliance in areas relevant to one's work. This includes human and animal experimental protocols, management of private health information (HIPAA), and the basics of budgeting and personnel management. Failure to organize research in a compliant manner can lead to serious consequences and may disqualify one's work from publication. Most universities pro-

vide expert guidance on such matters, and this is best sought in advance.

Most physicians hate to complete the all-too-common, mandatory training modules, especially when they have to be repeated on a yearly basis. (It is ironic that today's physicians have to be repeatedly retested on regulatory matters but not on medical knowledge crucial to patient care.) In a worthwhile time-saving maneuver, some online modules allow the academic physician to skip the didactics and go straight to taking the test. If one has completed the material before, chances are pretty good that he or she can make it over the passing bar. Some training modules require spending at least a minimal amount of time on the didactic portion. This is one reason why modern computers enable opening multiple windows.

Managing Digital Distractions

Incessantly attending to incoming e-mail can be an especially perfidious thief of time. While use of a good spam blocker can lighten the load, inevitably a steady stream of unwanted e-mails get through. Taking a few minutes to on a regular basis unsubscribe or block repetitive e-mail sources which you habitually delete is well worth the momentary effort it takes. Use of an ad blocker helps to speed your web browser and lessens distractions. Younger academic physicians are not immune from the generation Y and Z trend of habitually checking social media posts. Older physicians, formerly used to being updated by the morning newspaper or evening news, get interrupted by attention grabbing news notifications on their phone and computer. While many can manage these distractions and remain productive, they can interrupt your train of thought. Insulating yourself from such distractions for at least part of each week can enable a period of especially productive scholarly work.

Another time saver is the use of templates in your electronic medical record system. We tend to set up the template when first starting and then have inertia about updating it for improved efficiency. Inquire of your colleagues what makes them more efficient users of the EMR. They will

often have useful templates and techniques to share with you. It can be immensely helpful to have an EMR expert observe your work flow and suggest efficiencies.

Managing Deadlines

Some deadlines are genuine, while others are relative points in time. Examples of firm deadlines are grant submission dates and warnings about suspension of medical staff privileges due to incomplete medical records. The firmness of publishing deadlines are variable. The "deadline" for submitting a book chapter is notoriously soft. Multi-authored textbooks typically have only half to two-thirds of chapters by the first deadline. Textbook chapters tend to be of lower priority, to be completed as time allows. It is human nature to believe that a less-pressured time will come soon, affording an opportunity to conveniently catch up. Of course, this is usually a false perception. Procrastination can lead to a feeling of continual crisis management punctuated by late nights and weekends.

Optimizing Scholarship

Choose academic projects carefully. Just because something is easy to study does not mean it is worthwhile to study. Much time is wasted on projects that lack originality or even scientific value. When considering a project, always ask the "so what" question: If I knew the results of the project today, how much better off would I be? If the proposal lacks impact, do not waste precious academic time on it. As most worthwhile research has a substantial probability of failure, so it is also important to recognize early when a research project is unfruitful, cut one's losses, and move on.

When conceptualizing a study, seek advice from colleagues on the soundness of the hypothesis and on the optimal study design. Obtain statistical consultation during the design phase, before obtaining data, especially for clinical trials. Most university medical centers have clini-

cal trial specialists and data managers to assist clinical studies and hold training courses to teach these skills. The academic physician who has not been trained in clinical trial design and management may consider the time invested in becoming more knowledgeable well spent.

Most faculty members conduct research and author scholarly publications together with medical and graduate students, residents, fellows, and postdocs. From the perspective of a faculty member's career development, this is both an essential teaching role and an opportunity to amplify one's scholarship. Although trainees are essential to furthering one's research goals, writing a paper with trainees often takes more, rather than less, time to complete. Because trainees are inexperienced, it is best to give them an outline and carefully monitor their progress.

The ability to write well is key to success in an academic career. Authoring a scientific communication is one task best not done in haste. It is better to take one's time to craft a paper that is free from errors and possesses both clarity and persuasiveness in its arguments. It is wise to put down your completed draft and look at it again with fresh eyes after some time has gone by. Writing which seemed polished at the time you wrote it may show its flaws after time has dulled your familiarity with it. Before finalizing, ask a number of colleagues to review your paper and provide constructive criticism. Before submitting for publication, ask yourself the key question: "if I look back on this paper in twenty years, will I still be proud of it?"

In manuscript preparation, interminable revision loops can be a huge time sink. It is sometimes better to sit down together to write as a team. In multi-authored papers, great care must be taken to avoid version confusion and having to repeat already completed work. Naming the draft with a date or version number helps to keep track. Bibliographic management software is a worthwhile tool in managing references with multiple authors. Keep in mind that journals require each author to sign the copyright transmittal notice. Given the typical travel schedules of academic collaborators, it is best to not leave this task for last minute.

In building a CV in anticipation of eventual promotion, it is important to realize that not all

scholarship is valued equally. Many university promotion committees place little value on writing textbook chapters or even entire textbooks, considering them evidence of teaching rather than scholarship. Early-career faculty members ought not become bogged down contributing numerous chapters at the expense of undertaking original research that makes a scientific contribution.

When one's name is listed on a paper, that person has agreed to accept authorship responsibility. It behooves each author to spend the time needed to carefully check the manuscript for quality, validity, and veracity. If the published paper contains errors or transgresses publication ethics (e.g., failure to cite, redundant publication, plagiarism), each author shares responsibility, even if a coauthor contributed this section.

Early-career faculty members are often handed papers to review by more senior faculty. Whenever possible, the academic physician should submit the review under his or her own signature. This lets the journal editor know of one's availability as a reviewer. It is a misconception that journal editorial boards are drawn exclusively from famous leaders in the field. If an academic physician responds to the editors' requests promptly and submits thoughtful reviews, he or she has found the pathway to editorial service. Journals track peer reviewer performance and highly value timeliness, because a quick decision is much appreciated by manuscript authors.

Academic physicians are often invited to organize the scholarship of other academicians, such as in textbooks or special issues of journals. Because scholars are perpetually late, a prudent editor builds in a series of deadlines before the genuine one and sends out frequent reminders of progressively more strident tone. It is also wise to have a backup plan in place, typically an author willing to perform on short notice, for those who never submit.

Managing Clinical Responsibilities

Time is money. –Benjamin Franklin

The practice of medicine is the largest time commitment for most medical school faculty. The two most important principles in keeping clinical responsibilities from overwhelming all others are setting time boundaries and managing one's schedule so that one stays within scheduled time as much as possible. Academic practices have the disadvantage of having a fraction of patients who travel from a distance, making it impractical to break up visits into multiple sessions, as is often done in private practice. In large university clinics, scheduling is often done by staff members who are subject to persistent patient pressure to get an appointment but are remote from patients' discontent when they suffer long waits or hurried visits. Because unrealistic scheduling (e.g., a new patient with a complex history put in a 15-min slot) and systematic overbooking are endemic in academic medicine, time spent setting up a realistic outpatient clinic template is well worthwhile. A common example is that of a physician who is fully booked for a month with no slots preserved for urgent referrals, unanticipated revisits for acute illness, and pre- or post-procedure appointments, which is a recipe for dysfunctional levels of overbooking. It is prudent for the academic physician to work closely with practice management on a realistic schedule template and on motivating the managerial discipline to hold open an adequate number of slots to accommodate patients needing timely attention. Routinely reviewing one's schedule a week or two beforehand helps to identify unrealistic scheduling, while there is still time to remediate the situation.

An obvious first principle of time management in outpatient clinics is starting on time. Learning how to manage challenging patients is at the core of academic practice. It has been said that two types of patients dominate university practices: "normal" people afflicted by complex disease and "difficult" people with relatively minor maladies. As the "highest level of appeal" for patients who have yet to find answers, it is the academic physician's job to provide them. Experienced physicians learn how to manage patients' questions in ways that are both satisfying and time efficient. For example, when a patient asks why a particular test has not been ordered or a type of treatment tried, it is common

to engage in a lengthy discussion on the subject of indications and contraindications which can be received as "medical authority" and satisfy the patient. The elegantly simple reply "I did not recommend it because I did not think it would help you" sends a positive message of caring and, in many instances, succeeds in reassuring the patient. Because many such techniques are specialty specific, seek advice from experienced clinicians.

Much efficiency can be gained while maintaining the medical record. Writing a concise plan of what is expected for the next visit allows a quick review of the previous note to orient the physician upon active problems. In electronic systems, the earlier note can be propagated and modified for use during a new visit. Personalized automated phrases and patient informational handouts are great time savers. In procedure notes, later review is expedited by including a "findings" section to extract key points. The anticipated next steps in the patient's management quickly emerge in the review of the earlier entry. While it is somewhat a matter of individual preference, bundling of dictation is not ideal. Memory of the encounter is freshest at the time of the visit, and incomplete charts tend to be put aside until well after memory of the visit has become somewhat hazy. Communicating with patients via e-mail is a double-edged sword. On one hand, it saves time by allowing routine medical questions to be answered conveniently and is notably more efficient than using the telephone. On the other hand, it gives the patient direct access to the physician for unsuitably complex and/or urgent questions or even administrative matters (e.g., "Please make me an appointment") more appropriately handled by office staff. It is helpful having a standard text block available to politely inform patients of your use guidelines for electronic mail.

Delegation: Effective Use of Staff

To be successful, a new academic physician has to learn quickly to work effectively with a team. Take the time to get to know every staff member personally and work to enfranchise staff in a shared mission of excellence—whether it is to deliver great patient care or to seek a cure for cancer. Always treat staff in a courteous and respectful manner and frequently show appreciation for jobs well done. If you are harsh or abrupt, it will create an unpleasant work culture, and staff will not give you their best effort. Working with an efficient staff is essential for a physician to be efficient.

Meet with your clinical and research teams regularly to set out goals and expectations. For major tasks, set timeline expectations and monitor progress regularly. Staff members learning their roles, and even those who are well trained, sometimes engage in "problem dumping." This is defined as passing the buck up the chain to the physician when the issue could actually have been resolved at a staff level. When this has become troublesome, as it inevitably will be from time to time, work with your managers to help counsel staff to better meet your expectations. It is worthwhile to spend time in preparing formal written reviews of staff performance and being frank about reasons for praise and opportunities for improvement.

It is important that staff members know how to reach you at all times and even more important that they learn to use this privilege appropriately. To minimize interruptions, provide clear guidelines for what is urgent and what can wait. In configuring the guidelines, it is better to tolerate some leakage of nonurgent matters than to have a truly urgent communication not reach you in a timely manner. Direct access to you is especially important when the person making the triage decision is not clinically trained. Be sure to set aside adequate time to expeditiously handle nonurgent matters that your staff has batched for you.

In the laboratory, work closely with those who support grant preparation and post-award management. Your valuable time should not be spent on routine accounting of lab expenses or on the process of purchasing equipment or supplies. The staff should be expected to support your material ordering and provide timely and informative tracking of expenses and resources remaining in your research fund.

Selectivity in Choosing Administrative Roles

All academic physicians are called upon to participate in administrative roles. Faculty members are often put in positions of authority in which they are responsible for managing people, tasks, and money despite the fact that they lack the training and experience that would be prerequisites in the business world. Taking a formal course in leadership training, as is available in many medical schools, is time well spent by early-career faculty.

Administrative service is time intensive. The first principle of keeping your time commitment in line is to keep small problems from becoming big ones by early and effective attention. The second is to find ways to prevent the myriad regulations inherent in modern medical centers and biomedical research from inhibiting quality patient care and innovative research, which often necessitates negotiating a compromise with compliance professionals rather than accepting their invariably conservative recommendations as edicts.

The pathway to administrative service usually commences with committee service for the school of medicine or medical center. Early-career faculty striving to establish themselves are well advised to avoid especially time-consuming committee assignments, such as medical school admissions (due to time-intensive interviews and panel meetings) and the committees on human and animal research (numerous protocols to review and debate). Although committees are somewhat institutionally dependent, some good ones to begin with are quality of care, ambulatory care, curriculum reform, and time-limited ad hoc task forces focused on an issue relevant to one's research or clinical work.

Work–Life Balance

Working more does not always equal greater productivity; indeed, it can have the opposite effect. Unbalanced lifestyles can lead to dissatisfaction and, ultimately, burnout. Overwhelmed physicians become mechanical in their clinical role and are at risk for losing their passion for healing others. A stressed, irascible, and exhausted faculty member makes a poor role model for physicians in training. In scholarship, being overwhelmed stifles creativity and inventiveness. Avoiding burnout requires setting manageable limits and boundaries between work and domestic life. If you feel you are beginning to fall victim to burnout, seek counsel from your division chief, department chair, or other respected colleague to help provide perspective on ways of reestablishing your work–life balance. Formal psychological counseling on stress management may be worthwhile. For more information on how to recognize and avoid burnout, see chapter "How to Recognize and Avoid Burnout".

When an academic physician feels stagnant, pursuing a new line of research or adopting an emerging clinical technique may be reinvigorating. Taking a sabbatical leave with institutional support is a healthy way of retooling scholarly focus and reasserting control of one's schedule.

Words to the Wise

- Inability to manage time effectively is the most common reason academic physicians fail to achieve their career goals.
- It is essential to set and maintain boundaries to protect time for scholarly work.
- Successful academic faculty members avoid overcommitment by learning how to graciously say "no."
- The ability to delegate tasks to academic and clinical staff helps to offload workload.
- It is human nature to believe that a less pressured time will come soon, affording an opportunity to conveniently catch up. This is usually a false perception.
- In administrative tasks, the first principle is to keep small problems from becoming big ones by early and effective attention.

Ask Your Mentor or Colleagues

- How have you been able to say no to additional activities and responsibilities?
- What are your strategies for managing time?
- How do you balance professional demands against your personal life?

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How to Give a Lecture

Sallie G. De Golia

The lecture is alive and well within medical education despite the recent increased emphasis on small-group teaching and problem-based [1, 2], flipped, and online learning [3, 4]. All US and Canadian medical schools are still predominantly using lecture formats as an important teaching vehicle in at least the first 2 years of medical school [5]. Despite criticism of being a teacher-focused, unidirectional delivery system of information that encourages passive over active learning inconsistent with adult learning principles, the traditional lecture remains a relevant and important modality for delivering information. By integrating more learner-centered and interactive learning strategies into lectures, the lecture has the capacity to enhance a learner's understanding and retention of new information [6, 7] and reach a higher level of Bloom's taxonomy [8].

Being an expert of content does not necessarily translate into being a proficient lecturer. Many educators, even if they have participated in professional development teaching workshops, have expressed a need for more training in order to improve their educational methods [9, 10]. This may be partly driven by Accreditation Council for Graduate Medical Education's (ACGME)

increasing demands for higher standards of accountability for student learning.

This chapter serves as a guide to help make the lecture a more efficient and effective learning tool.

Purpose of the Lecture

Lecturing is an economical and efficient method of delivering information to a large group of learners. It may expose learners to a new subject or alternative perspectives, model a way of thinking, challenge accepted beliefs and attitudes, promote thought, serve to inspire, deepen understanding, stimulate further learning, provide a way to present up-to-date material not available in print, and even serve a social function [11–13].

Learning Theories

By designing lectures with adult learning concepts and new approaches to teaching and learning in mind, the academic faculty member can make the lecture a valuable learning experience. Adult learners generally can be characterized as being self-directed and motivated, relying upon their previous experience to enhance their learning, needing intellectual justification for learning specific topics, and wanting evidence to explain how learning a given content area will contrib-

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ute to their professional understanding and how they might apply it in the future. Adult learners also want to apply their new knowledge immediately in solving problems and receive feedback on their progress [14].

In an attempt to achieve meaningful or deep learning, students must focus on understanding the content instead of memorizing facts and concepts. Striving to understand the new knowledge as a coherent whole rather than a set of disparate facts leads to meaningful learning. This type of learning can be distinguished from surface learning, which focuses on excessive amounts of material and memorization and uses assessment methods that emphasize recall and provide little or inadequate feedback. Searching for clues of what should be learned instead of focusing on understanding the material results in superficial learning. Therefore, by helping students build relationships and connections with existing knowledge, providing opportunities for students to actively engage with the material through various teaching modalities, and encouraging long-term involvement with the topic, deep learning can take place.

The prerequisites of meaningful learning include pre-understanding, the relevant context for the material, and encouraging activity [13]. In order to integrate new knowledge into the learner's awareness as a meaningful whole, learners must relate this new information to what the learner already knows or thinks of a situation or phenomenon—the preexisting knowledge. By appreciating the relevance and importance of the content, the learner will be motivated to learn the content. By actively participating in the learning process, the learner will integrate the knowledge in a meaningful way.

Furthermore, material transmitted must be perceived, attended to, and placed in short- and long-term memory. What learners choose to perceive is determined by what they already know, what interests them, and their levels of attention and arousal, among other things. New information received by the learner is filtered and stored in short-term memory. If this information is not immediately transferred to long-term memory, it will be forgotten [15]. If the preexisting knowl-

edge has been activated and is closely related to the new incoming material, this new information will be more readily received by the long-term memory. Therefore, the lecture must be interesting, relevant, and somewhat associated to the preexisting knowledge such that learners will attend to it and absorb the material.

Steps to Creating the Effective Lecture

Get Started

So how does one develop an effective lecture? Careful preparation and organization, audiovisual aids, attention to performance behaviors, and evaluation are critical components of ensuring an effective lecture. Do not overlook the preliminary planning: knowing the context in which you will present your lecture, the intended audience, and your content is pivotal to the preparation.

Know the Context Consider the context in which you are lecturing. What is the purpose of the overall program? How does your lecture relate to the overall curricular plan? What type of presentation is expected? Are you providing a presentation in a course sequence, or is it a stand-alone, one-time presentation? What is the allotted time frame or facilities available to you?

Know Your Audience To whom are you delivering this content? Know your learners' existing knowledge base and their cognitive structure. Where are they in terms of their professional development and knowledge regarding the topic you plan to present? What seems to interest your learners? Why do the learners need to learn this content? Making content relevant to this particular group of learners will help motivate them to learn and value what you are presenting.

Know Your Content Select the content to be delivered. Do not rely on one text but synthesize your content from a variety of materials. Consider not only the knowledge component of your material but also aspects relating to skills and attitudes

where appropriate. On the basis of who your learners are, determine what parts of the material are interesting and critically important to learn. Limit the amount of material to be covered.

Develop a Framework

Once you have identified the appropriate content with your learners' characteristics and the context in mind, you are ready to organize your content. The overall rule of thumb is *Say What You Are Going to Say*, *Say It*, *Then Say It Again*. Start with developing clear, specific, learner-focused learning objectives. Allot enough time for each objective to promote optimal organization of your presentation.

Start by assembling a coherent framework for your content from which you can explain the material. This framework can be accomplished in a variety of ways, but two common approaches include the *hierarchical and chaining* [11]. The classical hierarchy is the most common and most simple format. It is particularly useful for inexperienced lecturers. Start with a unifying topic with subgroups branching out in a parallel manner. Subpoints from the subgroups are then further divided into more detail. However, do not overload the learner with details and allow plenty of time for processing of the information. Although the classical hierarchy is an effective way to present facts, the downside is that it can be a rather rigid schema because facts are pre-grouped.

A related schema is using the problem-centered approach, where an identified problem is presented followed by outlining associated solutions or hypotheses that are based on the evidence. The evidence is used to support the hypotheses or solutions through a process of reasoning instead of relationships of classification, as used in the hierarchical model. This problem-centered approach tends to stimulate learner interest. The disadvantage is that it can be challenging, because it assumes learners' preexisting knowledge and requires a clear understanding of the initial problem.

The second major organizational approach is *chaining*. This approach connects ideas in time while linking them through the use of reasoning. The storytelling method, a type of chaining, describes content by employing a beginning, middle, and end and is typically presented in a conversational manner. Students tend to listen more attentively and with interest when a storytelling approach is utilized.

Other suggested organizational schemas include the following:

- *Cause and effect*. Describe and explain events by reference to their origins.
- *Pro–con or compare–contrast*. Present two sides of a given problem.
- *Ascending–descending*. Arrange topics in relation to their importance, familiarity, or complexity to the overall topic from most to least.
- *Phenomena/examples to theory*. Present the phenomena or examples first followed by the theory to explain them.
- *Concepts–application*. Present concepts and then the application in which they are applied.

By providing a conceptual framework for understanding the material to be presented, you allow learners to follow the presentation and identify the critical ideas. Structure the information in a logical fashion. Do not overload the lecture with information because time will be needed for interactive activities.

Select a Presentation Tool

Next, consider which presentation tool, if any, will be most effective for your talk. Most lecturers make use of an audiovisual vehicle to present their information, with PowerPoint being the most common tool. Audiovisual aids such as white- or blackboards, flip charts, or electronic presentation tools can increase learning clarity and interest and therefore improve understanding and learning. Visual displays with words also have been shown to facilitate retention more than words alone [16]. Such aids can help explain or reinforce key points in a lecture and provide a stimulus for discussion. Given that the majority

of adults are visual or visual-multimodal learners [17] and tend to prefer visuals to text [18], adding audiovisual aids can help the efficacy of the overall presentation. However, several other newer presentation tools are available for consideration.

Conventional Digital Slide Presentation Tools Most common software tools are Microsoft PowerPoint, Apple Keynote, and Google Presentation. These tools allow for the basic slide-presentation format. PowerPoint has been criticized for speakers' tendencies to read bulleted lists, rely on text over images, the tool's difficulty to portray complex relationships or organize key points within a larger framework, and the lack of interactive tool features. Keynote is an alternative to PowerPoint, while Google Presentation is a cloud-based tool which also offers the option of editing when offline and allows for collaborative development of the presentation. It also has a Google research tool associated with it and animations and video embedding capabilities that can be modified on any device.

Cloud-Based Presentation Tools Because these tools are Web-based, they can be accessed from any device given Internet access and are able to incorporate a variety of images, animations, and videos. Depending on the software, fees may be required. The advantage is the ability to edit or update your presentations on any device anywhere online.

- *Prezi* is a free tool that allows for presentation of information using spatial organization on a single "page" instead of using consecutive slides. It allows the audience to visualize the progression of the presentation in a non-linear fashion. Though learning outcome advantages have not been demonstrated over PowerPoint, students found Prezi more engaging than other lecture modalities [19]. However, Prezi has a learning curve for effective use, and it may not be supported by all venues or AV staff.
- *Nearpod* has interactive features allowing for different multimedia contents like images, videos, quizzes, polls, and other relevant

activities. Lecturers can monitor students in real time and allow distance learning where students from anywhere can join the Nearpod class.
- Others tools include *Tellagami* (free video presentation app used to create animated video presentations where students could access your videos if they missed class), *Emaze* (interfaces with a wide array of templates allowing lecturers to create visual learning aids including 3D presentations), *Visme* (has built-in analytics system to see who viewed and finished the presentation), *Haiku Deck* (allows for creating simple presentations avoiding content overload), *Powtoon* (allows users to create animated videos), and *Canva* (creative, design-focused presentations) to name a few. Research associated with their learning outcomes is scarce, if any.

Develop Audiovisual Aids

Audiovisual aids should be simple, clear, and uncluttered. No matter which aid you use, make sure that you maintain eye contact with and talk to your audience and not the board, slides, or computer screen. If using a chalkboard or whiteboard, make sure to write with large, legible letters and ensure that those in the back can hear and/or see what you are presenting. Check the equipment for good functioning before starting the lecture. The actual audiovisual device chosen is less important than the appropriate use of it.

Adhere to Multimedia Principles The 2007 Association of American Medical Colleges Institute for Improving Medical Education's (AAMC-IIME) landmark report on educational technology in medical education recommended that medical educators employ established multimedia design principles when developing instructional materials [20].When using multimedia to support your lecture, review Mayer's instructional multimedia principles [21] for guidance to enhance learning by improving short- and long-term retention and enabling the transfer of new information to solve novel problems [16].

Learning improves when evidence-based guidelines aiming to enhance learner cognitive capacity are adhered to:

1. Reduce extraneous processing that does not support learning objectives (*extraneous processing*):
   - Eliminate any extraneous or redundant material (words, images, sounds). Resist non sequiturs, ensure images on individual slides relate directly to the slide's message, and make sure transition slide images relate to narrative. These actions will help mitigate listener distractions (coherence principle).
   - Highlight important words by using alternative fonts, colors, capitalizations, and italics (though sparingly) and using pointer words such as "*first*, *second*, *third*, etc." (signaling principle).
   - Place text and images in close proximity on a slide rather than far from each other. Present corresponding words and pictures simultaneously rather than successively (contiguity principle).
2. Increase capacity to mentally represent the essential material in working memory (*essential cognitive processing*):
   - Ensure students possess prior knowledge about names and characteristics of the key concepts (pre-training principle).
   - Break down an otherwise continuous lesson into smaller, learner-paced segments. This allows learners to direct attention toward contrasting the differences and similarities to the former bit of information. The use of small groups of information also allows the speaker to modulate the pace of learning (segmenting principle).
   - Represent complex materials as an image or graph combined with narration to explain the phenomena vs pairing animation with text. This off-loads information from the visual to the auditory channel which is under-used. By transmitting new knowledge orally and visually in a synchronous and mutually reinforced manner vs successively, learning is enhanced (modality principle).

3. Enhance learner motivation to understand the material (*generative cognitive processing*):
   - Narrate your audiovisual aids instead of using words or text alone. Students learn better when spoken words accompany images (voice principle).
   - Speak in a conversational or polite style instead of a formal manner. In the case of computer-based multimedia, use a human vs machine voice (personalization principle).

Number of Slides   One rule of thumb to consider for slide presentations is the 10/20/30 rule. This rule advocates using about 10 slides for 20 minutes of presentation, each using a 30-point font, so slides can be read easily and the learners can focus on your talk. Slides should not be difficult to read from the back of the room. However, there is no right answer, and the number of slides will vary depending on content complexity and the lecturer's speaking style. The key is to limit the content and detail to avoid overloading your audience and compromising retention. Remember the slides are only there to support and facilitate what you have to say.

Slide Background and Text Often it is suggested to use backgrounds that are monochromatic and non-textured and darker colors vs bright white background in dark rooms to avoid glare. Slide background and text colors should have high contrast [22]. Avoid black text on blue backgrounds or yellow on white. Avoid red/green combinations as they appear as shades of gray to color-blind people and red on blue or green appears to shimmer at color margins. Color themes provided by PowerPoint tend to be compatible colors and safe to use. Though debated, sans serif is possibly the more readable font. Limit the number of words on a slide to avoid passive slide reading. In addition, avoid presenting orally a slightly different text than what is on the slide, which will distract learners. It is also preferred to use bulleted points in parallel structure, starting each with the same type of word (verb, noun, etc.) vs complete sentences. As a result, the learner's eye will tend to focus on the new information in each bullet.

Data Presentation Don't place copied text or published tables on slides as the audience won't have time to analyze them. Instead, construct new tables that focus on essential data. Emphasize the substantive parts of data that change (dots, lines, labels, etc.), over the vehicle in which data are presented (e.g., title, scales). Eliminate legends and put labels directly on data for easier reading. Use colors or arrows to highlight key information. Also, consider using "builds," where each successive slide depicts only the critical data that change to emphasize what is changing and the associated similarities and differences of the data. To be effective in presenting data, in particular, anticipate each slide with the audience before showing it. Therefore, be familiar with the slides and rehearse the presentation rather than relying on the slides as lecture notes.

In general, direct the learners' attention to the key features. If you use a laser pointer, point at specific elements in a slide and avoid using it as a word-by-word guide through the slide text. Make sure to give adequate time for the audience to review and possibly copy the information. If you are using video or audio technology, make sure that students know what to watch for during the presentation. Make sure to provide ample time for discussion and summary of the relevant points.

Hone Presentation Behaviors

The teacher's behavior during a lecture can significantly affect the efficacy of the presentation. Nonverbal lecture behaviors have a substantial effect on speaker credibility and persuasiveness [23]. Consider speech patterns, voice quality, vocabulary, mannerisms, facial expressions, appearance, posture, and eye contact, all of which can add to the persuasiveness and interest of a presentation.

Prepare Yourself Emotionally Some lecturers listen to music before speaking; others spend time reviewing their notes; still others might walk through the empty classroom, gathering their thoughts. Determine what activity might promote energy and focus for you to present with confidence and enthusiasm.

Rehearse Rehearse your presentation to ensure that it fits within the allotted time frame. Though time-consuming, rehearsing is particularly helpful for an inexperienced instructor. Rehearsal can lead to improvement of fluency, decreased reliance on reading slides or notes, and decreased fidgeting and nervousness.

Arrive in Class Early Use your voice informally with the students before you begin the lecture so that your tone can maintain its conversational quality. Take a few deep breaths, or tighten and release all the muscles in your whole body to promote relaxation and minimize nervousness. Once you get started, anxiety will fade [24].

Establish Rapport with Students By creating a warm, personal, direct, and conversational relationship with the audience from the outset, the lecturer will help students feel more engaged in the class. This engagement also gives students a sense that the lecturer is speaking to each one individually. Eye contact can increase learning partly by acting as an arousal stimulus to the learner and, therefore, facilitate the encoding of information. Gaze aversion may have the opposite effect [25]. Throughout the lecture, maintain eye contact with individual students one at a time. Avoid aimless scanning of the audience. Try not to lock on to one student—a glance lasting more than 5 seconds will make a student uncomfortable. Some lecturers divide the lecture hall into sections and address comments and questions and direct eye contact to each section during the course of a lecture. If direct eye contact affects your concentration, look between two students or at foreheads. Concentrate on the attentive learners but do not avoid the non-listeners. By focusing on the students as if speaking to a small group, you will not only increase their attentiveness but also be able to notice their facial expressions and body movements. Such responses will help inform you as to whether you are speaking too slowly or too fast and give you

feedback as to whether the students understand the material [24].

Avoid Reading Your Lecture Notes Reading interferes with maintaining eye contact with your audience and leads to a distancing experience. Use note cards or slides as guides only. Make sure that they are easily visible so that a quick glance is all you need.

Be Enthusiastic Enthusiasm is highly correlated with overall teaching effectiveness in student ratings of teachers [26]. Convey enthusiasm for students through looking at them, using their names, and inviting them to ask questions. Humor, energy, and passion can also convey enthusiasm. These behaviors motivate learning, spark interest in the topic, and maintain interest in the lecture.

Strive for Natural Conversation Attempt to create a natural, spontaneous conversation with your students or the audience as a whole. Vary your pitch and use inflections and tones as if in natural conversation. A more expressive delivery will result from focusing on the meaning of what you are saying.

Vary Speech Patterns and Language Vocal variety and verbal pauses can provide energy, boost interest, and provide excitement to a lecture. Project your voice so that it can be heard easily at the back of the room. Pauses can be used for emphasis, a transition from one idea to the next, or after a rhetorical question. Slower speech allows learners to comprehend information more easily, as well as take notes. It also can be used to emphasize important topics. However, if the lecturer speaks too slowly, students may become bored. Furthermore, utilize simple, clear, and dramatic language. Avoid vague terms (e.g., "sometimes," "often"), jargons, or empty words.

Body Movement Look professional and relaxed. Occasionally move about the room. Physical movement can increase interest, emphasize key ideas, communicate feelings, and create connection with an audience. By moving around, the instructor can show his or her face to the largest number of audience members, which is an effective communication technique. Movement also can convey that an instructor is comfortable with a presentation. Use purposeful, sustained gestures as well as an open, casual stance to invite students' questions. Avoid aimless, stereotypical movements or gestures, which can be distracting (e.g., shuffling notes, fidgeting).

Keep Track of Time If you are running out of time, avoid speeding up to cover all your material. Plan in advance what parts you can leave out, should it be necessary. Have handouts of material ready if there is not enough time to cover the content verbally. Some lecturers prepare their presentation in 10-minute segments so that if they run over due to learner questions or a need to clarify particular areas more carefully, the lecturer can easily drop out a section of the previously planned talk without affecting the general flow of material. The section should usually come from the middle of the talk, because the lecturer would not want to shortchange the ending.

Manage the Nerves Strategies to cope with nervousness include good preparation, mastery of the material, knowing your audience, and rehearsing for success.

Beginning of the Lecture

Key components in the introduction phase of the lecture involve establishing a positive learning environment, stating the learning objectives, capturing the attention of the audience, and generating interest for the topic at hand.

Establish a Positive Learning Environment Creating an open and supportive atmosphere where learners are encouraged to actively participate is critical to enhancing learning [27]. Attempt to minimize any stress within this environment at the outset: Check the room temperature and potential for interruptions, verify adequate lighting and visual accessibility, ensure adequate space for learner materials, check tech-

nology requirements and operation, and alert learners to silence any cell phones or pagers. Also, where possible, the lecturer might use learner names. Always encourage and reinforce participation, show enthusiasm for the topic and learners, and be respectful.

State Learning Objectives At the very start, establish what the learner is expected to learn by the end of the lecture by stating learner objectives. These should be described as clear, specific, observable, and measurable learner behaviors. For example, "The learner will be able to compare and contrast the mechanisms of action of the various antihypertensive medications" by the end of the lecture. These objectives can be written on the board or presented on a slide. The objectives may be presented in the form of questions to challenge and evoke the learner's curiosity. Explain why these learning objectives are important for the learner to master.

Gain the Attention and Interest of Your Audience An interested learner is more likely to attend to a presentation, be impacted by the subject, and learn more [28]. Depending on the size of your audience, you might start off the lecture with an icebreaker to relax the participants as well as yourself. For example, have people introduce themselves and tell a little about their background as it might relate to the topic, identifying themselves with their name and a one-word self-description or, if grouped at tables, identifying something in common with the other learners. You could pose open-ended questions requiring students to reflect on the topic which may help the lecturer know where learners are vis-a-vis a topic or pose a problem and elicit responses from learners which could be used at later points in the lecture.

There are many ways to gain the learner's attention for the topic. Useful techniques may include presenting a clinical or humorous anecdote that is relevant to the learners, asking a provocative question, using a dramatic contrast, or giving a short questionnaire or demonstration. Even showing a short video may be of value.

Assuming a narrative mode of explaining also may build interest. Mixing explanatory modes by beginning with the narrative or storytelling approach and then inserting anecdotes where appropriate and ending with a conceptual summary is a particularly effective way to generate interest and understanding [15]. Furthermore, behavioral dimensions including warmth, enthusiasm, conversational style, energy, and charisma will also increase a learner's interest and attention to the topic.

Provide a Road Map Inform the learners what they should anticipate in the lecture by providing an outline. If the lecture is part of a series, place the lecture in context by linking the material to earlier sessions. This preview serves to focus your learners on key points of the lecture and helps them organize and anticipate what will be happening throughout the lecture [29]. Refer to this outline periodically to reorient the learners.

Build on Previous Experience Attempt to stimulate the learners to recall previous learning and capabilities. You could ask learners to write down their questions about the topic, requiring learners to connect their existing knowledge to the new information. Activating a learner's preexisting knowledge linked to the new material will help facilitate the integration of the new content into the preexisting knowledge, which serves to enhance retention. Some examples include stating, "You all know about …" or using an advance organizer, a technique where information is presented before learning and can be used by the learner to organize and interpret new, incoming material [30]. The advance organizer typically is presented at a more abstract level than the content of the lecture and serves to bridge the gap from what the learner already knows and what the learner needs to know.

Middle of the Lecture

Once the audience is primed to receive the new information, the lecturer is ready to deliver the body of the talk. To avoid cognitive overload, no

more than 3–5 main points in a 50-minute lecture should be presented in a logically organized manner. Focus on important, needed, and interesting content, with each point addressing the main theme in some way. Emphasize principles and rules with a few details. Too many details are difficult to remember and tend to interfere with understanding [11].

Clarify ideas by using cases, examples, or anecdotes. In addition, pausing every 12–15 minutes for students to process the information or engaging the learners in an active manner increases learning. Vary the methods of explanation (examples, interactive tasks, questions, demonstrations, video clips, etc.) to maintain audience attention and stimulation.

Enhance Clarity Several strategies can be employed to optimize clarity. Examples and supporting materials can be added to each main point. Examples tie theory to reality and relate concepts to the concrete. Appropriate examples and anecdotes can make material meaningful; however, keep them brief. Examples and analogies also can serve to link the structure of the topic to the learner's cognitive structure. The order in which examples are presented is important. If content is new to the learners, an effective way to link known information to new knowledge is to first explain this material through several examples followed by a definition or generalization. If the material is relatively familiar to the audience, start with stating the principle followed by examples. This helps restructure existing knowledge [31].

Other strategies to promote clarity include explaining relationships in material by comparing and contrasting, using analogies, and encouraging students to develop concept maps. Responding adequately to learners' questions also helps to promote clarity in the learners' minds. Using structuring moves such as enumerating and employing clear transitional phrases (e.g., "next," "let's move on to," "now we will consider…") to move from one subtopic to another and summarizing key points at each section of an explanation help the learner follow the presentation and stay focused. Other impor-

tant tips include speaking clearly, using pauses effectively, and not speaking too fast. Also avoid vague terms and define those that may be new to the audience.

Provide Intermittent Reviews Use periodic summaries for longer lectures, and refer back to the learning objectives to remind learners where they are in the lecture. Periodic reviews and repetition help learners consolidate the information and help those who momentarily drift off to return to the flow of the presentation.

Interactive Techniques

Research demonstrates that interactive lectures are more engaging and have enhanced learning outcomes and knowledge retention than passive lectures [7, 32–36]. However, it is important to time the interactive interventions carefully within the lecture. Consistent with the *primacy–recency* effect, retention of lecture information is highest at the beginning and end of a lecture [37]. Therefore, consider scheduling interactive interventions every 10–15 minutes to keep learners attentive. The key is to select and apply those activities that best fit your instructional goals of the presentation.

Incorporating interactive techniques into a lecture allows learners to actively engage with the new material by practicing their cognitive skills. Though this approach may seem formidable in a large lecture hall, several strategies have been described in the literature. Interactive strategies serve to generate interest among learners, allow learners to apply the new knowledge and check their understanding, and also serve to renew a waning attention span among the participants. Interactive techniques may serve to link one section of a lecture to another. Furthermore, students tend to learn better by participating in interactive learning environments while enjoying the social interactions [38]. They find collaboration groups fun, nonthreatening, and dynamic. Such strategies also can result in an increased attendance and increased desire to participate in discussions. Interactive groups also serve to shift the learning

onus from the teacher to the learner and provide the teacher important information about the learners' understanding of the material being taught. Some examples of interactive strategies include:

Questioning The tried-and-true, non-technological approach to engage students is asking questions. Questions can be directed to individual students, small groups, or the entire group. Attempt to ask higher-order questions, such as synthesis–analysis types, as opposed to recall questions. When querying individuals, allow at least 3–5 seconds of wait time for students to formulate their responses. Using student names as well as providing positive reinforcement when students respond can be a powerful motivator and tends to encourage more participation.

Allowing students to ask questions is also important. Repeat any question and answer so that all students can benefit from the discussion (repetition also gives the lecturer time to think about the question). Take your time, if needed, to find answers to questions; this shows that you value the learner's education. Responding to a student's question provides clarity and feedback to the student and topic. To increase participation, you might ask other students to respond to a learner's question.

If asking a question to the class or an individual and expecting a verbal response seem too cumbersome, consider asking students to answer a question on a piece of paper, which promotes engagement with the new material and, if the answers are reviewed, can inform the lecturer how well the material has been explained.

Buzz Groups, Cooperative Groups, or Peer Instruction Invite the class to break into groups of 3–4 students to consider a question or a problem to solve, develop an example of a concept, or formulate a question about something not understood from the preceding part of the lecture. After a few minutes of discussion, a group-selected leader can present the group's results to the class, or the teacher can summarize comments or a solution on a whiteboard. Not only do the learners actively engage with the content but learn from one another and receive feedback from both peers and the teacher.

Handouts and Notes Different types of handouts are possible, but in general, the larger the audience, the more important the handouts are. Handouts can include a one-page outline of key points, interactive skeletal notes requiring completion during the lecture, complex diagrams or references, transcripts of the lecture, exercises to be used during the lecture, and references.

Interactive or guided notes require students to actively engage in lecture material. They improve accuracy and efficiency of note taking and increase retention of content [39]. In general, the acts of taking and reviewing notes improve recall [11]. By providing complete or skeletal lecture slides, students have the accurate information and do not need to focus on copying words. Instead, learners are encouraged to use higher-order skills such as synthesis and comparing and contrasting material.

Handouts should reflect the purpose and structure of the presentation. Prepare the handouts from the audience's perspective and considering their future use. Engage the learner by providing empty spaces to write key facts, concepts, and/or relationships during the lecture or a list of questions to be discussed during class. If the handout is made available before the class, the learner has the chance to preview the content.

Worksheets to be completed after the presentation may include printouts of abbreviated slides, incomplete diagrams, exercises with fill-in-the blanks, or incomplete lists of advantages or disadvantages of a topic outlined. Other handouts to be distributed to learners might include related resources, Internet sites, and articles.

Assign In-Class Writing During or after a lecture, ask learners to write a brief paragraph about what was learned in the lecture.

Pause and Clarify Use 2-minute pauses so learners reflect on new material and discuss their understanding of content with a neighbor. Ask an open-ended question appropriate for a brief conversation.

Think-Pair-Share An extended version of the *pause and clarify*, present a short segment of a

lecture and then ask learners that are paired with one another to discuss a question posed during the lecture. Learners first think silently about an answer. They then compare their answers and thought process with one another. Finally, the small groups may voluntarily share their consensus answer with the group.

Interactive Technology A variety of technologies can facilitate an interactive learning experience and overcome the barrier of the large class size and physical space. Some of these technologies include:

- *Audience response systems* (*ARS*) *or* clickers. This technology allows instructors to stop periodically throughout the lecture to question the learners anonymously and track individual and/or group responses. Immediate feedback allows learners to gauge how well they understand the material while informing the instructor how effective the explanation has been and whether the instructor needs to rephrase or repeat concepts. It is also another way to highlight key points being delivered. A new generation of cloud-based response systems, instead of external clickers, can be downloaded on personal devices, allowing students to use their cell phones to respond to lecture questions (e.g., Poll Everywhere). It allows for image-based and free text polls.

- ARS has been shown to increase discussion among students, help them determine their level of understanding compared to peers [40], create a positive learning environment [41], facilitate identifying points of confusion in large lecture class [42], and allow for lecturers to correct common misconceptions [43]. This technology also can increase class attendance if associated with grades [44]. Yet, research suggests mixed results regarding knowledge retention [45–47].

- The biggest challenges for lecturers using ARS include time needed to learn and set up

the system, create effective questions, ensure adequate coverage of course material, and the ability to respond instantaneously to student feedback [48]. The best ARS questions are those that address common areas of confusion, have specific learning goals, and elicit a wide range of responses without just one correct answer. However, queries are limited to MCQ or Likert scales.

- *Screen-sharing software*. This software allows screens of devices to be projected onto the lecture big screen or project the lecturer's screen onto student devices where they can annotate slides or share written material with the rest of the class (e.g., Nearpod). The lecturer can embed interactive elements into the presentation like polls, quizzes, and drawing functions which allow to assess the level of learning achieved. Such features allow for immediate feedback to both the teacher and learner and allow for the lecturer to adjust what is taught based on a student's level of knowledge [49]. Pilot data demonstrated that Nearpod increased interactivity within the classroom and was strongly supported by students [50].

Other interactive techniques include:

- Identify main concepts. The lecturer instructs the students at the beginning to make notes of key concepts as they move through the lecture and present them at the end.
- Concept maps. Ask learners to develop concept maps following the lecture to actively create conceptual links from the lecture material. The concept maps are constructed by connecting individual terms by lines that indicate the relationship between each set of connected terms. Most of the terms in a concept map have multiple connections. Developing a concept map requires the students to identify and organize information and to establish meaningful relationships between the pieces of information.
- Gaming. Though learning impacts have demonstrated mixed results [51, 52], gaming, such as *Jeopardy*! or *Wheel of Fortune*, energizes

learners, who find it fun and exciting to participate and test their retention. Games also provide prompt feedback to the educator.

- Case illustration. Ask students to think of a case to illustrate a principle presented or a future application of the material.
- Restate key points. Ask students to restate the material in their own words on a piece of paper.
- Stump your partner. Ask students to turn to their neighbor and come up with a question that they feel is very difficult. Collect the questions verbally or on index cards for use in other lectures, in practice, or on exams.
- Note check. Ask students to turn to their partner and compare notes, focusing on the most important points of the preceding content. What are they most confused about? Collect these comments either verbally or on index cards.
- Debates. Divide students into groups of 4–6 learners and assign opposing viewpoints to consider. After brief discussion, groups reconvene to present their arguments.
- Brainstorming, role-plays, mock interviews.

Closing the Lecture

Don't end your lecture abruptly after the last slide. Summarize the major concepts succinctly at the end of the lecture, or have students summarize the key points. Remind the learners what has been accomplished during the presentation, how it is relevant to them, and what they should do with this knowledge.

This summary provides a chance to repeat and emphasize the major points, allows the lecturer and/or learners to tie up any loose ends, and provides a sense of closure for the audience. The lecturer can end with a provocative thought, summary of the major issue, quotation, or preview of coming material. It is useful to provide further resources. If the lecture is part of an ongoing course, provide a bridge to the next class by previewing readings, assignments, or key concepts to come. The summary also helps learners remember any questions they may have had during the lecture. Stay after class for a few minutes to answer any questions (Table 1).

Table 1 Guidelines for an effective lecture

Tip	Principle
Getting started	
Know the context	Understand the purpose of the lecture
Know the audience	Anticipate learners' preexisting knowledge base and cognitive structure
	Determines what will be relevant and interesting to learner
	Understanding how the material may be applied in the future
Know the content	Include knowledge, skills, and attitudes
	Narrow content scope to enhance learning and retention
Develop a framework	Promotes ability to focus, follow, and understand
Select a presentation tool	Improves short- and long-term retention
Adhere to multimedia principles	Enables transfer of new information to solve novel problems
Hone presentation behaviors	Impacts speaker credibility and persuasiveness
Beginning	
Establish the learning climate	Promotes interest and participation
State learning objectives	Establishes lecture purpose, relevance, and organization
Gain the learner's attention	Promotes focus
	Establishes relevance
Provide a road map	Preview of lecture
	Establishes organizational map
Build on previous learning	Connects with preexisting knowledge of learner
	Promotes retention
Middle	
Limit content	Helps manage information
	Promotes retention
Enhance clarity	Promotes interest and understanding

Table 1 (continued)

Tip	Principle
Use visual aids	Promotes retention
Intermittent reviews	Promotes retention and focus
Use interactive strategies	Offers opportunity for knowledge/skill application
	Provides feedback on how learner and lecturer are doing
	Promotes retention
	Encourages self-directed learning
Closing	
Summarize	Integrates new information with previous information
	Promotes retention through repetition
	Re-establishes relevance and application
Stay for questions	Feedback to learner and lecturer
Evaluation	
Collect data on impact of lecture	Improves learning
	Improves lecture

Evaluation

The final component of providing an effective lecture is the evaluation. This provides feedback so that learners can see if they are accurately integrating the new material while allowing the instructor to discover whether or not the material was presented in a clear and understandable manner. Therefore, the goal is twofold: to improve learning and to aid one's ability to lecture. Student opinion, student achievement, peer feedback, and reflection on practice represent the different types of evaluations and are discussed in the subsequent text.

Student Opinions Obtaining student assessments of the teaching can be achieved through informal conversation with students or through an evaluation form. Focus groups, rating scales, or written reports can also be used. The difficulty with focus groups is that they are time-consuming and can be hijacked by an outspoken participant. Rating schedules often tell a lecturer what is good or bad but rarely how to improve a lecture. Written reports can also be time-consuming. The lecturer could invite comments about the lecture via an electronic discussion board, if available, where students could identify topics they did not understand, ask questions, or give feedback on the presentation.

Other approaches include having students fill out a brief, three-item evaluation (i.e., "what was useful, what was not useful, and suggestions for improvement") after *each* lecture or write a "minute paper"

where students are asked to respond in one or two sentences to the following questions: (1) What stood out as most important in today's lecture? (2) What are you confused about? Both methods provide time for the learner to reflect on the new material while also providing the lecturer feedback on his or her teaching skills through critiques of the teaching techniques and information on how learning occurred.

Student Achievement Testing can also suggest the success of a given lecture—particularly if done immediately following the lecture. If testing is done at the end of a learning sequence, the results might better reflect the student's capacity to master the material through outside reading or studying of lecture notes instead of demonstrating understanding or retention gained primarily from a given lecture.

Peer Feedback Though time-consuming, peer feedback is an important adjunct to student evaluations. This feedback can be set up as a mutual evaluation, where one lecturer observes another and vice versa, each providing feedback to the other through the use of a rating schedule [53], checklist [54], or discussion. Such feedback can serve to encourage effective behaviors and diminish or eliminate ineffective ones.

Reflective Practice Using a reflective approach has become a key part of continuing professional development [55, 56]. The approach involves several strategies:

- Collect and analyze any student or peer evaluations.
- Make notes to yourself after each lecture—consider the timing, effectiveness, and appropriateness of examples. Did you feel your explanations were clear? Did your audience appear engaged? Was the amount of material covered appropriate given the abilities, experience, and motivation of the students? Were the visual aids clear and of the right length?
- Make note of any comments or questions asked by students. Did students seem to obtain what you intended from the activities? Did the material provided complement the lecture?
- Evaluate how well you met students' learning objectives.

On the basis of these findings, adjust the lecture. Sharing individual reflections on practice with members of a group or course team can facilitate improving the overall quality of lecturers in the department or faculty.

Observing yourself via video or audio is another very effective technique to use in improving the quality of your presentation skills. Periodically record your lectures. Is your tone conversational? Did you provide clear transitions? Did you use effective pauses or emphasize the material in other ways? Did you clearly respond to questions and maintain good eye contact? How did the learning climate feel? Whether done by yourself or with a mentor or a peer evaluator, identify both desirable and undesirable behaviors, and then set goals for improving the quality. A lecture skills checklist can also be used.

Novel Uses of the Lecture

The modified lecture has been used more recently within team-based and online learning formats. By modifying its length and objectives while adhering to underlying educational principles, the modified lecture has found new uses.

Problem-Based Learning (PBL) Although the underlying educational philosophy of PBL is for learner's educational needs to be the driving force for learning, lectures remain a common form of instruction in an attempt to stimulate meaningful learning. Introductory, in-depth, and application lectures are possible within this context [13]. An introductory lecture can be utilized to help activate and assist students' pre-understanding of basic concepts, functions, and principles. The lecture can start by encouraging individual reflection through open-ended questions. Key words from these reflections can be written on the whiteboard and used as a primer for discussion. Throughout the lecture, pair shares or group reflections can be utilized. Finally, students can be asked to write questions they want answered during the next lecture, thereby influencing subsequent lecture content and meeting the direct needs of the learner. An in-depth lecture can be used for more complex phenomena and connections which can be based on students' written questions. The lecturer must be flexible enough to allow for student engagement while being able to return to the original structure of the lecture so as not to deliver fragmented presentation. Questions can be used for brief reflection/discussion by students in pairs or groups during the lecture. Finally, an application lecture relates the material presented to a case, again using individual reflection, group discussion, and brief explanations. This content review must also provide the opportunity for students to apply their new knowledge and interact with experts in the field.

Team-Based Learning Typically, students have a pre-class reading or other assignment. The class starts with an individual and then group readiness assurance tests. This is generally followed by a "mini-lecture," tightly targeted on areas where the students are having troubles. Then students apply knowledge through interactive activities.

ACTIVE Teaching Format This format was developed to be used within a residency noon conference. It includes the following steps: *Assemble* into groups, *Convey* learning objectives, *Teach* background information (minilecture), *Inquire* through cases and questions, *Verify* understanding, and *Explain* answer choices and *Educate* on the learning points. Compared to the traditional lecture, this format improved learner engagement and increased initial knowledge achievement with

a trend toward improving long-term retention, and faculty enjoyed teaching with this format [35].

Flipped Classroom Students watch online lectures prior to entering the classroom where they engage in active learning strategies such as team-based learning, case-based activity, and simulation that apply content presented through the lecture. Though students prefer the more active learning approach compared to the traditional lecture [57, 58], learning outcomes are mixed [58–60]. Generally, these online lectures involve a 10–15-minute video segment with embedded quizzes. In general, these flipped classes are more time-consuming to make than the traditional class.

Online Learning This is learning with the assistance of the Internet and a personal computer. It remains unclear whether online learning is any better than live lectures despite the increasing move toward online learning [61–63]. It is important to realize a digitally delivered lecture is a very different approach than the classroom lecture. A few differences include keeping the online lecture to no more than 10 minutes by providing "bite-size" content chunks in order to captivate the audience. Mixing talking heads with computer screenshots or slides seems to be more engaging than screenshots with voice-overs. The key is to focus on clear, precise delivery of basic concepts without dumbing down the material, use as many visual examples as possible to explain concepts, and intersperse the talk with lots of interactive moments. Don't underestimate the need for technical assistance for video production.

Words to the Wise

- Invest time in preparing! Carefully consider your audience and the context in which you are asked to present a lecture before determining exactly what content you will present. Select the best organizational schema, and develop a logical presentation.
- Develop clear learner objectives. Make the objectives relevant, realistic, observable, measurable, learner focused, and clearly stated.

Do they involve more than one of the key educational domains—knowledge, skills, and attitudes?

- Less is more! Do not overload your lecture with facts and details. Limit the key concepts, and back them up with clear examples and other strategies to enhance clarity.
- Foster active learning. Provide time for learners to apply their new knowledge and receive feedback.
- Reflect on your lecture performance. Ask for feedback from students and peers and self-assess. What kinds of questions did learners ask? Did learners appear or act engaged? What seemed to puzzle your learners?

Ask Your Mentor or Colleagues

- Are there teaching workshops in our institution to help educate me about being an effective teacher?
- Could you or another expert teacher observe a lecture with or without the use of videotape and provide concrete feedback?
- What have you found to be the most significant lessons learned from giving a lecture? What pitfalls should I look out for with regard to lecturing?
- What have you found to be the most effective form of lecturing?
- What do you do if the audience resists engagement?

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How to Build Assessments for Clinical Learners

Teresita McCarty

Educators often focus on the content and delivery of the curriculum and neglect the assessment of student learning outcomes. Assessment is frequently an afterthought in curricular planning, but it is of extreme importance in directing learners' effort and attention. The latter sentiment is reflected in the expression, "Students respect what we *inspect* more than what we *expect*." Learners suffer when the assessment portion of the curriculum is underdeveloped, but this inattention is an opportunity for an instructor who wishes to make a difference in learning outcomes. Assessment is a powerful tool. If learners know what concepts or skills will be on the test, they will do their best to learn those things. Healthcare learners are motivated and pragmatic. Assessment-driven learning is not a bad thing if the tests are well designed and appropriately sample and measure learners' knowledge and skills. Assessment communicates what faculty value, and it directs and motivates learning.

Formative and Summative Assessment

Assessments may be used in either a formative or a summative manner. Formative assessments are intended to provide feedback instead of a final grade. Coaching is a form of formative assessment familiar to most people. Coaches set up a situation where a learner's knowledge or skill is observed, specific feedback is provided, and the learner tries to do better the next time. Formative assessment creates frequent opportunities for observation, which can be informal and may be spontaneous. Formative assessments can serve to drill learners about the basic vocabulary and facts they must commit to memory in order to address the more complex "application on knowledge" questions that appear on a summative exam and in clinical care. Formative assessment is most effective when the task or the question is difficult but not impossible, when it is at the outer edge of the learner's comfort zone. The feedback from formative assessment can be oral, or a written score or narrative. While the results are conveyed to the learner, formative assessment results are not recorded in the learner's permanent record. Although a formative multiple-choice quiz or clinical observation may result in a score that is tracked by the instructor, the purpose is to guide improvement. In contrast, summative assessments are usually scheduled and formal. Successful completion of a summative assessment is often required in order to transition to the next step or stage of training and produces a result that is entered into a learner's record or is used to make high-stakes decisions such as licensure [1]. Whether formative or summative, assessments should always be high-quality, based on the

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learning objectives, and they should be congruent with the expected level of mastery.

Testing Methods

As soon as the curricular learning objectives are established, an assessment blueprint can be generated, the most appropriate assessment methods selected, and test items created [2]. Since assessment is a process of sampling, the best characterization of learners' knowledge and skill comes from using an adequate number of test questions across a varied assortment of assessment methods. Creating assessment items is described in detail for written assessments: multiple-choice (single-best-answer) and essay questions (short-answer and extended-response). General approaches are described for creating assessments where students demonstrate their knowledge and skills in performance- and workplace-based assessments.

Written Assessments

The written assessments discussed below are true-false, multiple-choice (MCQ), and essay questions.

True-False Questions

True-false (T/F) questions require the learner to indicate whether answer options are completely true or not. These questions should be avoided [1]. Statements about biological systems are rarely totally true or false. High-achieving learners can be penalized by T/F questions when they select the wrong answer on the basis of knowledge of rare exceptions when the instructor assigned the "correct" answer on the basis of the most common circumstances. Additionally, the least knowledgeable learners have a 50% chance of guessing the right answer. It can be difficult to revise such questions into superior single-best-answer items. It is often easier to note the content area that was assessed by the T/F question and begin anew.
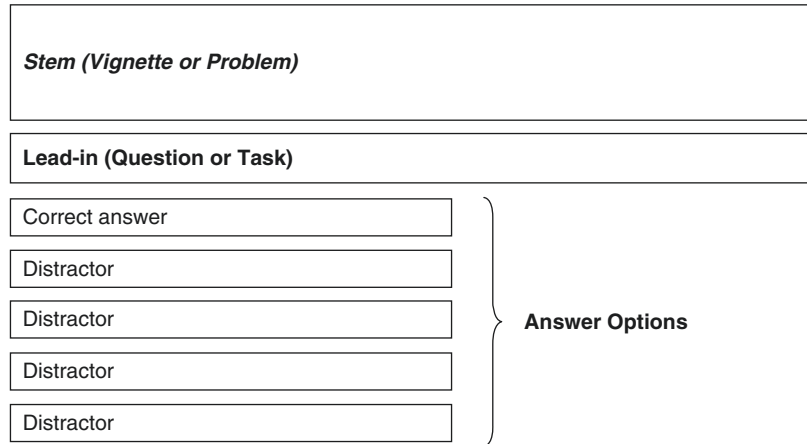
Multiple-Choice Questions

MCQs consist of a question followed by several answer options, one of which is the correct answer and the others (distractors) are incorrect. MCQs are popular because they have many strengths. Well-written MCQs can efficiently test a large number of learners about a wide range of information in a short amount of time. Scoring is easy and fast and can be done automatically by computer. A weakness of a MCQ is that instructors cannot know why learners selected the correct answer. Learners might recognize the right answer in a list of options without knowing why it is correct, or, with partial knowledge, they may eliminate enough options to guess successfully. When a MCQ is flawed, learners can use test strategies like grammar clues, absolute terms, and the length of the answer option to arrive at the correct answer with no understanding of the question content. MCQs are also not an authentic assessment because clinical problems do not present with a preselected set of answer options, and learners who can answer MCQs correctly may do less well when they must come up with their own answer options. To optimize the effectiveness of MCQs, write questions that require the application of knowledge about important concepts, and avoid question flaws that can result from ignoring the guidelines below [1].

The single- or one-best-answer question is a refinement of the MCQ where the distractors may also be correct answers, but they are not the *best*, most correct answer. Like all MCQs, the body of a single-best-answer item consists of a stem and lead-in, followed by a series of three or more answer options. But for a single-best-answer question, one of the distractors is *most* correct with other distractors being much less correct (Fig. 1) [1, 2].

The body of the MCQ question is called the *stem* and is often a clinical vignette or other scenario. The lead-in asks/instructs the learner how to respond to the situation that was presented. The vignette in the stem should contain enough information that a learner could correctly answer the lead-in question without reading the answer options. When the question is based on a patient vignette, the information sequence should resem-

Stem (Vignette or Problem)

Lead-in (Question or Task)

Correct answer

Distractor

Distractor   **Answer Options**

Distractor

Distractor

ble a typical patient presentation. Begin with the patient's age, gender, and the clinical setting, and follow with information that would have been obtained from the history, physical examination, and laboratory studies. Omit any of the information in the sequence if it is not pertinent to the question being asked.

The last sentence of the body of the item is called the *lead-in*. The lead-in is the actual question the learner will answer about the scenario presented in the stem. The lead-in should be a complete sentence to avoid giving grammar clues that point to the intended answer. The lead-in is also what differentiates a single-best-answer question from more general MCQs, and such a lead-in could read, "Which of the following is the *most likely* diagnosis?" While all the answer options may be possible diagnoses, the task for the learner is to recognize the diagnosis that is most likely in the instance of this test item or patient scenario.

These are other guidelines for high-quality single-best-answer test items. Lead-ins should avoid asking "except" or negative questions. "All of the following are side effects of this medication *except*:" or "Which of the following side effects are *not* characteristic of this medication?" are examples of lead-ins that you should avoid. Such questions are difficult to read, and learners may select the wrong answer inadvertently. Another drawback of negatively phrased questions is that learners cannot answer them without reading all of the answer options. Learners should

have a tentative answer for a well-constructed single-best-answer question before looking at the answer options.

The number of *answer options* per MCQ usually ranges from three to five and is sometimes limited by the number of bubbles or scratch-off regions on a testing sheet. It is easy to include more than five answer options if the exam is administered on a computer. It is better to have fewer answer options for an item than to include implausible options that no learner would ever select. Ideally, each answer option is short and of similar length. Because instructors typically take the most care with the correct answer, learners who do not know the answer will select the longest of the answer options. Answer options should also be homogenous. For example, all answer options should be a causative organism rather than a mixture of causative organisms and treatments. The incorrect answer options are called *distractors*, and they should include common errors and misconceptions. Since a single-best-answer question asks for the "most likely" or best answer, one should avoid absolute terms like *always* and *never*. Absolutes typically cue that an answer option is incorrect. Similarly avoid frequency terms such as *seldom*, *rarely*, or *occasionally* as the meaning of such words is interpreted differently by different readers. While the options *none of the above* and *all of the above* make question writing easier, they should not be used because they make it easier for learners to guess correctly on the basis of limited informa-

tion recognition [2]. When applicable, be sure to list the answer options in numeric or logical order; otherwise, sort the answer options into random or alphabetical order. The alpha order rule overcomes instructors' human tendency to "hide" the correct answer in the middle of the answer options. It is this tendency that gives credibility to learner lore that says, "When in doubt choose B (or C)."

Flawed MCQs can cause knowledgeable students to fail exams, and they can enable test-wise learners to pass exams when they do not really know the information [3, 4]. Single-best-answer questions can be carefully crafted to prevent such flaws. When MCQs are well written and properly used, they are a strong and powerful tool for assessing knowledge.

Essay Questions

Essay or supply-answer questions give instructors the opportunity to see if learners have vocabulary and knowledge in sufficient depth to explain concepts. Essay questions allow learners the opportunity to demonstrate their clinical reasoning. Learners answer essay questions with a free-text response instead of selecting from a set of answer options. Essay questions might be useful when it is important to know the learner's ability to express thoughts, explain concepts, and demonstrate the ability to reason critically.

Short-answer questions are a subset of supply-answer questions. They restrict the response to a single word or phrase, while extended-response essay questions may permit responses that are several paragraphs in length. A patient note, written in response to a clinical situation, is basically an extended-response essay question. The assessment potential of essay questions is limited by the time it takes students to answer the questions and the time it takes instructors to grade them. In addition, developing a clear scoring rubric is necessary, and graders should be trained and calibrated. Since these resource factors limit the number of concepts that can be assessed, essay questions should be reserved for ensuring that learners can demonstrate their understanding of

critical concepts where other assessment methods would be less effective or valid.

When writing essay questions select important concepts to assess, those requiring reasoning, interpretation, or analysis. Let the learners know, as clearly as possible, how they should respond to the question. An example or sample response can be very helpful. Allow learners as much latitude as possible in their answers but also be sure to specify the pragmatic parameters, such as the number of words allowed and margin width and font size permitted.

Instructors define what they will expect as correct answers at the same time the questions are written, and they create a scoring rubric that will help in the process of grading essays. The scoring key for short-answer questions consists of a simple list of the correct answers. The scoring rubric for extended-response essay questions is more complicated and can be "analytic" or "holistic" in emphasis. Both approaches outline a framework of the content and style factors being assessed and list the points available to each of the defined quality levels. An analytic rubric lists information that should be included and assigns points for specific content, while a holistic rubric uses an integrative, global perspective to determine what points are earned. Analytic scoring of a patient write-up might award two points for each of the patient's vital signs and a separate set of points for the organization of the clinical information. Alternatively, holistic scoring might allow the grader to award all of the "vital sign" points for the patient's critically high blood pressure even if the other vital signs are omitted. Each approach has strengths and limitations. The analytic approach results in more reliable, reproducible grading, while the holistic approach makes greater allowance for the sorts of complexity found in medicine and therefore can have greater validity. Essay scoring rubrics should be peer reviewed, pilot tested, and revised as necessary before being used to score a summative examination.

Essay questions should be graded without knowing the identity of the learners. If the test contains multiple essay questions, more consistent scoring will result if the first essay question

is graded for every learner, followed by every learner's response to question two, and so on. An approach that encourages consistency is to sort the essays into three groups, such as failing, satisfactory, and excellent, and to then examine each group to verify that the essays within each of the groups are consistent with one another before making the final grade assignments [5, 6].

Performance Assessment

Performance examinations allow students to demonstrate a manual skill or what they choose to do while interacting with a patient. Rather than selecting what should be done (MCQs) or describing what should be done (essay questions), skills are best measured by having learners demonstrate what should be done. Observing a learner conduct a patient evaluation is the most authentic and valid assessment of a learner's ability to evaluate patients. Following the observation with coaching has a powerful effect on learning and is an invaluable form of formative assessment. Objective structured clinical examinations (OSCEs) are performance examinations that often use standardized patients and simula-tion or task models to pose each learner with the same technical skill requirement or patient scenario. OSCEs remove the natural variability of actual patients and improve assessment reliability and fairness. Disadvantages of OSCE performance assessment are the amount of instructor time needed to write standardized patient cases, train accurate patient portrayals, and score the performances [7]. It is also very helpful to have specialized clinical assessment space with the ability to video record so that learners can review and reflect on their performance. Although such assessments are costly in terms of time, expertise, space, and money, performance tests are an important complement to knowledge-based tests [8–11] (Table 1).

Another valuable approach to performance testing is workplace-based assessment. Often formative, workplace-based assessment occurs when learners are observed as they evaluate actual patients. A trained instructor uses a rubric or a checklist to score the behaviors demonstrated and as a basis for feedback. Once the assessment parameters (how many observations will be scored, within what time period, etc.) and the scoring tools are selected, workplace-based assessment can be quite spontaneous. Rather than

Table 1 Key concepts

Assessment	Assigning a value or a judgment, measuring performance in the learning setting. Applying measurement methods to determine if learners are achieving the intended learning objectives
Criterion-referenced	When a learner's performance is described in terms of whether he or she has reached the minimal performance level, irrespective of how other learners scored. The level of mastery necessary is established beforehand by the instructors
Formative assessment	Observations, activities, and learning measures used to provide feedback to the learner and the instructor for performance improvement. Formative assessment is often relatively informal, occurs frequently, and is used to provide coaching for building knowledge and improving areas of weakness or misconception
Norm-referenced	Determining an individual's grade in comparison to the scores of others in a specified group
Performance assessment	Assessments where students are asked to demonstrate skills in performing a task or a set of tasks, such as interviewing a patient or inserting a central line. Workplace-based assessment is usually a form of performance assessment that occurs on the job rather than in the classroom or in a simulation center
Reliability	The degree to which a learner's score in a subject area is reproducible when the student's knowledge or ability is unchanged
Summative assessment	A test that measures student achievement that is used to assign a grade or that is documented in a student record. Such assessments are formally scheduled at curricular milestones and may determine the ability to progress to the next level or licensure
Validity	The ability of an assessment tool to really measure the concepts it purports to measure. The meaningful, essential features of the learning objective should be accurately reflected in the assessment score

developing a new rubric or scoring tool, instructors who wish to implement this form of assessment should go to the assessment methods literature and select and adapt a published technique. Beginning with a technique that other educators have found to be valid in a clinical setting that is similar to yours will get you to assessment results that you will have confidence in much faster than otherwise. Both formal, standardized performance assessment and the less formal, workplace-based assessment have a role in the overall curriculum assessment blueprint [12–14].

Standard Setting

Standard setting is a helpful activity that uses faculty dialogue and shared expertise to establish the minimum threshold for successful completion of an assessment. Standards are usually formally established for individual summative examinations. There are many approaches to standard setting, and it is important to select an approach that fits the assessment and that is feasible in one's setting.

The following description is not a specific standard setting approach, but it includes steps that are common in many approaches to establishing a valid standard. Gather a group of instructors who are invested in teaching. Together, review the learning objectives, the developmental level of the learners, and the relevant learning resources or curricular activities. Next, have the instructors review the assessment questions, rubric, global scale, or checklists. If feasible, the instructors might complete the assessment as if they are the students. Once fully informed, individual instructors then decide on a minimal acceptable score. Self-identified instructors who initially selected a cut point that is notably higher and lower than their peers explain their reasoning and advocate for their position. After thorough discussion, the instructors vote again, and the criterion-referenced standard is established, as the average of the minimally acceptable scores. Standard verification happens after the students complete the assessment. Instructors confirm that the standard is set appropriately by reviewing the work of students who scored just above and just below the cut point. Do students whose scores are below the standard truly lack the knowledge or skill to pass the course or move to the next level of training? A verified standard is an expertise-informed, solidly defensible, clear signpost against which learners and faculty can measure learning progress [15, 16].

Beyond standard setting for single assessments, this approach can be very useful for establishing developmentally progressive standards for the competency areas or other major themes of a curriculum. An invaluable side effect of the standard setting process is that it reinforces the learning objectives and builds understanding of the assessment process among instructors who teach but who have not participated in curriculum or assessment development.

Conclusion

Formative and summative assessments are powerful learning tools. Based on clear learning objectives, well-programmed formative assessment allows learners to systematically build knowledge and skills and allows instructors to provide consistent coaching and feedback. Flawed summative assessments can lead to learners having unwarranted, false confidence or to failing when learners actually have adequate knowledge and skill. Developing multiple methods of high-quality assessment is a fundamental part of any well-designed curriculum. Creating test items and developing a comprehensive assessment program helps learners and is a worthy emphasis for academic scholarship.

Words to the Wise

- Document assessment and grading policies in the course syllabus or curriculum handbook.
- Establish and communicate the consequences of cheating, missing deadlines, and group work on individual assignments, etc., before such situations occur.

- Assess things that are important.
- Blueprint assessment items to be sure that they connect to and adequately sample the learning objectives.
- Peer review rubrics and test items.
- Pilot test assessments.
- Establish equitable assessment procedures.
- Train evaluators to use the assessment tools.
- Monitor quality and standardization of scoring.
- Maximize formative assessment opportunities.
- Coach learners to undertake challenges and practice things that are difficult.
- Within a culture of respect, give feedback frequently.
- Use a variety of summative assessment methods.
- Convene a group of instructors to set assessment standards.
- Announce beforehand what constitutes a successful performance or score.
- Continually communicate assessment outcomes for ongoing improvement.

Ask Your Mentor or Colleagues

- Do our assessments measure what is truly important or what is easy to measure?
- What values do we communicate through our assessments? Do we communicate the importance of listening to the patient, respect for accurate information, the significance of safety, and the necessity of ongoing skills practice for continued improvement?
- Do we have performance objectives that are hidden, not formally recorded, but that impact how learners are measured? Do learners who "make my life easier" or who "do it my way" score higher than other, equally knowledgeable and proficient learners?
- Are our assessment rubrics meaningful, clearly anchored, and impartially applied to all learners?
- Does our assessment system provide timely feedback to our learners and to the curriculum to encourage a culture of ongoing learning?

- How do we know that we have truly prepared our learners for their next career steps and for the challenges to which they will need to adapt in the future?

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How to Approach Clinical Supervision

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吾听吾忘, 吾见吾记, 吾做吾悟 *wú tīng wú wàng, wú jiàn wú jì, wú zuò wú wù*
I hear and I forget. I see and I remember. I do and I understand.
Confucius

Clinical supervision is the "parenting" of academic life. In no other setting are faculty attitudes so thoroughly modeled, responsibility for the trainee's work so totally assumed, control over real-time decisions so completely surrendered, knowledge of what trainees actually do so rarely verified, or preparatory training so wholly inadequate to the task. Happily, few faculty think through the full implications of the supervisory role before conceiving an academic career; otherwise, there might be no rising generation.

Also in common with parenting, however, are the satisfactions of supervision. No other setting offers faculty the potential for such impact on the quality of a trainee's practice for years beyond residency, engenders such depth and quality of relationships with nascent colleagues, or provides such wealth of opportunity for self-reflection and professional growth. After years of faculty service, few honors compare with the implicit accolade of the phrase, "I was trained by …."

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The academic physician's assignment as a supervisor of trainees is an honor and a privilege that has been years in coming. Yet he or she may not have had—probably has not had—formal preparation for teaching in the clinical setting but likely learned through personal experiences as the recipient of supervision, through identification with respected teachers from his or her training. It is nonetheless important for the academic physician to formally review the role and reflect on the qualities he or she found most helpful (and otherwise) and those he or she most wants to emulate.

This chapter addresses both theoretical and practical aspects of clinical supervision. It is broadly divided into inpatient and outpatient settings, which differ in such fundamental qualities as depth of experience of the trainees, duration of oversight, and frequency of contact. Even so, all supervision has much in common, and lessons outlined in one section may be more broadly applied than this division implies.

The Psychology of the Attending/Trainee Relationship

Much has been written in the medical education literature about the best practices for optimal learning, and general medical education principles apply directly to hospital-based teaching and

outpatient supervision. From a different perspective, the writings of the noted psychologist Erik Erikson have great relevance for the role of a supervisor in the lives of medical students and residents. Erikson described eight stages of human development, beginning in infancy and continuing into the geriatric period, each with new challenges and opportunities for growth throughout the life cycle [1]. Of particular importance for medical training are the stages he called Identity vs. Identity Diffusion, which is generally associated with late adolescence, and Generativity vs. Stagnation, a stage that follows young adulthood and is associated with decreased focus on the self and a corresponding increased attention to helping others.

The first of these stages can be applied to medical students and residents, who are essentially in an adolescent stage of professional development with as yet unrealized career aspirations and drive for mastery of the physician role. For them, each faculty member's professional style becomes a potential model during periods of learning. Always be aware of this readiness on the part of learners to take on aspects of your practice patterns, style of interaction with patients, and ways of conceptualizing a case. What the academic physician tries to teach explicitly will be totally overshadowed by what trainees see him or her actually doing.

Over the course of training, particularly for residents, physicians will move into the next Eriksonian stage that defines their generativity. The supervisor will have traversed his or her own identity stages—one hopes—and will embody the generative stage of academic life, providing clinical care, creating new knowledge, and passing on hard-won experience and clinical wisdom to a new generation of doctors. Most academic physicians come to understand that a valuable aspect of work with inquisitive trainees is the accompanying inoculation against professional stagnation. Teaching will force the academic physician to confront his or her biases and to articulate, refine, and expand his or her knowledge base. It is good to enjoy those qualities; as a supervisor it is essential to model, encourage, and reward them in trainees.

What Do Trainees Value in a Clinical Supervisor?

Better than a thousand days of diligent study is one day with a great teacher.
Japanese proverb

Although academic faculty may feel that scholarly activity comprises a substantial portion of their careers, residents do not place a high premium on their supervisors' publication records [2, 3]. Indeed, supervisors with heavy time commitments to research or administration at the expense of their clinical assignments tend to receive low marks from trainees left to fend for themselves in the front lines of care. Few things are more frustrating to a frightened intern than not being able to reach a supervisor who is unavailable because of laboratory commitments or an administrative meeting.

Nor is being liked an adequate measure of teaching success. There is, after all, a body of competencies for each specialty, much of which is imparted in the clinical setting; an attending who strives to be liked at the expense of preparing medical students and residents to pass licensing and specialty board exams is doing the trainee no favor. Nonetheless, the well-regarded attending has the advantage of being a more palatable object of identification for the trainees who work closely with him or her. And since we all function within a range of traits, attitudes, and styles that we can attenuate or exaggerate, it is useful to look at what attributes are valued by students and residents.

A multisite survey of residents working in intensive care settings found that they most valued teachers who enjoyed teaching, demonstrated empathy and compassion, explained clinical reasoning, treated all members of the team with respect, and showed enthusiasm [4]. This study added to previous reports that emphasized the need for teaching faculty to display integrity, humor, and teaching skills and concluded that such qualities as enthusiasm and support of learners are as crucial to clinical education as the "cognitive" elements of teaching. Importantly, these are not all inherent personal qualities but, rather, characteristics that can be developed and

nurtured in an environment that supports good teaching. Interestingly, one psychiatry study found that residents and faculty did not necessarily agree on all of the elements of good teaching: residents valued opportunities to observe faculty and frequent feedback, while faculty showed little interest in those activities [5]. One lesson from this may be that faculty should be more humble in their certitude that they know best how to educate their students. Nonetheless, just as occurs in the parent–child relationship, our trainees are watching and emulating both our fine qualities as physicians and our less admirable characteristics.

Finally, it should go without saying that no trainee will flourish in an atmosphere of humiliation, abuse, or belittling and that attending faculty should always model thoughtful, sincere, and encouraging interactions with all learners. Unfortunately, inappropriate behavior by clinical supervisors is common throughout medical training [6, 7]. Such behavior destroys the learning environment, perpetuates the malignant myth that angry outbursts and abusive interactions by faculty are both tolerated and expected, and has an immediate negative effect on patient care [8]. Credentialing bodies for both medical schools and residency programs specify that professionalism in supervisory relationships is essential to a healthy learning environment. Trainees at all levels watch how their supervisors model compassion toward patients. They will inevitably notice if the faculty member interacts effectively and respectfully with an interdisciplinary medical team. Supervisors do well to model appropriate, constructive interactions, to actively watch that their trainees do the same, and to give them feedback on how they are doing (Table 1).

Individualizing Teaching to the Resident and Student

Clinical supervisors can learn much from the teaching styles of experts in other fields. The distinguished Juilliard violin professor Dorothy DeLay, teacher to Itzhak Perlman, Midori, and Sarah Chang, was renowned for her ability to prepare even the most accomplished musicians for the con-

Table 1 Characteristics of supervisors valued by medical students and residents

Characteristics valued by medical students	Characteristics valued by residents
• Patient, approachable • Keeps students actively involved • Gives direct feedback • Cares that students learn • Shows skill, knowledge, and compassion • Takes time to teach • Holds small interactive teaching sessions • Enjoys teaching • Provides structure and clear expectations • Values student input in care of patients	• Highly knowledgeable • Respects residents' wishes for autonomy while providing support • Appears to love his/her work • Teaches how to take care of difficult patients • Dedicated to teaching • Good rapport with patients • Helpful with time management • Makes evidence-based decisions • Gives constructive feedback

cert stage. In DeLay's preparation of one student for performance of a violin concerto with orchestra, not only did she remind her student to "tune sharp to the oboe" so that the violin sound would cut through the heavy orchestra, but she also encouraged the student to free her hair from the restrictive ponytail preferred by this young student's mother. "You mean, I don't need to pull my hair from my face?" the student asked incredulously and was met by DeLay's response, "Oh, Heavens, no! If you've got it, flaunt it. You'll excite your audience that way." Although this interaction can be analyzed at multiple levels, DeLay's qualities of enthusiasm and engagement are unmistakable. Beginning with a piece of advice that is counterintuitive (departing from being "in tune"), DeLay proceeded to offer—indeed, insert—herself as an alternative parental figure who licensed the student to graduate from the violin playing of a late adolescent into full-fledged adult performance [9].

Just as DeLay recognized where her student was on the developmental trajectory toward mastery of violin performance in all its aspects, so clinical supervisors should seek to understand the developmental stage of their trainees and challenge them to move to the next level. At its most basic, this requires the academic physician to be aware of the year of training, prior months in the

setting, and other experiences that the resident may have had. It also requires sensitivity to the trainee's skill development in the fundamentals of interacting with patients, guiding an interview, and conducting an examination, along with the higher-order tasks of formulating a differential diagnosis and individualizing a treatment plan. The physician's capacity to perceive where residents are on this continuum, to detect their unique strengths and weaknesses, and to challenge them to take the next step will define the difference between a tolerable supervisor and a great teacher.

Supervision in the Hospital Setting

It is easily argued that nothing can match the learning opportunities for trainees of a fine teaching hospital. Inpatient medicine—with its acuity, volume of patients, extent and range of pathology, and fast pace—is a proving ground for early-career doctors and the perfect teaching setting for those new to clinical practice. In fact, when many of us reflect back on formative experiences and relationships from medical school and residency, our thoughts turn to hospitals where we trained, with memories of long days and nights on the wards, our first exposure to surgery, and our mentoring by vividly recalled senior residents and faculty who seemed so skillful with these very ill patients.

This is not to say that the hospital setting does not have its challenges for teaching; the noise and bustle, the lack of privacy (and comfortable seating) on rounds, and the constant competing demands on time all contrast with the relative quietude of the outpatient clinic. The academic physician may find that it takes more creativity to deal with the special circumstances of teaching in the hospital; for example, the centrality of the clinical rounds in hospital care poses the challenge of simultaneously teaching residents and students at greatly varying levels of experience and knowledge. Even experienced academic hospital faculty members view with admiration those colleagues who can keep both early-stage medical students and advanced residents and fellows interested and engaged.

Despite the difficulties inherent in hospital-based teaching, you will inevitably come to view bringing your trainees to the point where they can comfortably manage complicated hospital patients as a measure of the success of your efforts. If your residents can take care of the very ill, they will have confidence in themselves as they go forth in their careers. Your goal for them is the achievement of the physician quality that Osler famously termed "Aequanimitas" [10] and that Hemingway described as "grace under pressure." The hospital setting—with its volume, pace, and opportunity for repeated encounters with related disease states and clinical situations—can serve as a proving ground for late-stage residents in their final stages of training, much like a road test on a busy highway. And your residents, while gaining this mastery, will have the added reassurance (and safety) of knowing that a supervisor who knows the patient well is readily at hand. Finally, one of the beauties of hospital-based learning resides in the time-honored structure of medical teams, which allows the more senior trainees to engage the earlier stage learners in teaching moments. The corollary to this for supervisors is that teaching not only involves the imparting of specific clinical knowledge but should also include pedagogic skills as a competency for everyone on the medical team.

Adjusting Teaching to the Level of the Learner

As their teacher, it is the academic physician's responsibility to gain some idea of where his or her students are in their developmental trajectory. Some will be more advanced in their progression, and they can accordingly be granted more responsibility for independent decision-making. A useful practice of effective supervisors is to meet individually with each resident and student at the beginning of their rotations to review their personal goals for the upcoming weeks. Periodic check-ins with the trainees for updates will allow the supervisor to track their progress. It is likewise important to develop tactful ways of telling

trainees that they are off-track with regard to their stated goals (or the department's goals for them). For instance, some variation on the following phrasing may be useful: "The people in our field who do this really well look to be able to do X at your point in training. Here is what I think you would need to do to get to that level." Suggestions could involve more reading, practice at a procedure, observation by the attending, and so on.

Thus supervision must be adjusted to the clinical maturity of the trainees. For instance, the learning priorities of medical students differ from those of more advanced residents. Medical students and junior residents can easily feel ignored on hospital rounds, where the discussions are often pitched at the senior residents and where much attention must be directed toward completing the necessary work of caring for patients. Early trainees thrive when they feel acknowledged and, even more so, when they see themselves as needed and as making some real contribution to overall patient care. Meaningful roles for the least experienced members of the team are thus essential to their learning.

One of the talents hospital supervisors must cultivate is the ability to keep all levels of learners engaged in the treatment team. In one study at a teaching hospital, third-year medical students were directed to track thousands of teaching encounters with their faculty supervisors [11]. These students saw high-quality teaching as including the following: mini-lectures from the attending; encouragement for them to give short presentations on inpatient topics; bedside teaching; instruction in reading X-rays and EKGs; and feedback on their physical exams, presentations, documentation, and differential diagnosis skills. These results make intuitive sense; junior-level trainees are building basic competencies and are not ready for the nuances of clinical care. They need to feel the pride and mastery of discerning an infiltrate on a chest film or recognizing Wolff–Parkinson–White syndrome on an EKG for the first time with a real patient. To supplement clinical teaching, novice learners can be directed to secondary sources such as review articles, textbooks, or Internet-based resources. Early-stage trainees can become flustered if presented with material that is too complex and need some "yes/no" information. In confronting a particular clinical situation or disease state, they should be encouraged to go through one pathway in their thought process as opposed to the complex decision tree/algorithm of the more advanced resident.

Hospital supervision of more advanced residents will shift toward deeper diagnostic understanding and greater sophistication in treatment choices, emphasizing the most current primary literature and use of treatment algorithms for complex clinical situations [12]. Residents approaching graduation need to be able to sift through complex clinical information and treatment options. The goal of supervision for these residents is to increase their ability to prioritize the stages of a hospital workup, gain comfort with uncertainty, and avoid the problems of premature closure in their thinking and problem-solving.

Models of Hospital-Based Supervision

Teaching and learning are one shared endeavor, and great teachers inspire learners through a mutually-interactive process that informs and creates community.
Laura Weiss Roberts [13]

Today's trainees, who often have been raised to offer their elders more bemused tolerance than unquestioning respect, appreciate an approach that acknowledges their talents and fosters their autonomy. They seek to be part of a learning community to which they contribute as well as from which they draw. The apprenticeship model of clinical training, founded on the notion of a novice–master relationship in which the senior physician imparts knowledge and praxis to the "empty vessel" learner [14], is a tempting formula for the hospital setting. The patients are so ill, the time-pressure so intense, and the potential for error so lurkingly present that the supervisor can easily lapse into a "this is the way it is done" style of teaching. But although the urgencies of hospital medicine may sometimes call for this directive mode, residents appear to be asking for

a more subtle form of instruction that could be defined as "guided autonomy," in which they are increasingly allowed to make clinical decisions while knowing that the supervisor is present, active, and involved.

It is helpful to consider what has been gathered from actual observations of pedagogic styles in a hospital setting. In one study in a Swedish teaching hospital [15], faculty members were observed during clinical rounds and other teaching activities using a variety of forms of teaching that can be categorized as follows:

- *Demonstrating*—The supervisor shows the trainee how to act, assess, view, perceive, and so on.
- *Piloting*—The supervisor focuses on a specific goal using directives without discussion or exploration of the trainee's understanding. This mode is resorted to often with specific tasks, such as ordering fluids: how much, what type, and how quickly.
- *Lecturing*—The supervisor notes a relative lack of knowledge in certain area and offers information regarding the illness, guiding principles and strategies of treatment, and even how to act and communicate with patients.
- *Intervening*—The supervisor interrupts the trainee's interaction and simply takes over the task or the interview. This authoritarian approach can lead the trainee to feel undermined or undervalued, or it may free the trainee from a difficult interaction with a patient or a family.
- *Prompting*—The supervisor directs the trainee toward a correct answer. For example, when a student on rounds looks puzzled as to whether a wound is healing, the attending may whisper, "It looks fine." This can help the trainee establish benchmarks for some clinical phenomena and allows the trainee to save face in front of the patient.
- *Questioning*—The supervisor uses questions to activate discussion, solicits the learner's reasoning process, and offers alternatives. This method can both assess and expand the trainee's knowledge base.

- *Supplementing*—The supervisor adds further clarifying questions and interventions to the trainee's clinical interview or exam. This method works best when trainees signal that they are stuck.

Noticeable in this list is a continuum from attending-focused to learner-focused interactions, but the preponderance of directive teaching is disappointing. In a busy hospital environment—with the exigencies of caring for patients—it is all too easy to intervene with and direct trainees. Indeed, time constraints alone militate against frequent use of Socratic questioning during busy hospital rounds. Nonetheless, those hospital supervisors who take the trouble to examine the admixture of techniques they are using with trainees may note a need to shift—within their own abilities and comfort—toward the addition of more learner-based interactions. Incorporating learner-centered teaching techniques into the day-to-day training is more likely to engage residents and students toward the sustaining goal of "making understanding possible" while supplementing the more practical aim of transmission of specific knowledge.

A collaborative rather than hierarchical approach to work with trainees is more consistent with generational expectations and will go further toward building a true learning community. This approach involves trainees in the gathering and analysis of clinical data, formulation of a differential diagnosis, and proposal of a treatment plan. It readily facilitates development of both clinical skills and use of evidence-based medicine. Essential elements include the following:

- *Observation*. Provide opportunities for the trainee to watch you gathering history, conducting an examination, or discussing the case with the patient and family. With a subsequent patient, give the trainee the opportunity to practice those skills while you observe.
- *Description*. Ask what the trainee observed during the interview and examination, irrespective of who conducted it. Ask additional questions to guide the trainee toward the observations that you consider most pertinent.

- *Exploration*. Probe for understanding of what the observations mean. Help the trainee differentiate among those that are pathognomic, suggestive, or supportive of a diagnosis. Ask for additional information that the trainee will need to clarify their meaning.
- *Analysis*. Have the trainee put together the history, examination, and other data. Ask for a broad differential diagnosis on the basis of information gathered to this point.
- *Integration*. Determine what outside information from textbooks, review articles, and peer-reviewed research papers can be brought to bear on the case. Find out how much of this information the trainee already knows. Make a focused, specific assignment for the trainee to gather more. Assist the trainee in applying the evidence-based information to this case. Help the trainee generalize the findings in this case to others.
- *Commitment*. Give the trainee the opportunity to make a commitment to a specific diagnosis or brief, rank-ordered differential. Have the trainee propose a specific treatment approach.
- *Reflection*. Ask for a rational justification of the diagnosis and treatment plan. Choose one or two key assertions that the trainee makes in this process and ask, "How do we know that?" Do not accept "In my clinical experience …" or "That's how my last attending did it" as answers. Insist on evidence in the form of research studies or at least expert guidelines. Help the trainee identify the limits of current knowledge and a rational basis for decision-making beyond those limits.

Not every step of this process needs to be followed with every case, but some parts of it should be done each day. In fact, this is the mental process that expert clinicians (remember, that is you) go through in most clinical encounters. Clinical teaching simply requires that the academic physician make the sequence conscious, explicit, and subject to discussion. Thus trainees will learn not only facts but also the essential process of clinical decision-making (Table 2).

Table 2 Pointers for effective clinical teaching

Use case-based teaching rather than lecturing
Help your trainees set appropriate goals for themselves
Give timely and appropriate feedback not laced with criticisms
Use guided questioning to lead the learner through the clinical thought process, e.g., "What are your choices for this situation?" and "What are the pros and cons of each choice?"
Remember that enthusiasm scores highly as a characteristic of supervisors
Know your learner. Adjust your teaching to the level of training, individual style, strengths, and vulnerabilities of each trainee
Humor can be a valuable teaching aid, but should not be directed at your trainees or the patients. If your ego can handle it, humor directed at yourself can be refreshingly humanizing
The quality of your relationships with learners is important—negative emotions hamper the processing of information, while positive emotions foster learning

Supervision in the Outpatient Clinic

When you teach you throw a pebble into the water and the ripples from that pebble create an endless ring of concentric circles in such a way that you never know when your influence ends.
Glen O. Gabbard [16]

Work as a supervisor in an outpatient clinic has unique rewards not often found in other settings. Done well, the supervisory experience facilitates the growth and independence of the trainee and enhances the professional satisfaction of the supervisor. In the outpatient setting, the resident physician has often rotated through an inpatient service before arrival on the rotation and therefore may have a broader base of experience and a more developed clinical skillset. The goals of the supervisor will vary slightly on the basis of the resident's level of training but will commonly consist of providing the resident with clinical oversight, professional modeling, and career guidance. This section describes the salient goals and responsibilities of the supervisor and the nuances of different models of supervision for an outpatient clinical setting. It will also present qualities of a supervisor that will help the academic physician to be successful in

this role and effective in his or her goals to guide and foster professional growth in the resident physician.

Clinical Supervision and Professional Development

One of the first tasks as an outpatient supervisor is to understand the expectations of the supervisory role in a particular clinical setting. For whom are you responsible? The focus of this chapter is residents, but supervision may also include medical students, physician assistants, nurse practitioners, social workers, and others. What is their level of training? The needs of a recent medical school graduate, a third-year resident new to the outpatient setting, and a seasoned resident nearing graduation are each unique. What are the educational goals of the rotation? The rotation may primarily be an opportunity for the trainee to learn about a specific patient population, a particular treatment technique, or a unique care setting. How much time is allotted for supervision? Some settings expect you to carry a full load of patients and provide oversight to the trainees only as you do so; others want time to be carved out to discuss cases in a more reflective way. What is the duration of the rotation? Clinic assignments may be as short as a few weeks or as long as a year or more. The supervision you provide will be affected by each of these factors. Clarify how supervision of trainees will mesh with your own clinical responsibilities, whether the residents' work will be incorporated into yours or will be in parallel with it. Ensure that whoever is keeping track of your work performance is aware of the assignment and that it is included in your job description.

The next task is to ensure that trainees know what is expected of them. Be specific about the schedule and the tasks they are to perform. Clarify the issues that they may handle independently and those that will require your prior input. Let them know when and where they are to meet you and what you will discuss at those times. Make arrangements for how they will reach you when urgent matters arise and who will be cover-

ing that role when you are not available. Finally, review with them the basis on which they will be evaluated during and at the end of the rotation.

Models of Outpatient Supervision

A common model for supervised outpatient care is for the resident to see a patient independently and then present and discuss the case with the supervisor who is attending in the clinic. This provides an opportunity for the resident to present the history and examination findings and to propose a diagnostic formulation and treatment plan. As the attending physician, you can then see the patient to meet regulatory and billing requirements but also to gauge how well the trainee gathered the history, performed the physical examination, and translated those data into a reasonable assessment, differential diagnosis, and care plan. In surgical or procedural clinics, supervision may occur in the context of evaluations, operative procedures, or follow-up appointments, and thus may take place in the operating room itself or during procedures in an ambulatory setting. These encounters allow immediate feedback and direction on the procedure that is occurring.

In both of these models, if the resident's work appears sound, your confirmation in the encounter may be sufficient feedback to the resident. In other cases, a subsequent discussion of additional findings, discrepant observations, or alternative views may be appropriate. Good supervision includes your listening to the trainee's perspectives, both to understand where problems are occurring and to remain open to different views. As you become familiar with the resident's strengths and weaknesses, you will be able to anticipate potential problem areas and concerns that might arise for the resident.

This aspect of supervision benefits from regularly structured, face-to-face meetings with the trainee to discuss broader, more conceptual issues than would be appropriate during individual clinic visits or procedures. For example, the resident may have general questions about a disease or a procedure or may have noticed a pattern across several patients that would not be appro-

priate to discuss in the supervision of a single case. In many psychiatry programs, residents see most psychotherapy patients outside of attending-supervised clinics, and supervision of these cases is provided entirely separately, in scheduled, one-on-one sessions. Although this would not be appropriate for every setting and each clinic has its own constraints in structure, time, and workload, at least some time carved out to allow the trainee to sit and reflect with a faculty member on the work they do together is well worth the investment of time.

Supervision should include attention to the full range of issues that might affect clinical care. Modeling may include your own interactions with patients, colleagues, ancillary staff members, and the resident. The discussion may cover the patient's healthcare beliefs, treatment preferences, and compliance with treatment. The patient's overall safety, both medically and psychiatrically, will always need to be evaluated. Psychosocial issues such as employment concerns, substance abuse or misuse, finances, and available resources are sometimes overlooked yet can have a major effect on a patient's overall care if they are addressed and managed. Your attention to these issues conveys an important message to the resident about their value.

The resident should be encouraged to communicate with other members of the treatment team caring for that patient. When the team is housed in the same clinic, it is helpful to work with the resident to optimize interactions with the physician assistants, nurses, psychologists, social workers, and others who work collaboratively in the care of the patient. Equally important is communication with outside providers who referred the patient or are otherwise participating in the patient's care. The supervisor is responsible to ensure that this communication occurs, includes the appropriate information, conveys a respectful and collegial tone, and follows all pertinent privacy regulations.

Associated with individual patient encounters are the documentary expectations of medical care, such as clinical notes, care plans, billing codes, insurance reviews, and disability forms. These issues form an inevitable part of clinical care but are rarely discussed, modeled, or reviewed in supervision. The function of this type of supervision is multifactorial. Reading and editing the notes (or at least scanning them for key items) allow you to keep abreast of the resident's caseload and to meet legal and payer requirements. The notes help you gain insight into the trainee's skill with documentation, understanding of diagnostic issues, and medical decision-making. They allow you to reflect on questions, concerns, or ideas about the care of the patient that you will want to discuss with the resident at the next supervision session. They provide a basis for you to work with the resident to develop skills in organization, time management, and prioritization. Feedback on the quality of clinical documentation will contribute to pithy, well-focused, grammatically comprehensible notes that enhance the care of patients, build the trainee's confidence, and earn the respect of collaborative care providers.

Guiding Personal and Career Development

The greatest sign of a success for a teacher…is to be able to say, "The children are now working as if I did not exist."
Maria Montessori

The academic physician can have a significant role in helping the resident identify personal strengths and weaknesses as a clinician. Respect, interest, and flexibility, as well as being genuine, available, and approachable to residents, are important characteristics that help them navigate and be successful in this capacity. Positive feedback and constructive comments are most effective when they are identified and given in a focused and timely manner. Recognizing and discussing these positive factors allow the residents to balance strengths with the constructive criticism that is more commonly brought to their attention during their training experience.

Critical issues from a resident's interactions with patients or staff may be raised as a concern in the clinic. Feedback on the resident's interpersonal style is best provided in a confi-

dential setting, face to face. When discussing such concerns, listen to the resident's view of the situation and how it might be handled. Make specific suggestions that can be readily implemented to correct the problem. Make a follow-up plan to give ongoing feedback on the resident's progress.

Be clear that issues of work–life balance are an acceptable topic of supervision, both because they are critical to good clinical work and because the resident's well-being is a legitimate factor in training and medical practice [17]. Stress, depression, and burnout are risks for trainees as well as for faculty, and much of the responsibility for student and resident wellness is the responsibility of the supervisor. Look for evidence of fatigue and sleep deprivation. Monitor caseloads and work hours. Check the time stamps on residents' notes completed after clinic hours to ensure that residents have sufficient rest between scheduled activities. Discuss these issues in supervision, and make adjustments in work assignments if necessary. Watch carefully for evidence of burnout and depression; it is critical for the supervisor to notice and address such a situation with the resident. This might include a discussion of the problem confidentially, a suggestion for the resident to contact an employee or house officer assistance program, or recommendations for treatment outside the system.

Supervision of senior residents should expand to include discussion of short- and long-term career goals and professional development after residency. It can be extremely helpful to adjust the resident's caseload to reflect the trainee's unique needs and interests. For example, you can help steer certain cases to the resident on the basis of patients' diagnoses, symptom profiles, or treatment needs that may be of specific interest to the trainee. Faculty members are in a position to provide trainees with professional mentoring for their professional activities and career goals. Mentorship includes discussion of the resident's past experiences, current interests, professional objectives, and long-term aspirations. It includes personal sharing of one's own experiences, knowledge, and recommendations related to the resident's specific needs.

Table 3 Goals of outpatient supervision

Provide clinical guidance and oversight for individual cases
Manage and customize the clinical caseload to ensure the right mix for the resident's educational and career development needs
Anticipate problems and/or concerns in both the resident's clinical care and personal well-being
Model professional behavior as a physician and mentor
Provide career mentoring for senior residents; discuss career goals and steps for development toward them

Supervisors within the academic setting can provide professional contacts for the resident to establish a network of individuals who can be resources of information on job openings, research opportunities, and specialty meetings. Guidance regarding membership in professional organizations may be useful. The importance of continuing medical education and techniques for meeting licensing and certification requirements is often overlooked in training, yet is critical for the graduating resident (Table 3).

Direct Observation

Although most often used with novice learners such as medical students, opportunities for residents to observe faculty during routine clinical encounters remain an invaluable tool for supervision in any outpatient setting. In clinics where physical examinations, procedures, and testing are done, the supervisor's experience can be essential to guide the resident in making reliable, effective clinical assessments. As the supervisor models interactions with more difficult patients and higher-level examination techniques, he or she may highlight unusual physical findings and demonstrate new procedures directly; this shared experience is perfect material for discussion at the time or in a subsequent session.

Equally important, but too rarely done in clinical settings, is direct observation of a resident conducting an entire patient encounter, an enormously valuable exercise for both the resident and supervisor. This type of observation requires the supervisor to be present but passive as the resident does the full interview and examination

and to step out of the room before the final discussion with the patient. The resident may then formally present the case, propose a formulation, and recommend treatment options, just as is done on other occasions. In this case, however, the supervisor has access to the raw data the resident gathered and can comment on the interaction with the patient, the interview process, and other aspects of the patient assessment. As the supervisor returns to make a final treatment plan with the patient, he or she may choose to model some aspects of the interaction to demonstrate teaching points.

These sessions permit the resident to demonstrate interview and examination skills and allow the supervisor to assess what actually happened in the visit, rather than trying to surmise what happened on the basis of the resident's report and the supervisor's subsequent repetition of "key portions" of the examination. The feedback given to residents following these observations has a legitimacy and immediacy not otherwise available and residents benefit from feedback on the interaction itself, as well as on the presentation, diagnostic impression, and plan for the care of the patient. The time required of faculty and anxiety provoked in residents are a small price to pay for the quality of information that is gathered.

Group Supervision

The most common setting for group supervision is within a clinic's team meeting before or after the patient visits. Here, the supervisor's role as team leader includes supervision of one or more residents and other staff involved in the patients' care. Clinics run differently depending on the specialty and patient population, but several elements are likely to be present. Residents are typically expected to present the cases to provide the raw material for discussion, participation of several members of the team is expected, and the supervisor is responsible for final decisions regarding treatment planning. The supervisor may choose to ask questions of those present to probe the depth of their knowledge and to encourage thoughtful analysis or may expound on some

aspect of the case, preferably related to the work of the treatment team. It is appropriate to give trainees assignments to seek out additional information on topics that they will report later. This is an ideal time to model professional interactions with the other team members, including such vital skills as how to solicit dissenting opinions, diffuse conflicts, and acknowledge the limits of one's knowledge and experience.

Group supervision is especially useful when the goal is to teach a particular modality of care, such as a specific procedure or therapy technique. Simultaneous work with more than one resident increases clinical exposure for several trainees, covers more cases in a short time, and provides opportunities for peer interaction and input. The structure of such groups varies from as few as two to as many as ten clinicians, along with one or two facilitators/supervisors. The sessions may occur only a few times or may be ongoing for 6–12 months. For longer training periods, the first sessions may include a didactic introduction and overview of the treatment modality, followed by subsequent sessions in which residents bring their own cases for group discussion. The supervisor role in this case may expand to include didactic teaching along with ongoing guidance and direction for the residents more typical of conventional supervision.

Feedback and Evaluation

The evaluation of residents is described in detail in another chapter of this book. A brief overview of evaluation as it occurs in outpatient clinics will be given here to address issues particularly connected to outpatient supervision. Formative evaluation includes immediate feedback to the resident about a particular situation or a specific issue that requires positive or negative comment. It may be given at any time throughout the rotation and should be a regular feature of interactions. The long duration typical of outpatient supervision makes ongoing assessment and feedback especially important. Formative comments may be brief but should always be specific, prompt, and constructive. Try to identify at least one thing

about which to give feedback during every session. Comment on it at the time and make a note in preparation for a future summative evaluation.

More comprehensive summative evaluations may occur at intervals of 1–6 months, including semiannual assessment of residents' progress through specific milestones defined by the ACGME. Milestone-based evaluations provide a structured template for the supervisor to certify the resident's mastery of basic skills, but do not include nuanced feedback regarding the quality of the skill or how it could be improved, which is also important to a developing learner. Ideally, supervisors will provide both types of evaluation. Both milestone-based and quality-based evaluations should include an overall assessment of the resident's development of the core competencies of patient care, medical knowledge, interpersonal skills, professionalism (including clinical documentation), adaptation to the clinical setting, improvement with practice, and ability to use supervision appropriately during the rotation. Every aspect of the summative feedback should have been addressed previously with formative comments. There should be no surprises for the resident in the final evaluation.

The academic physician should expect to receive feedback from trainees on his or her performance as a supervisor. The nature of faculty–trainee relationships includes such a steep power differential that most institutions limit feedback to an annual summative assessment, usually compiled from several different trainees to ensure their anonymity. Candid, constructive feedback is essential to continued growth as a supervisor and should be welcomed even when critical.

Conclusion

Clinical supervision is an invaluable tool to educate and guide student and resident physicians over the course of their training, with many rewards for both the learner and the supervisor. The essential elements are an awareness of who the trainees are, what they know, and what they can do; encouragement of their development through learner-centered interactions; and

prompt, focused feedback to guide their growth. The role of mentor and educator takes time, dedication, and effort, but the endeavor holds tremendous value for the resident, and the academic physician will benefit in the process.

Words to the Wise

- Your behavior and quality of character carry a stronger message than anything you say. Make sure you exemplify the highest ideals of the profession.
- Depth of knowledge and academic standing are far less important to trainees than willingness to spend time and build relationships with them, along with compassion, integrity, and humor.
- Adjust your teaching to the level of training and individual strengths and weaknesses of the trainee. Make the effort to find out what those are.
- Give prompt, focused feedback that emphasizes positive achievements and gives direction to address deficiencies.
- Provide career mentoring and monitoring of resident well-being as well as oversight of clinical cases.

Ask Your Mentor or Colleagues

- How do you structure your time and interactions during supervision?
- What questions have you found to be most effective in stimulating discussion with your trainees?
- As you reflect on your experiences as a supervisor, what lessons have you learned?
- What have you enjoyed most about supervision? What has been the greatest challenge?

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Maximizing Effective Feedback and End-of-Course Evaluations

Jennifer R. Kogan

What Is Feedback?

Feedback in medical education has been defined as *specific information about a learner's observed performance, compared with a standard, that is given with the intent to improve the learner's performance* [1]. This definition highlights several important characteristics of feedback. First, feedback is based on observed performance. In the classroom setting, this could be observation of students' ability to apply knowledge to a problem-based learning case. In the clinical setting, observation may focus on history taking and physical exam skills, counseling skills, professionalism, procedural skills, or the ability to work in an interprofessional team. Observation could also focus on learners' skills related to transitions of care, oral case presentations, documentation in the medical record, or problem-solving abilities. Second, the content of the feedback focuses on the difference between how the learner is performing and a standard. For example, the content of feedback might highlight the specific differences between how a medical student performs the mental status exam and best practices for the mental status exam. Third, the definition suggests that the purpose of feedback is to help the learner improve; feedback is

meant to be a catalyst for additional learning. It can be helpful to think of feedback as an assessment *for* learning rather than an assessment *of* learning. In this way, the academic physician can think of himself or herself in the role of a coach for learners.

In the past decade, there has been an important shift in how feedback is conceptualized. Feedback increasingly is being viewed as a partnership between the academic physician and the learner, rather than a unidirectional provision of information by the academic physician to the learner [2]. That is, effective feedback is increasingly being viewed as a supportive conversation between a learner and an academic physician [2]. The purpose of the conversation is to help the learner to clarify his/her awareness of his/her developing competencies (what is being done well, what needs to be improved). The feedback conversation should help the learner to feel empowered to improve [2]. Additionally, the feedback should challenge the learner to set goals and objectives for improvement [2]. Finally, the feedback conversation should help the learner to identify the specific strategies she or he will use to improve [2].

The Spectrum of Feedback and Evaluation

There is a continuum between feedback and evaluation. As previously described, feedback is formative, meaning that it happens in real time

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with the intent of helping the learner develop and improve. Feedback is designed to foster learning. It is meant to convey information, reinforce strengths, and identify areas in need of improvement "before it counts." In contrast to feedback, evaluation is usually summative, meaning that it happens at the end of a defined time period. The purpose of evaluation is to measure a learner's achievement to provide a grade or make decisions about progression or certification. The standard for evaluation may be normative (comparing one learner to other learners at a similar stage of training) or criterion based (to what degree does the learner meet explicit standards of performance). Evaluation can be high stakes (professional certification) or low stakes (grade on quiz or assignment) or anywhere along that continuum.

Types of Feedback

Feedback can either be "micro-feedback" or "macro-feedback."

Micro-feedback is feedback in the moment. As its name suggests, it is brief and focuses on a single skill. It can be given in a few minutes. Ideally, because it is so brief, micro-feedback can, and should, be frequent (i.e., daily). An example of micro-feedback would be, "Let's spend a minute going over some feedback related to your differential diagnosis for the patient we just discussed." Learners often do not recognize micro-feedback. As will be discussed later, starting micro-feedback by signposting feedback (i.e., telling the learner you are about to give feedback) helps learners to recognize they are getting feedback.

Macro-feedback usually occurs less frequently and covers a broader array of skills. Macro-feedback typically occurs mid-course/rotation or at the end of a course/rotation and is often a sit-down conversation rather than a conversation "on the fly." Macro-feedback typically takes longer to give than micro-feedback. Realize, however, that macro-feedback takes less time if you give frequent micro-feedback!

Why Is Feedback Important in Academic Medicine?

Feedback is essential so that learners can improve. To improve, learners need information from others about how they are doing. This is particularly true because self-assessment, defined as an individual's assessment of their own performance or skill level, is often inaccurate [3, 4]. Everybody had blind spots. This means that learners must calibrate their self-assessment with information about how others think they are doing to generate a better and more accurate appraisal of their ability [5].

To better understand this concept, consider the following example. Imagine a student is learning to play the piano. After playing a piece of music, the student identifies what she believes she did well and what needs improvement. Imagine that she never plays the piece for her teacher or someone more skilled than she. Without getting feedback from others, how much will she be able to improve? How likely is it that she will be able to identify and correct all of her mistakes?

Feedback is important because it helps learners identify their strengths and weaknesses without academic penalty. Feedback facilitates learning by providing learners with the information they need to practice and enhance their knowledge and skills. As such, feedback serves as a stimulus for professional growth.

Feedback has increased importance in competency-based medical education. In competency-based education, there is a growing emphasis on assessing learner competence and documenting achievement of milestones [6]. Documenting acquisition of skills requires ongoing assessment of trainees coupled with formative feedback to ensure progression to clinical competence.

Medical Education Without Effective Feedback

What happens when learners do not get feedback? First, there are missed learning opportuni-

ties. Without reinforcing feedback, strengths are not reinforced. Additionally, without reinforcing feedback, learners may feel insecure about their abilities because they have no sense of how they are doing and/or what they need to do to get better.

Without corrective feedback, mistakes and poor performance go uncorrected. When mistakes do not get corrected, a learner's full potential will not be realized. Additionally, without corrective feedback, the ultimate quality of care patients receive may be jeopardized, especially when a learner finishes training and begins to practice unsupervised [7]. Furthermore, because self-assessment often is inaccurate, learners may uphold inaccurate perceptions of their performance. When learners do not get corrective feedback, they may assume that they are doing a good job when, in fact, they are not. This happens because they receive no information to the contrary. When they ultimately see their final evaluations, they may be surprised and disappointed. Understandably, learners are frustrated and angry when final evaluations do not align with what was (or was not) communicated to them as feedback. Seeing areas of concern for the first time on a final evaluation doesn't allow learners the opportunity to integrate feedback and improve in real time. Students and residents will say that had they known there was an area of concern, they would have worked on addressing it. Learners feel that it is unfair when they are not given that opportunity to improve. Finally, when learners do not get feedback, they cannot practice deliberately and performance can plateau (or even worse, decline) [8].

Barriers to Effective Feedback

Despite its importance, many learners are dissatisfied with the feedback that they receive, in terms of the quantity, frequency, and perceived quality. There are multiple barriers to effective feedback: teachers' willingness and ability to give feedback; learners' willingness to seek out feedback and be receptive to it; and the way in

which a learning culture does or does not promote feedback. Each of these is discussed below.

Teacher Barriers

Teachers describe multiple barriers to giving effective feedback. First, many teachers feel uncomfortable giving feedback, particularly corrective feedback [9]. Few have been trained on how to give effective feedback or any many do not know best feedback practices. Second, teachers cite lack of time as one of the biggest barriers to giving feedback. Faculty describe how the time available for feedback is undermined by competing expectations for clinical productivity, research, scholarship, and administrative functions. Third, the length of time that a teacher works with a learner, particularly in the clinical setting, has been markedly abbreviated. One- to two-week rotations are not uncommon. The absence of longer, more longitudinal interactions with a learner can affect feedback in multiple ways [9]. First, faculty may feel like they have insufficient information about a learner's performance to provide feedback. Second, faculty may feel more uncomfortable giving feedback when there is not an established learner/faculty relationship because they are less familiar with how a given learner might best respond to feedback. Third, faculty investment in the feedback may be less during brief interactions.

It is particularly challenging for many faculty to give corrective feedback [9]. Some faculty describe how giving corrective feedback feels like "breaking bad news" or "telling a patient they have cancer." Even when given well, teachers are often concerned about undesirable consequences for the learner, such as undermining the learner's self-esteem [10]. Faculty may worry that giving corrective feedback will jeopardize the relationship they have with the trainee [9]. Teachers also describe how it is challenging to deliver feedback when the learner's self-assessment is inaccurate and lacks insight [9]. In addition to negative consequences for the learner, faculty frequently worry that giving corrective feedback will jeopar-

dize their own teaching evaluations. For example, faculty may worry that giving corrective feedback to a learner will reflect poorly on them as a teacher. They may be concerned that the learner will, in turn, evaluate them poorly. Faculty may then fear that this will negatively impact their own advancement and promotion.

Learner Barriers

Given that the focus of feedback is shifting away from only thinking about how teachers give feedback to how learners seek, accept, and incorporate feedback, it is important to recognize learner barriers to seeking out feedback, incorporating feedback, and acting on feedback. Learners' willingness to seek out feedback may, in part, be based on whether they have a growth or fixed mindset [11, 12]. Individuals with a fixed mindset believe their skills cannot change; they focus on their current talents rather than working to develop or improve [13]. Alternatively, individuals with a growth mindset believe that their knowledge and skills grow with time, experience, and practice [13]. Learners with a growth mindset may be more willing to seek out feedback. Similarly, some learners have mastery-oriented goals, whereas others have performance-oriented goals. Mastery-oriented learners may be more willing to seek out feedback to improve in contrast to performance-oriented learners who may preferentially focus on demonstrating their competency or ability and may be less inclined to seek out feedback [11, 12, 14]. Additionally, learners may not seek out feedback if they feel that it threatens their self-esteem or autonomy [10].

Learners will not seek out feedback if they perceive that teachers do not have the time or willingness to provide it [12, 15]. The degree to which a learner feels part of the team, the amount of experience they have, and their perceived skills can all influence their willingness to seek out feedback [12]. Additionally, learners may not seek out feedback when they are overwhelmed adjusting to new roles and when they do not have dedicated time for reflection, such as at the start of an internship [15].

Finally, there are several factors that influence whether learners believe the feedback they have received. Learners are less likely to believe feedback if they feel that the feedback source is not credible or trustworthy [16, 17]. Credibility and trust can be undermined when there is not a longitudinal working relationship between the learner and the teacher [18]. Learners are also less likely to believe feedback when it does not align with their self-assessment of how they are doing [5].

Learning Environment Barriers

Learning environments can promote or undermine a feedback culture [18, 19]. Learning cultures that emphasize perfection and performance, rather than growth and mastery, can undermine feedback [18, 19]. Feedback can be undermined when courses and rotations are structured in such a way that teachers and learners only work together for short rather than long periods of time [18]. Feedback will not be as effective in learning cultures that do not emphasize articulation of goals or encourage learners to develop and share goals with their supervisors [18]. Furthermore, feedback may not be as effective when it is not grounded in direct observation [16]. Some institutional cultures emphasize "politeness" and reinforcing feedback which can negatively impact teachers' willingness to give corrective feedback [19].

Giving Feedback: Setting the Stage First

Before giving any feedback, it is very important to set the stage for feedback. Setting the stage increases the likelihood that learners will seek out and be receptive to feedback [20, 21]. There are four steps to setting the stage for feedback: (1) promoting a trusting relationship with the learner, (2) establishing goals, (3) picking the right time and place, and (4) signposting feedback. The first two steps (promoting a relationship and establishing goals) should occur when

Table 1 Examples of what you might say when setting the stage for feedback

Step	Example
Promoting the relationship	*"Tell me a little bit about yourself."* *"Tell me more about how things have been going."* *"What was your last rotation?"* *"What are some of your interests outside of medicine?"*
Establishing the expectation of frequent feedback	*"This week, I hope to give you a lot of feedback so that I can really help you to be the best doctor you can be."*
Describing your goals for the learner	*"This week, I would like for you to focus on making your patient presentations more hypothesis driven."*
Eliciting the learner's goals	*"What do you hope to get out of this course or rotation?"* *"What skills do you want to focus on this week?"*
Signposting your feedback	*"I would like to give you some feedback."* *"Let's spend a few minutes on feedback."* *"Is now an okay time to go over some feedback?"*

you first start working with the learner. Picking the right time and place and signposting should happen right before you give feedback. Table 1 describes examples of what you might say for each step of setting the stage.

Promoting a Trusting Relationship

Learners are more likely to seek out feedback and find feedback credible (and therefore act on it) if they trust the individual who is giving them the feedback [5, 16, 17, 21]. Credible feedback is based on the perception of genuine concern for the learner and a relationship of mutual respect [5, 16, 21]. Therefore, teachers should work to create a trusting relationship with learners. This does not need to take a lot of time. Teachers should make sure they ask learners their name, ask about learners' interests within and outside medicine. Quick questions such as what rotation the learner is coming from, or what courses they have recently taken, can help break the ice (as

well as provide important context). Daily icebreakers or team building exercises (i.e., asking everyone at the start of rounds their most favorite ice cream flavor) can help learners feel like they are a part of the team and valued.

Letting the learner know you want to teach them and help them improve can also promote the relationship. When you first start working with a learner, let them know that you give feedback often. You can even let your learners know early on that "no one is perfect" and "mistakes are expected" and that "everyone is here to learn." This normalizes mistakes and the importance of growth. Statements like this helps to establish the expectation of daily, frequent feedback and can promote a growth/mastery culture in which feedback is viewed as indispensable for learning.

Another way to promote a trusting relationship with learners is to try to level out the hierarchy that is often present in medicine [20]. Let learners know that just as you will be giving them feedback, you would like to receive feedback too. Making feedback bidirectional can further create a climate of trust. Learners are more likely to appreciate feedback if you also indicate early on that you welcome, expect, and would also like feedback from them.

Establishing Goals

Effective feedback is based on agreed-upon goals [22]. Both teachers and learners should identify goals. When you begin working with a learner, it is important to set more general expectations (e.g., when to arrive at work, expectations regarding patient presentations, etc.). It is also beneficial, up front, to make sure that you and the learner share an understanding of what you think good performance looks like.

As a teacher it is always important to set learning goals for your learners. You can create goals for a course you are teaching, a lecture you are delivering, or a small group you are facilitating. In the clinical setting you can set goals for a rotation (e.g., improve your ability to diagnose and manage depression), a week (e.g., increase your use of the PHQ-9 to assess baseline depression

severity and response to treatment), a day (e.g., improve your ability to assess patients' medication adherence), or even a patient encounter (e.g., improve your ability to screen for mania in patient presenting with depressed mood). The best goals are those that are specific, clear, and concise.

In addition to articulating your goals, ask learners to identify their learning goals. Asking learners to set goals helps them become active participants in the learning process [23]. To set meaningful goals, learners must reflect on their learning needs. The ability to frequently ask learners what they desire from a teaching interaction and working with the learner to establish mutually agreed-upon goals and objectives has been associated with a proficiency in feedback skills [24]. Identifying meaningful goals requires reflection and time. Consider giving learners a day between when you ask them to identify their goals and share them with you. Learners will come back with more specific and thoughtful goals when given time to think about it.

Once you and the learner have identified learning goals, prioritize them. Sometimes you will need to negotiate which goals to focus on. Again, the purpose of identifying goals is that this becomes the platform upon which your feedback is based. By establishing the goals, you know what to focus on and observe. Your learners will also be clear about the criteria against which their performance will be assessed.

Picking the Right Time and Place for Feedback

Feedback is best when it is given in a timely manner and close to the observed activity [22, 25]. However, there are exceptions to this rule. Feedback given to a sleep-deprived learner is often met with an emotional response (e.g., crying). Learners who are fatigued cannot rationally process and integrate corrective feedback. In these situations, it is often best to delay the feedback. Similarly, it is often necessary to delay feedback after a medical error because overwhelming emotions (both yours and the learners)

can make it hard to both give and receive feedback. It is also beneficial to delay feedback in situations where you may be angry or frustrated with a learner. If you have negative feelings toward the learner, it will be difficult to provide feedback with the sentiment that you have genuine concern for them and that your feedback is coming from a place of wanting to help them improve. If you do not feel that you are coming to feedback with this mindset, consider taking a "time out" before having the feedback conversation.

In addition to thinking about feedback timing, you need to select the right place for feedback. Ideally, feedback should be given in a quiet, private location [22]. This is particularly important for macro-feedback. Micro- or brief feedback is often given in the moment. However, it is always wise to take particular care when giving feedback in front of others.

Signposting Feedback

As described earlier, learners frequently do not recognize when they are getting feedback. Therefore, it is helpful to signpost your feedback. When you signpost feedback, learners are more likely to realize when they are receiving feedback.

Giving Feedback: Feedback Frameworks

After setting the stage for feedback, teachers then can proceed to give feedback. It is important to recognize that simple "do and do not" rules for giving feedback underestimate the complexity inherent in how feedback should be delivered. The effectiveness of any feedback approach depends extensively on the context in which the feedback is being delivered and received. Therefore, as you think about how you want to give feedback, you need to recognize that you will need to have an inherent flexibility in your feedback approach that is based on the learner, the content of the feedback, and the context in

which you are giving. What follows is a description of two models for giving feedback: ADAPT and R2C2.

ADAPT Feedback Model

ADAPT stands for *A*sk, *D*iscuss, *A*sk, and *P*lan *T*ogether. This model of feedback was developed at the University of Washington and is derived from the doctor-patient communication paradigm of Ask-Tell-Ask [26]. This feedback framework is particularly helpful when giving micro-feedback or feedback after working directly with a learner. Each step of ADAPT is described

below. Table 2 provides examples of what you might say for each step.

Ask

The first step in giving feedback is to ask learners for their self-assessment of how they think they are doing. There are several reasons why it is beneficial to ask learners for their own assessment before sharing your thoughts and impressions. First, it makes feedback an interactive conversation rather than a one-way transfer of information from you to the learner. Second, it helps you to assess the learner's level of insight.

Table 2 Examples of what you might say during feedback using ADAPT

Step	Example	
Ask	Probe what learner did well "*How do you think that went?*" Probe what could be improved "*What are you trying to work on?*" "*What didn't go as well as you hoped?*" "*What would you do differently the next time?*" Probe generally "*How do you think things are going?*" "*What do you want feedback about?*"	
Discuss specifically	Bad example "*You did a great job delivering the news.*" "*Your write-up was inadequate.*"	Good example "*You paused often when delivering the bad news and you responded to the patient's emotion. That was really well done.*" "*Your problem list was missing important alternative diagnoses.*"
Discuss reinforcing feedback	"*Your decision to assess the patient's gait was very important for understanding potential causes for falls.*"	
Discuss areas for improvement	"*The history would have been more organized if you had set an agenda with the patient prior to exploring her chief complaint.*"	
Discuss descriptively	Bad example "*You are un-empathic and cold-hearted*" "*Your history was totally inadequate.*"	Good example "*I thought you could have demonstrated more empathy by pausing more to listen to the patient.*" "*I thought that a key part of the history, his occupational exposure, was omitted.*"
Ask	"*What are your thoughts about [insert feedback content]?*" "*Does this feedback make sense?*" "*What might you want to work on going forward?*"	
Plan together	"*If there was one thing you would work on, what would it be?*" "*What is your goal going forward?*" "*What might you do to achieve your goal? Who might be able to help?*"	
Making action plan specific	Bad example "*Work on your presentations.*" "*Read more*"	Good example "*Practice your presentations out loud at least twice before presenting to the attending.*" "*Focus your reading on how to distinguish systolic from diastolic murmurs.*"

It is beneficial to know when a learner's self-assessment differs from your assessment because you can then tailor the content and delivery of your feedback. For example, imagine you need to give feedback to a learner who is struggling. You can imagine how you might approach that conversation differently if the learner tells you he/she thinks his/her performance was outstanding versus if he/she self-identifies the same areas of concern that you have. Additionally, although self-assessment is not always accurate, learners do frequently identify many areas needing improvement. This makes your job of giving corrective feedback easier since you do not have to be the one bringing up all the areas to improve. Finally, by asking a learner to self-assess, you are helping him/her become better at reflection, an important skill in lifelong learning and foundational in the self-regulated profession of medicine.

Remember, when asking, be an active listener and reflect back what you hear. Commonly this means asking multiple questions. For example, if a learner tells you they are struggling with efficiency, ask in what way they feel they are struggling. The more you ask, the more likely you will get to the heart of the issue and the more likely you will suggest a useful action plan.

Discuss

Having elicited the learner's self-assessment, the next step is to discuss the learner's self-assessment and share your observations and impressions of his/her performance. Describe what parts of the learner's self-assessment you agree and/or disagree with. As you discuss your feedback, keep the following in mind:

Be specific Keep your message detailed and specific. Avoid only giving generalities of performance (e.g., "You did a great job"). Although telling someone he or she did a great job makes the learner feel good, it will not help the learner advance his or her knowledge, skills, and attitudes. Feedback must describe specific behaviors [22, 27, 28].

Reinforce the positives It is important to reinforce what learners are doing well [22]. This is more than an exercise in making the learner feel good or offering generic praise. Reinforcing feedback should reinforce the knowledge, attitudes, or skills that you want the learner to continue to demonstrate. Ideally, focus this reinforcing feedback on unique positive attributes of the learner, areas in which performance exceeds peers, or strengths observed during challenging or difficult circumstances (i.e., a difficult topic or a challenging clinical encounter).

Constructively give feedback about areas requiring improvement Learners cannot advance in their knowledge, skills, and attitudes and improve their competence or expertise if they do not know what requires improvement. Specifically describe what learners need to work on going forward [22].

Focus feedback on directly observable behaviors Learners may discount feedback if they believe that the teacher does not have an accurate knowledge of their performance [16]. Learners do not find feedback credible when it is not based on observation of the skills being discussed (e.g., providing feedback on history taking when the teacher has not observed a learner take a history). Therefore, if you want to provide feedback on history taking, physical exam, counseling, and communication, you will need to identify ways to be present during those activities (i.e., watching your learner with a patient). The more you observe patient-related activities, the more likely the trainee will view you as having accurate knowledge of his or her performance [16]. This is important to increase the learner's receptiveness to feedback.

Prioritize your feedback If you offer too much feedback at a single time, the learner will not be able to process it. If feedback is not processed, it cannot be integrated and used. Learners can feel overwhelmed (and demoralized) when they receive too much corrective feedback at one time. Therefore, prioritize how much and which feedback you want to give [22]. Limit your corrective feedback to no more than 2–3 points.

Make feedback descriptive and behavioral, not evaluative The purpose of feedback is to improve a learner's competence, not to intentionally (or unintentionally) make the learner feel bad. Therefore, you need to keep the feedback about the performance not the person [22]. Phrasing feedback nonjudgmentally makes the feedback more acceptable and palatable to the trainee. It is judgmental to say, "You are terrible at patient presentations." It would be better to say, "I think your presentations would be more effective if they were better organized and focused on the most pertinent information." Using "I" instead of "you" reinforces that what you say is your perception and can make feedback sound less accusatory. Always keep feedback about behaviors. For example, do not tell someone they are "uncaring." Instead, describe how they "did not make eye contact with the patient," "interrupted the patient several times," and "did not demonstrate verbal or nonverbal expressions of empathy" when breaking bad news.

Create a climate of trust and comfort for the learner Creating a climate of trust and comfort also means paying attention to the learner's emotional response to feedback. When you perceive such a response, you need to be ready to discuss it.

Ask

After discussing feedback, it is important to pause and see if the learner understands and agrees with the feedback you have discussed [20]. A learner cannot improve if they do not understand the feedback. Similarly, a learner will not change what they are doing if they do not agree with the feedback. This step in the feedback process is very important. This step helps learners process the feedback. When learners are given corrective feedback, they often feel bad. They may feel like they do not have the ability to improve [5, 20]. This loss of control makes it difficult to move forward. The teacher giving feedback must be empathic, help the learner to see the feedback as a "gift," and support the learner so that they feel empowered to use the information

to improve. Learners can regain a sense of control if they have some choice or say in what they wish to work on [20]. Therefore, ask the learner what they want to work on or what they wish to improve.

Plan Together

The last step in ADAPT is to explore with the learner with an action plan for how they might improve. Feedback falls short when the learner does not leave the conversation with specific suggestions for how to narrow the gap between their current performance and expected or desired performance. All feedback should have an action plan [22]. An action plan includes the specific recommendations for *how* the learner will get from point A to point B. For example, imagine a learner who is struggling with efficiency in the hospital. Telling a learner to be more efficient is unlikely to be helpful. But spending time figuring out why the learner is not efficient and what they can try to do differently to be more efficient would be helpful. What should they try differently the next time? What strategies do they have? What tips can you offer? Action plans are most effective when they are detailed and specific.

R2C2 Feedback Model

The R2C2 facilitated feedback model is another approach to giving feedback [20]. Developed by Joan Sargeant and colleagues, this is one of the few feedback models whose efficacy has been demonstrated in research [20]. This feedback model focuses and emphasizes humanism in feedback, person-centered approaches, informed or guided self-assessment, and behavioral change. The steps are (1) *R*apport and Relationship Building, (2) Explore *R*eactions, (3) Explore *C*ontent, and (4) *C*oach for Change. R2C2 is particularly useful when you are reviewing and discussing multiple evaluations that have been completed for a learner (e.g., a program director meeting with a resident for a midyear feedback

Table 3 Examples of what you might say during feedback using R2C2

Step	Example
Rapport/ relationship building	*"Tell me about your experience in completing this assessment."* *"Tell me a little bit about your practice. Your setting. The types of patients you see"* *"What challenges have you experienced?"* *"What do you enjoy?"*
Explore reactions	*"What are your initial reactions to your evaluations? Anything particularly striking that you would want to focus on?"* *"Did anything in the report surprise you? If so, what."* *"How do these evaluations compare to how you thought you were doing?"* *"Is there a part of these evaluations you want to focus on?"*
Explore content	*"Was there anything in the evaluations that didn't make sense to you or anything you are unclear about?"* *"Let's go over this more carefully. As we go, let me know if there is anything you want to talk about more or comment on."* *"Do you recognize any patterns?"*
Coach for change	*"Going forward, is there anything you would like to see changed?"* *"If there were just one thing that you could focus on, what would it be?"* *"What goal do you want to set going forward?"* *"What might you do or try to achieve that goal?"* *"Who/what might help you with this change? What might get in the way?"*

session). Table 3 provides examples of what you might say for each step of R2C2. As you will see below, the R2C2 model has many similarities to ADAPT.

Rapport and Relationship Building

Receiving formal performance reports can be intimidating. Therefore, when you are reviewing performance reports with a learner, you need to establish a relationship with the learner. Rapport and relationship building includes learning about the trainee, his/her context and experiences from his/her point of view. It includes asking the learner about any challenges they have encountered or any concerns they have with the assessment process. The goal of the conversation is to establish mutual respect and trust. Essentially you want to get a sense of the learner's story.

Explore Reactions to Performance Data

In this step you want to ascertain learners' reactions to the performance report. You want to assess what does the learner agree with. What do they not agree with? You want to ask them if there is anything in the evaluations that is surprising to them. These questions need to be asked in a non-judgmental way. It is important to genuinely listen to and respect the learner's reactions, promoting an open dialogue.

Explore Performance Data

The next step in R2C2 is to explore the content of the performance report. The purpose of this step is to help the learner understand the content of the feedback and standards or milestones against which he/she is being measured. It is the time to clarify if there is any feedback that is unclear to the learner. During this step it is important to reinforce strengths and discuss performance gaps. The goal in this step is to have the learner identify what they wish to work on going forward.

Coach for Change

In this last step, teachers coach learners to articulate realistic goals and an action plan to address those goals. This is an opportunity to discuss the goals and action plan together and identify anything that might hinder the learner's success in

accomplishing the goals. If potential barriers are identified, you can help the learner strategize how they may overcome these barriers.

Closing the Loop

Regardless of whether you use ADAPT or R2C2, it is important after giving feedback, whenever possible, to follow-up with the learner at a later point in time [22]. Follow-up allows you to assess how the learner incorporated your feedback (or not). Not uncommonly, teachers need to give feedback knowing they will not be working with the learner again. If this is the case, teachers should think about how they could encourage the trainee to seek additional feedback about the identified skill area with his or her next supervisor. Helping the learner to identify ways to find out if he or she has successfully improved is an important part of the action plan.

Difficult Feedback Situations

There are certain situations in which giving feedback is particularly challenging. Examples include giving feedback to a learner who has poor interpersonal skills or has issues with professionalism, giving feedback to a learner who lacks insight into his or her performance, or giving feedback to the learner who is not receptive to feedback. Often, these situations involve learners who will require remediation, and this is when the academic physician will want to involve the appropriate individuals in the medical school or the course, clerkship, residency, or fellowship.

Feedback About Professionalism and Interpersonal Skills

Many faculty find it particularly difficult to give feedback about deficiencies in a learner's professionalism or interpersonal skills because it may feel as if the feedback is about the learner's character or personality [9]. Feedback about professionalism and interpersonal skills may feel more

subjective than feedback about other skills (e.g., medical knowledge) and often feels more resistant to remediation [9]. Nevertheless, addressing lapses in professionalism or interpersonal skills is just as important as addressing gaps in fund of knowledge.

The principles of effective feedback that have been previously described still apply. When giving feedback about professionalism or interpersonal skills, it is especially important to begin by seeking out the learner's self-assessment. For example, when there are concerns about communication skills one might ask, "How do you feel like you have been interacting with the team?" or "How have your interactions with your patients been?" As with all feedback, it is especially important to be descriptive, not evaluative. Keep the feedback to describing behaviors, not the person. And use "I" statements instead of "you" statements. When providing feedback about these competencies, it can be helpful to start by saying "The perception is that …." For example, one might say, "The perception is that you have seemed very impatient with the nurses." Phrasing feedback this way can make its delivery easier because the learner cannot argue with how they are being perceived.

Feedback to the Learner Who Lacks Insight or Is Not Receptive

It is very challenging to give feedback to a learner who is unaware of his or her limitations or weaknesses (i.e., unconscious incompetence) [9]. The learner who lacks insight may be resistant to discussing the problem at hand, may not accept ownership or responsibility for his or her weaknesses, and may find excuses for his or her actions by blaming others or the system [29]. Such a learner will often rationalize and/or externalize corrective outcomes and therefore be resistant to feedback [29].

When giving feedback to a learner who lacks insight, try to focus the conversation on further elaborating the problem [29]. Try to encourage additional self-assessment from the learner [29]. Re-review expectations and try to address denial

through education [29]. The goal is to try to get the learner to identify the discrepancy between his or her present performance and the expectations or the professional standard [29].

Although it is difficult to receive corrective feedback, most learners will be receptive because they wish to improve. However, some learners are simply not receptive to feedback. Lack of receptivity may be detected through verbal and nonverbal cues from the learner. When a learner is not receptive to feedback, it is incumbent on the academic physician to figure out why. If lack of receptivity is a persistent issue, it is important to contact the course director, the school administration, or the training director (e.g., fellowship or program director). There is often a reason for a learner's lack of receptivity to feedback, which can be remembered by the eight Ds: *d*oes not understand the feedback; *d*oes not agree with the feedback; *d*oes not know how to change; and *d*istraction, *d*rugs, *d*epression, *d*iagnosis, and *d*ysfunctional environment. Sometimes learners are not receptive because they are distracted by issues outside of work, such as problems in a relationship, ill family members, or financial stressors. An underlying problem with substance abuse (drugs) should be considered, particularly when a learner's behavior is erratic. A depressed learner or a learner experiencing burnout also will have difficulty integrating feedback. Sometimes learners do not change after receiving feedback because they have a diagnosis that interferes with their ability to improve (e.g., attention deficit disorder, personality disorder, autism spectrum disorder, executive function disorder). Finally, learners may be resistant to feedback and may "check out" if they feel that they are working in a dysfunctional learning environment.

A Few Tips About Evaluation

As described earlier, evaluation is a summative assessment that occurs at the end of the time a teacher/supervisor works with the learner. Effective evaluations should summarize whether the learner achieved predetermined goals and expectations. Learners can be evaluated in many

ways, such as written examinations, oral exams, clinical skills exams, and 360-degree evaluations. The most common type of assessment the academic physician will likely be asked to complete is an end-of-course, end-of-clerkship, or end-of-rotation evaluation of the learner. The criteria for assessment and the structure of the assessment form will differ from institution to institution and may also vary within the institution. What follows, therefore, are some general recommendations about how to approach completing these evaluations.

Familiarize yourself with the assessment form and course/rotation goals/objectives before working with the learner It is very important that you know what the assessment form looks like before you work with the learner. Reviewing the evaluation form tells you what competencies you will be asked to assess and will inform what types of observations you will need to make of the learner. For example, if competence in the physical exam is to be evaluated, it is incumbent upon you to figure out how to observe the learner doing a physical exam. You also must observe the learner's physical exam several times to ensure that your evaluation is reliable. Nothing frustrates a learner more than reading an evaluation when the teacher or supervisor has not directly observed the item being assessed.

Do not evaluate items you have not had the opportunity to observe Most evaluation forms have an option for "not applicable" or "not observed." Use it when appropriate. Not doing so will undermine the rest of the evaluation.

If there is a rating scale, use the anchors Grade inflation is prevalent in medical education, and many evaluators restrict their ratings to the highest number on the scale [30]. If behavioral anchors are present (i.e., examples of what a number means), read the anchors and use them when selecting ratings. Think critically about each item you are asked to evaluate and try to differentiate performance in each of the different competencies [31]. Try to rate each skill rather than circling the same rating across all competen-

cies. If the form has a comment section, consider writing your comments first before selecting ratings (suggestions below) [31]. Doing so may help you to better identify a learner's strengths and weaknesses and help you to better complete the rating scale.

If there is space for open-ended comments, make your comments specific with examples Many assessment forms include space(s) for open-ended comments. Useful comments are those that are specific, describe relevant competencies and highlight strengths and weaknesses, providing specific examples of both [31]. You need to know what competencies the course director is interested in so that your comments address relevant and important areas. Similar to giving feedback, make your comments behavioral [31]. For example, instead of writing "poor communication skills and impatient," write "frequently used jargon when speaking with patients and interrupted the nurses during multidisciplinary rounds." Again, make sure you know what the performance standard is so that your comments identify where the trainee is compared to where he or she should be. It is also helpful to include an action plan, specific suggestions for what the learner can work on going forward [31]. Your comments should be specific enough that an independent reviewer could understand the learner's performance.

Only write what you have discussed during feedback In almost all circumstances, the learner should not read something for the first time in an evaluation. As described previously, learners become angry when they see something in their evaluation that was not communicated to them during the time you worked with them. They will feel frustrated that they were not given the opportunity to work on the area needing improvement. It is unwise to write comments about something that you have not communicated in feedback, especially if it is about an area requiring improvement. Conversely, if you have provided the learner with feedback, it is beneficial to write how the learner responded to the feedback in your written comments.

Ensure alignment between your ratings and your comments As you write your comments, look to see that the areas you rated highly are areas that you describe as strengths in your comments [31]. Similarly, if there are skills you rated lower, make certain that your comments address those areas. Once you have completed your evaluation, go back and review the ratings and comments to identify any inconsistencies.

Complete your evaluations in a timely manner There are several reasons why timely completion of evaluations is important. First, it can be difficult to provide a specific evaluation if months lapse between when you worked with a learner and when you complete the evaluation. Second, learners might contest the accuracy of your evaluation if it is completed months after a course or a rotation. Third, accrediting bodies (e.g., the LCME) often set standards for when students must receive evaluations or course grades. Waiting too long to complete evaluations could therefore jeopardize the school's accreditation status.

Words to the Wise

- Set the stage for feedback by establishing and promoting a relationship with the learner. Involve the learner in goal setting. This is the foundation of feedback.
- Increase the amount of direct observation that you do, because this is the focus of your feedback. Talk with a colleague about feasible strategies for increasing the amount of direct observation you do.
- Make feedback a dialogue. Seek the learner's self-assessment before you give feedback. Really listen and respond to what the learner has to say.
- Include reinforcing and corrective feedback that is specific, objective, timely, and prioritized.
- Make sure that your feedback has an action plan. Action plans need to be specific.
- Role-play with a mentor or a colleague to practice difficult feedback.

- Consider participating in a workshop about teaching skills or providing feedback to practice your skills.

Ask Your Mentor or Colleagues

- What types of feedback have been challenging for you to give? What made them challenging?
- What strategies have you used to give challenging feedback?
- Was there a time you did not give a trainee feedback and wish you had? Why do you think that happened? How could you prevent it from happening again?

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How to Teach in Busy Clinical Settings

James T. Hardee and Frederic W. Platt

Teaching: The sharing of knowledge, of curiosity, of discovery, of understanding, and of connecting with another person.

The opportunity to teach medical students and resident physicians is one of our highest callings as doctors and a source of immense career satisfaction. Although the increasingly complex medical landscape threatens to diminish the opportunity and effectiveness of clinical education, focused preparation and flexibility are key strategies. Recognizing institutional "protected time" for educational activities and seizing the proverbial "teachable moment" serve to enhance learners' experience. Prudent use of case-based learning, team-based learning, and available technologies is also effective. Perhaps even more critical to the student's educational experience than the assimilation of facts is the observation of the attending physician's professionalism and bedside manner. It is important to be ever mindful that we serve as role models for trainees, who are apt to pick up on our habits. Attending physicians' demonstration of enthusiasm, compassion, and integrity is known to positively influence medical students' educational experience. Excellence in clinical communication, in all its applications (physician–patient, physician–family, physician–staff, and physician–physician), demonstrates the highest degree of our professionalism.

Teaching medical students and house staff is a primary reason for seeking a position in academic medicine. The opportunity to offer knowledge and positively affect future generations of physicians is exciting and gratifying [1, 2]. Certainly, challenges emerge that can adversely affect teaching opportunities. These include time constraints, increasing attending physician workload and care responsibilities [3], HIPAA and privacy regulations, and house staff work hour restrictions [4] to name a few. Even residents have noticed a "decrease in quality of faculty teaching and decrease in educational satisfaction" [5] since ACGME work hour restrictions have gone into effect. The complexity and amount of ever-evolving information to be delivered during this time of training are unprecedented. Beyond the scientific and humanistic information to be assimilated, students and residents face issues of life and death, family struggles, grueling call schedules, and board examinations. The role of the attending physician in the education, support, and development of future generations of doctors cannot be overstated and as such is a career satisfaction point for almost all academic physicians [6].

Increased regulations, time constraints, and the ever-present "tyranny of the urgent" need not overshadow critical teaching opportunities. Rather, successful institutions have set aside

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protected time for education, and attending physicians have needed to become more focused and intentional in these efforts. Depending on whether the teaching is occurring on the hospital wards (inpatient) or in the ambulatory clinic setting (outpatient), recognizing and seizing the opportunity is key.

Inpatient

Attending on the hospital ward typically affords some luxury for blocking out time to teach. Not that the wards cannot be extremely busy and chaotic, but the pace of the day often presents some flexibility. Consider these protected time opportunities:

Morning Report (Daily)

- One-hour case-based presentation typically involving a recently admitted patient
- Presented by the intern, resident, or student
- Brief history and physical, pertinent lab/imaging findings, hospital course
- Can be presented in Question and Answer format seeking input from others
- Diagnosis given with summary of the pathophysiology and article/references

Noon Conference (Daily)

- One-hour topic-based presentation from Fellow or Attending in the area of expertise
- Case-based, lecture format, or include "Board-style" multiple-choice questions
- Includes lecture slides, relevant article/references, handouts
- Sometimes known as "Lunch and Learn"

Morbidity and Mortality (M & M) Conference (Weekly)

- Instructive case often involving an adverse or unexpected outcome

- Details a case involving a relentless or atypical disease process
- Includes pathology or other experts with insight or instruction
- Outlines opportunities for improved diagnosis and treatment

Grand Rounds (Monthly)

- Topic chosen by department chief or education committee
- May include an invited guest speaker or regional/national expert
- 90–120 minutes with time for department socialization
- Invitation extended to clinics, pharmacists, nurses, administrators, etc.
- Due to size of audience, may take place in a large auditorium setting

Typically, the more "case-based" a lecture or presentation is, the better. Presenting a litany of esoteric facts via the proverbial "death by power point" is generally unhelpful to students and residents (see chapter "How to Give a Lecture"). In any of the aforementioned conferences, allow time for interaction and conversation. It is valuable for students to participate with more senior physicians in generating a differential diagnosis and discussing various treatment options.

Inpatient hospital ward rounds (attending rounds) have been a staple of medical education for generations of doctors, although the percentage of clinical teaching at the bedside has been steadily declining for decades [7]. Virtually all physicians have some memory and fondness of making rounds with the "ward team" … gathering outside each hospital room while the student or intern presents a thumbnail sketch of the patient's course of care. The "team" then makes its way to the bedside where the attending would recant a few items of the history and clarify needed data. The members of the team would take turns briefly examining the patient and reviewing the pertinent findings (laboratory, radiologic, specialty consultations, etc.). Bedside teaching rounds are most "at risk" for being shortchanged or omitted alto-

gether when the busyness of the day takes over. However, even mini-lectures or brief demonstration of physical exam findings (e.g., murmur auscultation, thyroid palpation, or shoulder exam) can be extremely valuable [8].

To help pick up the slack and involve the entire team, trainees should be encouraged to read about a particular topic and present that to the group (this lessens the burden on the attending and allows for self-study and peer-to-peer teaching). In addition, encourage students and house staff to return to the patient's bedside as appropriate to reexamine findings noted on "attending rounds" to solidify the learning in a slightly less rushed fashion. An emerging concept in medical education which extends the concept of "team learning" involves a shifting focus to "team-based care" which not only includes medical students and residents but nursing, pharmacy, and health administration students as well [9]. These efforts also foster collaboration and collegiality, which are important long-term career skills.

Bedside learning can also be augmented by utilizing available technology (see chapter "How to Use Technology in Educational Innovation"). Students may benefit from educational materials available in many hospital libraries and media centers or even credible Web sites. An example of this would be using the Internet to view an example of the Dix–Hallpike maneuver to evaluate benign positional vertigo on YouTube (which even demonstrates the associated nystagmus).

Inpatient teaching need not be imperfect nor inefficient on a busy service. With focused effort, awareness of opportunities, use of team learning, and judicious use of advanced technology, the hospital wards present some of the most fertile grounds for learning the science and practice of medicine.

Outpatient

The ambulatory clinic setting provides a great variety of teaching opportunities, typically at a much faster pace than the inpatient setting. As more and more patients are being treated as outpatients for conditions that warrant extended hospitalizations (e.g., community-acquired pneumonia, uncomplicated deep venous thrombosis), the variety and complexity of ambulatory care present unique opportunities and challenges for teaching. The outpatient clinic setting allows for both the recognition of a new disease presentation and the follow-up of established disease processes. Patients are now being seen in 15–20-minute visits, and as such, the time for clinical instruction can be quite compressed. What the clinic setting lacks in terms of being able to evaluate a patient or a disease slowly over days or weeks, it makes up for by offering a great number and variety of cases in rapid succession. Identifying the proverbial "teachable moment" is key in these situations.

An effective teaching strategy involves helping a trainee identify a focused learning objective and then create connections between facts learned in the classroom and actual physical findings. Depending on the institution, the first 2 years of medical school are heavy on lecture-based education. Students may learn about a particular cardiac murmur but not actually auscultate a real patient for years. Rather than simply "waiting to see what walks in" to the clinic, spend a few moments with the student to clarify what he or she desires to focus on. If the student is immersed in a pulmonary class at the time, then suggest "let's be sure to listen to all the patients' lungs today and see what we can pick up on." If, in this example, chest X-rays or pulmonary function tests are available to review, incorporate those studies to the lung exam findings. The more interconnections that are made, the more likely it is that the information will "stick."

An effective strategy for ambulatory education built on brief teacher–learner interactions is SNAPPS [10], a collaborative model for case presentations, specifically designed for the outpatient setting, which links learner initiation and preceptor facilitation in an active learning conversation. The six SNAPPS steps are as follows:

1. *S*ummarize briefly the history and clinical findings.
2. *N*arrow the differential diagnosis to two or three relevant possibilities.

3. *A*nalyze the differential by comparing and contrasting the possibilities.
4. *P*robe by asking questions about uncertainties and alternate approaches.
5. *P*lan management for the patient's medical issues.
6. *S*elect a case-related issue for self-directed learning.

Virtually all medical schools and training programs have institutional guidelines published and available to serve as road maps for competencies trainees should be achieving. The University of Colorado Foundations of Doctoring program, for example, distributes its curriculum to students and faculty and details specific knowledge, skills, and behaviors in which students are expected to acquire and demonstrate proficiency. The checklist is exhaustive and includes topics ranging from deductive reasoning, practicing compassionate treatment of patients, and data gathering to palpating lymph nodes, assessing for abdominal rebound tenderness, and the ophthalmoscopic exam. The curriculum also contains information for faculty and students on history and physical templates, oral presentations, and patient write-ups to standardize the educational experience as much as possible.

It is well established that active learning is preferable to passive learning. Supportive, learner-focused education is generally more effective than "fear-based" learning. Intimidation, humiliation, and ridicule are not effective tools for teaching future professionals. Rather, encouragement, support, and motivation are far more effective and, it is hoped, more enjoyable for the attending as well!

Professionalism and Patient Care

Although much of what an attending physician imparts to students and house staff is in the "academic" realm, the modeling of medical professionalism may be ultimately just as important [11]. Students learn much about interpersonal communication and professionalism from those whom they observe. For many, the early training years may be the first time actually witnessing an attending physician supervising a care team or managing a stressful clinical situation. Did the attending curse or throw things? Did the attending "bad mouth" a colleague, staff member, or patient? Did the attending gripe and complain about the administration? Even a brief glimpse of an attending yelling or grousing can suggest to the student that such behavior is acceptable. Just as parents must be mindful that their children often pick up on their language, habits, and mannerisms, students are often "blank canvasses" where attending physicians must be careful to exhibit helpful behaviors. The joy and professional satisfaction of watching fledgling first-year students and interns transform into confident, competent, empathetic doctors is something to behold. We must continue to role model what it means to be an exemplary physician, leader, and healer in an ever-changing healthcare landscape [12]. An effective strategy for conceptualizing student and resident development involves the evolution from *supervisor* to *coach* and, finally, to *mentor*.

Supervising (All Students)

- Adheres to legal and institutional guidelines
- Attending ultimately responsible for patient care, charting, and billing
- Ensures educational objectives and competencies being met
- Sets expectations for trainee conduct, assignments, and responsibilities
- Involves giving a grade or formal evaluation at conclusion

Coaching (Some Students)

- Less formalized instruction … more collaborative
- Increased autonomy given to a trainee. Opportunity to "try and fail"
- Teaching by example. A process of development
- Feedback given to build confidence and competence

Mentoring (Few Students)

- More formalized than coaching
- Process typically initiated by mentee
- Takes a "big picture" approach, including career skills and goals
- Only occurs with a select few students, perhaps no more than 1–3 at a time

Throughout the course of educating students and house staff, the demonstration of the many facets of professionalism by appropriate role modeling is critical. A role model teaches primarily by example and helps shape the trainees' professional identity and commitment. There is a noted correlation between clinical excellence and effective role modeling in inspiring trainees [13]. Students identify enthusiasm, compassion, integrity, and good relationships as attributes they seek in their role models [14]. Conversely, faculty with poor attitudes or unethical behavior can cause distress and confusion in students. Excellent clinical skills and teaching ability are important attributes for an effective attending physician. Ultimately, the value of a good role model is based on the students' reflective assessment of their preceptors' "worthy" behaviors [15].

"I used to torment my students," a retired physician colleague once said. All of those students have long since completed their training and are respected doctors in the community …" and one of them now torments *me* about tormenting *him*!" Although we can share a chuckle about attending physicians in our past who either terrified or inspired us, there is no denying the influence we have over impressionable student doctors. And although "supervision" is an important legal, ethical, and institutional requirement, at the heart of what we do is to instruct, coach, mentor, support, and role model.

Imagine that we create doctors, not just biological scientists, but real doctors, healers, and caregivers for people. Perhaps one of the great things we can help facilitate is the teaching relationship between patient and student. Here is how it can happen: I send in my first-year student, John Smith, to talk with a patient. The student has already told me that he "does not know enough." Students often misunderstand their task, thinking that their job

is TO KNOW, when really the task is TO FIND OUT. I give the student an easy task … Find out who this patient is as a person. Ask him or her to tell you about himself as a real person. Tell him you are a student doctor and want to start *not* with his illness, but with him. Then settle in and listen. When you have learned something, ask permission to tell it back to the patient to be sure you have heard it right. Then you will find yourself saying things like "So, if I am hearing you right, you are 48 years old and teach music at a high school. And you are married to another teacher and you have two dogs and a cat, but no kids so far, right?"

Meanwhile something magic is about to happen. I recognize it because after 10 minutes of the two being together as medical student and patient, I knock on the door and enter. "How are you two getting along?" I ask. The medical student is getting ready to tell me he does not know enough again. But the patient hops into the conversation and says "This student-doctor Smith here says I am doing pretty well with my work and my pets at home." The student straightens up. He is at that moment, for the first time, hearing a patient refer to him in his professional training role: the student-doctor. It has just happened that instant. The *patient* did it. The student sees that he will someday be "Dr. Smith" and carry the responsibilities that go with this title.

The "supervision" of medical students can and should be more than simply reviewing orders, signing off on chart notes, and rendering evaluations. A true and effective academic attending physician coaches and mentors student-doctors. We facilitate experiences and opportunities using patients and disease processes to allow students to learn what it is to be a physician. We must never forget that we teach THE CARE OF PATIENTS.

So what tools do we have at our disposal to deftly wield with the students with whom we are in charge? Several come to mind.

Kindness

We should treat our students as we would have them treat our/their patients. Above all … kindness. And courtesy: addressing the patient by his

or her preferred name. Apologizing for our many little and occasionally larger faults (being late, not having listened carefully, needing to repeat procedures such as blood draws, etc.). We can forgive our students for their lapses as we would hope they forgive us and their patients.

Knowledge

Yes, we are tremendous knowledge banks, retaining many useless and some needed facts about biochemistry, anatomy, physiology, pharmacology, and mechanical procedures. But we are unlikely to understand the biochemistry of genetics as well as our students' geneticist professors (and probably not as well as the students themselves), and we are unlikely to understand cardiac physiology as well as the dedicated cardiac physiologist. But, we can demonstrate over and over that knowledge matters, that finding out what one does not know is the right track, and that we are working in science, not superstition.

Inquiry

Our students are convinced that they must KNOW everything. More importantly, they should INQUIRE. It is not *knowing*, but *finding out* that constitutes the clinical task. We can demonstrate inquiry with curiosity and openness to our patients' stories.

Patients

Patients are what we have that other (classroom and research) teachers likely lack. It is by talking with patients, examining patients, explaining what matters to patients, asking permission of patients, and letting patients know that they matter that we will create doctors rather than pathologists for live bodies. We attending physicians have patients. We must demonstrate that we can be effective clinicians and efficient at the same time.

Communication

The use of competent, confident, and considerate communication with peers and staff is critical for students to observe and begin to master. How we address colleagues is important. The words we use and the attitudes we display matter. Respectful dialogue between attending physicians is essential for early-career doctors to see, even when there is disagreement about a diagnosis, the need for additional testing, or the treatment plan. Courteous communication with nurses, ancillary staff, and administration is also a must. Long gone are the days when physicians could rule the hospitals and clinics as tyrants. Although attending physicians are still ultimately responsible for medical care and decision-making, more and more we also serve as leaders of a larger care team. And as such, our communication skills (both good and bad) are magnified. It would be tragic for our students to witness tantrums, cursing, or belittlement of others, assume that it is perfectly acceptable behavior, and carry that forward in their own careers.

Conclusion

The preparation and education of future generations of physicians is undoubtedly one of our highest callings. Although increasing stressors and constraints threaten to limit our availability and the opportunity for teaching, focused preparation, flexibility, and being ever-mindful for even the briefest teachable moment help us in our goal. Protected teaching time, team-based learning, and appropriate leveraging of technology can assist in our efforts, but we must be cognizant that some of the greatest and longest-lasting lessons we can impart on our students are compassion and professionalism.

Words to the Wise

- Use case-based and team-based learning.
- Avoid unhelpful tactics of fear, intimidation, and humiliation when teaching.

- Identify the student's learning objectives to focus the efforts and experience.
- Recognize and seize the "teachable moment."
- Consider the SNAPPS model of teacher–learner interaction.
- Be cognizant that attending physicians are always being observed by students.
- Consistently model exemplary professional, communication, and leadership habits.

Ask Your Mentor or Colleagues

- Who affected you the most during your clinical training and why?
- How did you develop your professional identity? Who or what events were most instrumental?
- How did you develop your clinical communication skills, and what are you still learning?
- Were there things in your medical training that you would change if you could?
- What experiences in your medical training had the most deleterious effect on you and how did you overcome them?

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How to Teach Creatively

Hendry Ton, Shelly L. Henderson,
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Health professional schools are challenged to train diverse healthcare professionals who can acquire and manage increasingly complex medical knowledge, skills, and attitudes, in the context of multiple competing demands. Such a challenge necessitates creative teaching methods that promote the deeper levels of learning that are necessary for application in clinical settings. Creative teaching involves imaginative approaches that make learning more interesting, exciting, and effective. Creative teachers share a number of characteristics. Although they are content experts, they are also highly motivated, have high expectations, and have strong communication skills. Creative teachers also use techniques to stimulate curiosity and raise confidence. They inspire their learners and balance structured learning with opportunities for self-direction [1]. The purpose of this chapter is to highlight strategies to stimulate the academic physician's creative teaching process.

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Maintain Good Teaching Habits

Creative teaching rarely happens in isolation. Effective teachers have positive teaching habits that are the foundation for their creative work. Consider adopting the following recommendations as part of your everyday teaching practice.

1. *Develop and maintain your expertise*. You obviously need to know what you teach. As an educator, however, you should also work to improve your expertise in teaching modalities, such as small group teaching or bedside teaching. In fact, you should try to become proficient in multiple teaching methods, as this will have the flexibility to select from a variety of teaching strategies to teach a given concept, depending on the context and learner.
2. *Practice what you teach*. Practicing lends credibility to what you are trying to teach and helps you to develop richer learning experiences through compelling real-life case examples. It also helps you to be more nuanced when addressing questions, concerns, and strategies.

3. *Dedicate protected time for teaching and learning to teach*. Developing and teaching creative learning experiences take time.

4. *Stay connected to current events*. Great teachers make real-world connections to the learning material, thus improving relevance and stimulating "outside-the-classroom" problem-solving.

5. *Take every opportunity to be a learner*. Good teachers tend to be good learners. Stay in touch with yourself as a learner to gain insights on how to connect with other learners, identify and understand challenges that learners face, and learn new teaching strategies from other educators. Attend conferences that focus on education and stay up to date on academic teaching journals.

6. *Explore adult learning theory and apply best practices in your learning activities*. Understand adult learning principles when teaching health professional learners. Use strategies that assess learners' existing knowledge and build from prior experiences. Be clear about the utility of the learning activity. The recommended readings at the end of this chapter can help you get a head start on this tip.

7. *Actively seek out opportunities to learn about the diversity of your learners or the communities that they will serve* (i.e., through diverse relationships, trainings, books, documentaries, culturally themed media, and community events).

Reflection exercise

What has been your experience as a learner?

- Recall a learning experience that inspired or engaged you.
- What made it a good learning experience?
- How did your fellow learners contribute to this experience?
- What was your teacher like?
- How did he or she inspire your learning?
- What lesson(s) can you take from this to make you a better educator?

Fig. 1 Components of the learning process

Plan for a Rich Learning Experience

Creative educators create rich learning experiences that foster curiosity, safety, risk-taking, and interaction by considering the emotional, cognitive, biologic, and cultural components of the experience (Fig. 1). When one or more of the "gears" are neglected, the learning process may break down.

When planning a learning experience, whether it is a didactic, small group, or other modality, consider asking yourself the following questions. Even better, use these questions to stimulate discussion between you and a group of colleagues.

Cognitive

1. What level of learning do I want my learners to achieve? Does the teaching modality match this?

2. Which of the learners' past learning experiences can positively or negatively affect this learning experience? How will I adjust accordingly?

3. What makes this learning experience cognitively relevant to my learners?

Emotional

1. What can I do to create a safe emotional space for learners to work with me and each other and take risks?
2. How will I inspire my students and stimulate curiosity?
3. What makes this learning experience emotionally relevant to my learners?
4. What other emotions would be helpful in moving the learning process forward (e.g., distress about health disparities may motivate learners to learn about cultural humility)? And how can I cultivate these emotional experiences?

Biological

1. What type of physical space and seating arrangements do the learners need to learn?
2. What is the level of energy that I should expect from the participating learners? How do I factor this into the learning experience? *Example*: *An educator anticipates teaching learners at the end of a long day of didactics*, *so she uses a small group format to stimulate engagement*.
3. How do I use the biologic resources that I have to improve the learning process? *Example*: *A group of educators planning for a retreat decide to introduce a topic that may unnerve and disengage some participants. They decide on a lunch seminar*, *hoping to use eating as a reciprocal inhibition to reduce anxiety*.

Cultural

1. What can I do to demonstrate support and interest in the cultural background of my learners?
2. Do I perpetuate negative stereotypes of patient populations in my learning materials. How would I know if I did?
3. What can I do to demonstrate and model my willingness to learn from my learners and colleagues about diversity?

Harness Your Relationship with Learners as a Source for Creativity

Creative teaching is a dynamic process that involves the teacher(s) in concert with the learners. Central to this process is the teacher–learner relationship. Each brings knowledge, motivation, and attention to the conversation. What underlies this conversation is a sense of relating to each other—learner to teacher, teacher to learner, teacher as learner, and learner as teacher. Due to these relationships, learning experiences are inherently unique. Below are four suggestions for developing a relationship with learners to stimulate creative learning.

1. *Ask how the learners are doing*. Whether a large lecture hall of learners or a small group, get a read on the collective pulse of the learners. What barriers, personal and otherwise, might exist that would prevent learners from being fully attentive to the learning activity? The goal is not necessarily to solve the problem, but to listen and get a better understanding of how the learners are coping with the stressors of their learning environment and to provide support through active listening and shared understanding.
2. *Act on what you hear*. If a group of learners tells you that they are exhausted and having difficulty concentrating, consider having everyone stand up and stretch or, if it is a small group, walk around the block. Ask them what would help them to concentrate and have a productive learning experience in your time together.
3. Strengthen learners' self-motivation. Avoid messages that reinforce your power as an instructor or that emphasize extrinsic rewards. Instead of saying, "I require," "you must," or "you should," stress "I think you will find …" or "I will be interested in your reaction."
4. *Work from learners*' perspectives, *strengths, and interests*. Find out what is important to learners, how they feel about the subject matter, and what their expectations are. Asking questions from a place of curiosity such as "How did you learn that concept?" and "When

did you first experience what you are referring to?" engages learners in a metacognitive process of reflecting on their knowledge and how they know. This process of perspective taking can help you to see a teaching challenge or task in a fresh way, thus stimulating new ways to teach it.

Be Flexible During Teaching Sessions

Being flexible during the actual learning experience allows for truly creative teaching. Being attuned to the learners in the room and appreciating where they are in their learning process are part of the creative process. It is sometimes necessary to change tactics mid-session if it appears that most learners are not achieving the session goals. For example, if an interactive case discussion has been planned, but it becomes apparent that most of the participants are lacking a bit of fundamental knowledge necessary to understand the case, a mini-lecture mid-session can significantly increase the value of the session for the learners.

Being flexible and responsive during teaching sessions are skills that you can increase with practice. The following tips should be helpful in increasing your creativity during learning sessions:

1. Maintain eye contact periodically with all of your learners (if possible). Look for clues that they understand and are engaged.
2. Check in if the level of student engagement is unclear. "Does anyone have questions at this point?" "Are there aspects of this discussion that are still unclear for some people?"
3. Check in with co-facilitators about their perception of the level of student engagement during the session.
4. Look for unexpected learner expertise: Some learners possess extensive previous knowledge about a subject. If appropriate, engage these learners as co-teachers by asking them to explain concepts or discuss their experience with the topic.

5. Prepare alternative activities in case a session does not meet the learners' needs.
6. If a teaching session did not go as planned, debrief the session with a colleague about what could have been done to improve the learning experience.

Collaborate with Other Educators

Creative teaching also involves developing a network of educators to share support, feedback, and mentorship. Collaborative teaching relationships often begin with two faculty members simply learning about one another, offering to help or asking for help, or providing in-service development activities for one another. Through these conversations, educators begin to learn about the other's educational passions and interpersonal strengths. Consider the following reflection exercise:

Reflection exercise

Who am I as an education collaborator?

- What is my role in the department?
- How does my job or expertise relate to the person with whom I wish to collaborate?
- What are my strengths as a teacher?
- Where do I need help?
- What do I know about myself and how can I complement the style of my colleague?

Invite your colleague to engage in the same self-reflection and then share your thoughts with each other.

Stimulating the creative teaching process involves planning, which includes maintaining effective teaching habits and developing learning experiences that incorporate cognitive, emotional, and biological aspects of learning. Additionally, the creative process is dependent upon active relationships, both with learners and

co-educators. It requires willingness to be flexible, curious, and receptive to unexpected opportunities and challenges.

Words to the Wise

- *Open the door—to your office and the classroom*. Invite people in.
- *Talk*. Collaborative planning is a constant conversation. Share what worked and what did not. Build on each other's ideas.
- *Be open-minded and flexible*. Be open to new ways of thinking and new ways of learning. Get to know your co-teacher's learning and teaching style.
- *Make learning interdisciplinary*. Learning takes place when we connect new knowledge with what we already know. The more connections, the stronger the learning. Create opportunities for connections across disciplines.

Ask Your Mentor or Colleagues

- What does creative teaching mean to you?
- What has helped you to teach creatively?

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How to Write Effective Letters of Recommendation

Joseph B. Layde and Laura Weiss Roberts

Introduction

Medical students, residents, and faculty members of academic medical institutions frequently require letters of recommendation for positions to which they are applying, for scholarships, or for awards. Letters of recommendation carry considerable weight and are a significant responsibility for letter writers. Constructing effective and clear letters of recommendation is thus an important skill for academic medical faculty members to master. Such letters are not "one-size-fits-all" – they convey accurate information and an appraisal of a candidate in relation to the standards or expectations in a specific context. This chapter focuses on strategies for writing honest, effective narrative letters that convey important information about their subjects with an appropriate level of enthusiasm.

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General Principles of Letter Writing

An academic faculty member should keep several principles in mind when he or she is asked to write a letter of recommendation (Table 1). The letter writer should know the subject of a letter well enough to be able to comment intelligently on his or her important attributes. Is the subject hardworking, honest, and a good clinician? The letter writer should be able to inform the subject requesting the letter whether or not he or she can write a favorable letter regarding the subject's qualifications for the particular position, promotion, or award sought. The letter writer should also keep in mind the purpose of letters of recommendation, to provide the reader with useful, specific, and truthful information about the subject of the letter.

It is important to give a letter requestor a general idea of the tone of the letter that you could write. If you feel comfortable writing a favorable letter, tell the requestor that you would be happy to write the letter. If you feel you cannot write a

Table 1 Checklist for writing an effective letter of recommendation

Gather evaluative material on the subject of the letter
If appropriate, inform the subject of the general tone your letter will carry
Obtain written permission to release any educational records
Write your letter and submit it in a timely fashion

useful letter because you do not know much about the requestor's clinical work and the letter pertains to the progress of the requestor in his or her career as a clinician, tell the requestor. If you do not feel you could write an enthusiastic letter about a poor student or resident, it is proper to let the requestor know that is the case. You can tell a poor student or resident that you could write a letter about him or her, but that you could not fully recommend him or her. It is not ethical to write untruthfully enthusiastic letters of support for poor candidates.

A letter writer develops a reputation over time; promotion committees, scholarship award committees, other academic institutions, and hospital accreditation committees learn the degree to which particular letter writers can be counted on to truthfully portray the strengths and weaknesses of the subjects of letters of recommendation. You should strive to accurately describe the qualifications of the subjects of your letters. Doing so will help you to develop a reputation as a writer of particularly useful letters.

In recent years, there has been a movement to lessen the burden on letter writers and letter readers in the specific context of postgraduate medical education. The result of this movement has been the construction of a Standardized Letter of Recommendation, or SLOR, in contrast to a Narrative Letter of Recommendation, for residency and fellowship applications [1–4]. The SLOR follows a structured format, includes numeric assessments and rankings, and has minimal expository components. SLORs have less variation in terminology and length, and they are seen as being more easily interpreted and providing more meaningful comparisons across candidates in a given cohort [1]. What started as a good idea has been met with mixed results [4–6]. "Grade inflation" has been a concern with SLORs [6], and concerns have been raised that issues related to professionalism, technical skills, and non-cognitive attributes affecting clinical performance may not be conveyed as effectively in a SLOR in comparison with the more traditional narrative format [5].

Balancing Positive and Negative Comments in Letters

Early-career academic physicians often find it hard to balance positive and negative comments in their letters of recommendation. In particular, they often find it difficult to truthfully describe any important negative qualities of the subjects of their letters. It is very difficult to write negative things about people you genuinely like, but it is crucial that your letters of recommendation really reflect the accomplishments, attitudes, and competencies of your subjects.

A particularly difficult situation may arise when, for example, a medical student whom an attending physician likes as a person asks for a letter of recommendation for a residency for which the attending thinks the student to be particularly ill suited. The attending physician might try to counsel the student on the choice of specialty, but if the student still requests a letter for application to a program that the attending feels is not a good fit, the attending should frankly tell the student what the letter of recommendation would include. The attending should say that he or she would accurately describe the student's positive personal attributes and intelligence but would mention in the letter why he or she thinks the student is more suited to a different field of medicine. When faced with this information, the student is likely to look elsewhere for a reference. If the student still requests that a letter be written, the attending should include all of the important information that he or she told the student would be included.

Key Concepts

- Tailor your letter of recommendation to the issue or context it addresses.
- Explain how you know the subject of the letter.
- Be specific.
- Provide examples.
- Be truthful.
- Be concise.
- Comply with legal requirements for release of information.

Letters of Reference Sought by Promotion Committees

Academic physicians are frequently asked to write letters of reference for faculty members who are being proposed for promotion, either at the letter writer's own medical school or at another school. The reference letter may be requested by the promotions committee at the proposed candidate's medical school, and it generally is expected to include an evaluation of the candidate for promotion against a specific set of criteria. Criteria for promotion vary greatly by institution (see chapters "How to Understand Criteria for Academic Promotion on 'Traditional' and 'Research' Tracks" and "How to Understand Promotion Criteria for 'Clinician Educator' and 'Teaching' Tracks"), although there are common themes of excellence and degree and scope of impact of a candidate's contributions. Many institutions require letters that are truly independent i.e., the letter writer may not know or have met the candidate personally and the letter writer and the candidate may not have collaborated in any way. Sometimes the letter writer may be very familiar with the candidate; other times the letter writer may not know the candidate well, or at all. The letter should honestly address the pros and cons of the qualifications of the candidate. The letter should address specific questions asked by the referring committee, for example, whether, in the letter writer's opinion, a candidate at medical school A would receive the analogous promotion at the letter writer's medical school B. When letters are sought by the referring promotions committee, the letter writer should not follow the general rule of informing the subject about the tone of the letter he or she plans to write. Honest letters of reference are essential to the integrity of the academic promotions system.

Writing Letters with Specificity

Whether you are asked to write a letter of recommendation for a residency applicant, a physician seeking a first job after residency, a colleague being considered for an award, or an academic physician from another medical school who is going up for promotion, you should write a letter that talks about the subject with enough specificity and individuality that the readers of the letter get a real feeling for the person whose career is being described.

A generic letter of recommendation that reports simply, "Mary Jones was a friendly medical student who did well during her rotation in Pediatrics," does not give a residency selection committee a feel for Ms. Jones' actual qualifications. You should add as many details as you can about how you know the subject of your letters to help readers get a feel for your basis for predicting how an applicant might function in a residency position. You might state, "I am delighted to write a very enthusiastic letter of recommendation for Mary Jones, who is a fourth-year student at my medical school. I have had the pleasure of knowing her very well since she was a first-year student in my problem-based learning group in the Introduction to Clinical Medicine course. I also worked with Ms. Jones during her Pediatric rotation at Children's Hospital, where she was one of two students on my neonatology service in December, 2011." You can then go on to talk about Mary Jones' clinical acumen and her rapport with families, having established how you have had the opportunity to closely observe her work.

Describe how the subject of your letter stands out. An effective letter of recommendation for Mary Jones might include the following paragraph:

> I have taught third-year medical students on the neonatology service of Children's Hospital on a regular basis for the past ten years. Of the more than 200 students who have rotated through the service during that time, Mary Jones is one of the 10 most outstanding students I have had the opportunity to teach. She not only performed accurate neonatal physical examinations and IV placement on our very young patients but demonstrated tremendous empathy with their parents. Her communications skills were those I would have expected of a third-year Pediatrics resident. She gave a superb oral presentation on neonatal jaundice at our weekly case conference. At the end of the rota-

tion, she scored at the 99th percentile on the National Board of Medical Examiner's Subject Examination in Pediatrics.

Letters should be tailored to highlight the particular qualities in which the reader is interested. A letter of recommendation for an academic award should state how an academic physician's teaching of particular courses, production of new curricular materials, or mentoring of fellows on a particular clinical rotation demonstrate his or her educational excellence. Similarly, a letter written for a graduating resident seeking a first job should focus not only on clinical abilities but also on characteristics that are likely to be important to an employer, such as the ability to get along well with patients, colleagues, and professionals from other disciplines, as well as dependability, including timeliness and completeness in medical record documentation. It is crucial to avoid using language that may negatively bias the reader, such as references to the individual's personal life, gender identity, or other attributes not salient to the role.

Writing Letters with Style

Letters of recommendation should be written in clear English. The inappropriate use of jargon or overly technical language makes a letter hard to read. Turgid prose and boilerplate repetition of phrases make letters boring. Write in simple, declarative sentences and use quotations when you can. Excellent letters of recommendation do not have to be long; a four-page letter full of generalities is much less helpful to the reader than a two-page letter that clearly describes how a candidate meets the criteria for doing a fine job as a resident or attending physician, receiving a national teaching award, or earning promotion.

A letter of recommendation for a national teaching award is more effective if it includes enthusiastic verbatim quotations from medical students' evaluations of the faculty member's clinical teaching—for example, "I had never considered a career in psychiatry until I had Dr. Johnson as my attending physician on my six-

week inpatient psychiatry clerkship. His teaching was excellent; his dedication to his patients was inspiring. My exposure to him as a role model has led me to rethink my career plans; I now plan to specialize in psychiatry." The third-year student's appreciation for Dr. Johnson helps get across exactly the qualities you wish to highlight in your letter.

Complying with Legal Requirements

Make sure that you have permission to include personal information about the subject of your letter of recommendation. In the United States, the federal Family Educational Rights and Privacy Act, also known as the Buckley Amendment (*20 USC S. 1232g*), passed in 1974, prevents educational institutions from disclosing personally identifiable information from a student's educational record without the student's written consent. Course grades are part of the record; your opinion of the student's ability to function in a particular role is not. If you plan to include any information from a student's educational record in your letter, make sure that the student has signed the school's "Consent to Release Academic Information."

Many students also sign a waiver of their legal right to inspect letters of recommendation. Include in your letters of recommendation whether or not the student has waived his or her right to read the letter. Residencies generally prefer letters that include the notation that the subject has waived that right, presumably allowing a more candid reflection in the letter of the writer's true opinions about the subject's performance and personal attributes.

Offering Further Communication

Close the letter of recommendation with a final paragraph offering further information, should the readers desire it. You might write something like the following:

> Thank you very much for your attention to my letter of support for Audrey Brown, M.D., Ph.D., for consideration for the National Teaching Award of the Association of Program Directors in Surgery. If the award selection committee would like further information, I can be reached by telephone.

This allows the readers of your letter to clarify any questions they might have. Even if they do not contact you, your inclusion of the invitation to call makes it clear that you stand behind your letter.

Caution Regarding Biased Language

Beyond all of these suggestions for constructing effective letters of recommendation, we suggest that the astute letter writer – after finishing a full draft of the document – go back through and look for grammatical mistakes, for spelling errors, and, most importantly, for evidence of potential bias [7]. The first two are easier than the third. Bias can take many forms. For instance, one of us (LWR) frequently reads letters in which mention of female candidates' personal lives is included while mention of male candidates' personal lives is not. The letter writer may be positively motivated ("Dr. Smith accomplished all of this while also raising her three small children….") and yet not appreciate the cascade of impressions that this reference to gender and child-rearing may have. Overidentification with a candidate may also create positive or negative biases that may shape the language used throughout the letter. Being especially careful to safeguard against misimpressions is challenging and yet is an essential part of the role of letter writer in academic medicine.

Words to the Wise

- Let medical students, residents, and other faculty members know that you're willing to write useful letters of recommendation.
- Get written permission to disclose any information included in the educational record of a student for whom you write a letter.

- Use verbatim quotes from evaluations to make your letters interesting and useful.
- Close letters of recommendation with an invitation to give more information by telephone, if the reader desires it.
- Double-check your drafted letter before it is sent for grammatical mistakes, for spelling errors, and, most importantly, for evidence of potential bias.

Ask Your Mentor or Colleagues

- What are the most important personal characteristics a residency program is looking for in applicants?
- How can one most accurately and honestly portray both the positive and negative qualities of a residency graduate in a letter of recommendation for a first job after graduation from residency?
- How can one best evaluate the credentials of a faculty member at another institution when writing a letter of reference for a promotions committee?

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How to Use Technology in Educational Innovation

John Luo, Robert Boland, and Carlyle H. Chan

Introduction

In years past, faculty in an academic medical center taught primarily either in the clinical setting via supervision or in a classroom setting in the form of a lecture. Teaching was in "real time" with direct interaction and immediate questions and answers during this time period. Faculty often spoke at length from their notes, and students scrambled to write down the many "pearls" of wisdom. Overhead projectors and large bulletin boards were the medium where teachers often illustrated a lesson or provided a summary outline of the information covered. Many faculty members remember the "analog" days with fondness because mastery of the material was the focus, not the teaching methodology. Learning how to use an overhead projector was easy since it was as intuitive as using a pen.

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The Internet and new computer technologies have dramatically changed the teaching methodology for faculty today. Presentation software such as Microsoft PowerPoint, Apple Keynote, and Prezi provide greater visual stimulation during educational sessions with multimedia video, animations, and graphs to capture or focus the attention of the audience. LCD projectors with a laptop computer are "de rigueur" for lecture delivery in every setting imaginable. The Internet over the last 15 years has evolved from a collection of interconnected static Web pages into a rich repository of educational content with a dizzying array of options, such as audio, video, databases, and much more.

Today, faculty, with their increasing time demands for research, clinical care, and administration, need to find innovative ways to impart their knowledge and incorporate their teaching skills. Educators need to expand their repertoire with new teaching technologies or risk being perceived as limited and ineffective Luddites by the Millennial generation. Fortunately, the learning curve for many of these new technologies has diminished, and a second degree in computer programming is not even needed. Web-based educational methods have become one of the more popular areas of focus with broad reach across large distances and availability 24/7.

Traditional educators are saddened with the decreased emphasis on direct teaching methods and may even doubt the effectiveness of

Web-based educational materials. Maloney et al. compared Web-based versus face-to-face fall prevention short courses for health professionals in a randomized controlled trial [1]. They determined that face-to-face and Web-based delivery modalities produced comparable outcomes for participation, satisfaction, knowledge acquisition, and change in practice. In addition, their study demonstrated more cost-effectiveness in the break-even analysis for Web-based education. The barriers to learning how to create these Web-based materials have all but dissipated, as software tools have become easier to learn and educators have become much more tech savvy. In this chapter, we review examples of Web-based educational methods and provide cases of their use.

Web-Based Educational Methods

Engaging in Web-based education can assume four different roles: accessing information, creation of educational content, collaboration, and management of educational content.

Access

Accessing involves learning about the various Web-based resources available to supplement and enhance educational objectives. The single largest compendium of medical education materials is the AAMC site, www.MedEdPortal.com. This site contains peer-reviewed teaching resources, assessment tools, and faculty development materials. It is organized by topic and by specialty and worth reviewing for inspiration. Faculty members who have developed their own online creations may submit them to the MedEdPortal, which once accepted counts as a refereed multimedia publication on a curriculum vitae (CV).

The LIFE Curriculum (Learning to address Impairment and Fatigue to Enhance patient safety) (https://sites.duke.edu/thelifecurriculum/2014/05/08/the-life-curriculum/) produced by Duke University Hospital in conjunction with UNC Hospitals, the NC AHEC, and the NC Physician's Health Program provides materials to address fatigue and stress. This curriculum hosts its videos now on YouTube to demonstrate scenarios of discussions heard in a residents' lounge that trigger teaching points. The teaching guides and self-assessment tools are great examples of materials that support Web-based learning.

In addition to its entertainment value, www.youtube.com has become a resource for instructional videos. Individuals and companies have posted tutorials on various topics and products. For example, medical school faculty members have uploaded teaching demonstrations. Patients describe their signs, symptoms, and clinical course. All of this rich material is free for viewing, including any copyrighted materials, since the copyright owners often elect to leave a snippet of their materials on YouTube in order to market to their fans, gain market insight, and generate ad revenue.

Content Development

Presentation software such as PowerPoint and Keynote (for Mac) are popular tools used to create online education materials. Educators tend to create linear lectures that can be overcrowded with information. *Presentation Zen* (www.presentationzen.com) is a blog and book that offers strategies to produce more readable slides, such as limiting the text to show only visuals, not what you intend to say [2]. More educators now embed videos into their presentations, which leads to common mistakes during the creation of online presentations. Typically, the location of the video is linked to the slide when the author actually intended to include the video. A quick tip to determine if the video was properly inserted is to look at the presentation file size, which should reflect the addition of the video file size. An alternative to PowerPoint and Keynote is Prezi (www.prezi.com). It utilizes more movement and less linear sequencing, which creates a dynamic presentation using constructivist learning theory which is more focused on the relationship of concepts and building a deeper understanding of a topic than plain static content.

Developing content for distribution via the Internet once entailed mastering complicated video presentation/editing software. Now, suites such as Camtasia (www.techsmith.com/video-editor.html) record and edit video for upload to YouTube, Vimeo, and Google Drive. This process easily creates a "webcast" of a traditional lecture with a live audience or a specific lecture intended for Web-based learning.

Once the video presentation has been recorded, it may be distributed as a "podcast" in addition to being available on a Web site. A "podcast" is a term coined by Apple Inc. for the process of adding an RSS (resource distribution framework site summary, a.k.a. really simple syndication) document to the audio or video file. This RSS file is basically XML code known also as a "feed." It is used to make Web site content, such as a video presentation, available to multiple other Web sites or specific "feed reader" software, which keeps track of new and updated content. The RSS code also enables educators to deliver podcasts directly from their university Web site for downloading. Educational podcasts can also be distributed via Apple's iTunes University, which a number of faculty at many well-known universities have done.

Adobe Authorware is a more sophisticated program used to create multimedia online educational materials and DVDs. It has features such as polls and quizzes that help emphasize certain key learning points, as well as a timeline to facilitate development of learning progress. Adobe is no longer developing new versions of Authorware but continues to support this product (www.adobe.com/support/authorware/download.html). A new Adobe product, Captivate, is slated for release in 2019 (www.adobe.com/products/captivate.html). This software product creates interactive videos, virtual reality experiences, and talking-head narration of a presentation or lecture. Kahoot (www.kahoot.com) is a popular and easy-to-use game-based learning and trivia platform used to create quizzes that engage learners. Articulate (www.articulate.com) is another e-learning package to consider for its additional tools beyond PowerPoint and podcasts. Regardless of the software used to create con-

tent, the next step is to ensure that it is Advanced Distributed Learning Shareable Courseware Object Reference Model (ADL SCORM) compliant. The ADL Initiative was established in 1997 by the Department of Defense to standardize and modernize training and education management and delivery. Compliance or conformance with SCORM ensures that the product can be moved across various learning management system (LMS) platforms. Google offers a SCORM Compliance Test to view the product in various ways and then determine SCORM status.

Most simulations are geared toward mimicking the interactions typical of a psychiatric encounter and therefore need a high level of sophistication and quality that are challenging to produce. Some straightforward techniques, such as medication treatment decisions, evaluation of serious side effects, or rehearsal for management of rare critical events, lend themselves to computer modeling [3]. In the absence of this level of artificial intelligence, some educators have constructed innovative uses of virtual spaces as educational tools. For example, Dr. Daniel Freedman created a virtual neutral space to gauge participant reactions [4]. Yellowlees and colleagues [5] made use of the virtual community Second Life to create an environment meant to mimic what it feels like to be psychotic—in this space the learner walks through a building where pictures change from neutral to threatening themes and a bodiless voice urges the learner to kill themselves. Students using this simulation felt that it helped them to understand what it must be like to be paranoid. Simulation technologies are poised to be a major area of innovation in the future; with advances in artificial intelligence as well as contributions from the field of computer gaming industry, one can anticipate simulations that approach realistic human interactions.

Collaboration

Collaborating with colleagues from different academic institutions has become easier with the Internet. When coauthoring a paper, book chapter, or presentation, these documents can be

shared in the "cloud." Cloud computing is where both the software program and the data are stored and delivered from the Internet server. The only requirement of the desktop or laptop computer is to have a Web browser. Google Docs (www.docs.google.com) allows access and editing of a file from any location with an Internet-connected computing device, including tablets and smartphones. Many educators have used Microsoft Word's "track changes" option to highlight each contributor's additions or corrections in a different color and with strike outs along with the option to accept or reject the changes; however the static nature of Word requires the changes to be made one person at a time. Cloud-based services have similar features to compare across multiple drafts as well as to track different file versions, and authors can simultaneously contribute to the document. DropBox (www.dropbox.com) is another popular cloud-based service because it provides a shared space online and on the computer where multiple users can easily update one another with their contributions without having to send attachments via e-mail. Once the software service is installed, the local computer DropBox folder is automatically synchronized to the cloud when the computer is connected online. Collaborators can share specific folders in their DropBox account so that everyone gets an updated copy of whatever is put in the shared folder.

The Web 2.0 online environment offers other methods of asynchronous collaboration. For example, a wiki allows multiple authors to collaborate in creating an online document: the potential of this method is exemplified by the popular Wikipedia. This online encyclopedia has become one of the most popular online reference sources in the world and has the advantage over traditional resources of being continuously updated. Although the accuracy of the information included is dependent on the expertise of the writer, the theory behind the wiki is that in an open environment where every participant is an editor, any errors will be discovered and improved. This process is borne out by the fact that Wikipedia compares favorably to traditional general reference resources with traditional edit-

ing [6]. However, the success of this wiki is the result of the many thousands of contributors to the document and the enormous collective time spent on both content creation and editing [7]. In fact, Encyclopedia Britannica stopped print production in 2012 and is now only available online [8]. Most educators who desire to create a wiki find that the smaller critical mass of interested editors at their disposal makes wiki creation more of a challenge.

Nonetheless, wiki can be useful in education. It is tempting to imagine the creation of an online textbook of psychiatry that would obviate the need for expensive resources. Sadly, the academic system is not conducive to the amount of work and time that would be required for such a project. The anonymity, lack of copyright protection, and lack of peer review are emblematic of the wiki tradition but are an anathema to the academic process. Despite these limitations, there are practical uses for a wiki within a training program. For example, some residencies have used a wiki structure to create and maintain a "resident's handbook" or "studying pearls." The ease of access and ability to constantly update the document make it ideal for this purpose [9]. Many educational institutions maintain wiki platforms at their institutional Web site that are free for their faculty and residents to use. Educators without these resources can utilize free online wiki services. Wikidot (www.wikidot.com) and PBworks (www.pbworks.com) are great resources to create wikis with free plans as well as upgraded plans with more features.

Online conferencing can allow a team to meet virtually. This approach is useful for situations in which the learning team is geographically remote. In such cases, online conferencing services (such as Skype™ and GoToMeeting™) are available at no or low cost. Virtual tele- or videoconferencing can have a variety of formats. In education, the most common method is the "one-to-many" conferencing format in which the teacher uses the technology to, in essence, lecture to a large crowd. The setup for this generally includes a screen for presenting slides and other visual content, including, potentially, a visual of the speaker. The advantage is one of practicality—an

educator can efficiently disseminate information to a large group who may be at various locations. In these settings, information is primarily transmitted in one direction in that the lecturer spends most of the time transmitting the video and audio to a large audience, who are most often muted for the majority of the session. Given the general lack of interactivity, one may question the value of this format versus, for example, a recorded lecture that can be sent to the students. Before planning such a conference, one should consider whether a prerecorded option would better serve the purpose. Videoconference lectures should be considered when some interactivity is preferred. In these cases, the interactivity must be well organized. Most often spontaneous audio questioning is not possible in larger groups; questions are preferably submitted through a text-based chat option, and most videoconferencing software allows for this chat function to be used simultaneously to the presentation. During the presentation, the lecturer can view online questions submitted by the crowd which can be either taken as a group at the end of the presentation or handled during various points in the presentation. The advantage of the latter approach is that the audience feedback can be used to guide the presentation and, in part, compensate for the lack of visual feedback that typically helps a live lecturer know whether the audience is being engaged at the right level.

Although this method can be useful for traditional lecture-style teaching, modern medical education is moving away from tradition lecture styles to interactive formats in which trainees are responsible for the learning process and teachers serve more as facilitators. An example is team-based learning (TBL), which requires greater interactivity. Most TBL groups prefer face-to-face learning, in situations where this is impractical (e.g., residents are at different facilities), videoconferencing offers a viable solution. Using videoconferencing for the type of group discussion typical of TBL requires some training (e.g., to compensate for the decrease in nonverbal cues); however, with practice and proper facilitation, most groups can adapt successfully, and a number of training programs have successfully

used this technology [10]. One cannot emphasize too greatly the importance of understanding how virtual interactions differ from real ones. Participants tend to see online interactions as more formal and less spontaneous than face-to-face interactions, and the facilitator of an online meeting must work hard to assure that all participants have a chance to participate.

Even though videoconferencing solves the problem of distance, it still requires the participants to be available for a real-time discussion. Such meetings can be a challenge for trainees who may have varied schedules and responsibilities. It is therefore tempting to consider the option of using asynchronous communication to facilitate TBL. Opinions vary regarding whether real-time interactions are crucial to the process of TBL. Some groups are experimenting with asynchronous team learning using a Web-based case system [11].

Content Management

Managing educational content is made easier by the use of Course Management Systems (CMS), also known as an LMS or Virtual Learning Environment (VLE) software systems. e-Learning software has the advantage of being asynchronous, i.e., available 24 hours, 7 days a week, and available via Internet connection. The software can be used for a stand-alone teaching module or as a distance learning course or it can be used to facilitate or augment a live course. Typically, such software permits the posting of a course syllabus with hypertext linkages to other Web sources, viewing of uploaded videos, slide presentations, portable document format (PDF) readings, quizzes, chat rooms, bulletin board threads, grade books, etc. Chat rooms permit an instructor to conduct live virtual office hours, while bulletin boards facilitate asynchronous discussions.

There are many proprietary products such as Blackboard (www.blackboard.com), whose pricing varies depending on the number of sites, users, etc. Sakai (www.sakaiproject.org), Joomla (www.joomla.org), and Moodle (www.

moodle.org) are open-source versions (source code is freely available to use). Proprietary systems can be costly, but open-source systems require Information Technology department support to implement unless the educator has sufficient technological savvy and access to the Web site server. A more extensive listing of current LMS may be found at www.software-shortlist.com/website/blog/directory-category/learning-management-systems/.

The existence of e-Learning does not obviate the need for sound educational pedagogy. In fact, it may require stricter attention to content development. The ADDIE model of instructional design is frequently used. This entails the stages of *analysis* (defining *what* is to be learned), *design* (specifying *how* it is to be learned), *development* (authoring and creating the program), *implementation* (going "live"), and *evaluation* (assessing the success or failure of learning. While sequential, there are ongoing feedback loops to shape each stage. Embedded in the ADDIE stages are other pedagogy issues such as Bloom's hierarchical taxonomy of educational objectives, Edgar Dale's Cone of Learning, and Kirkpatrick's four levels of organizing program evaluation [12].

HIPAA, Fair Use, and Creative Commons Copyright

Creating digital media for the Internet means that content can easily be reproduced, both legally and illegally, and then disseminated across the World Wide Web. There are several implications of this ability. First, patient-identifiable content should be avoided. Even with HIPAA-compliant signed video releases for educational purposes, patient images can reach unintended audiences. Also, once an object reaches the Internet, it never really disappears as it may be captured and preserved on some obscure or remote server. Using actors with signed contractual releases to simulate clinical situations obviates this concern.

Secondly, anything published is under copyright, even without the circled c logo "©." Fair use implies the limited reproduction of copyrighted materials without fee under certain circumstances. Using, for example, a published illustration once to illustrate a point to a group of residents might be permissible, but placing that illustration on a Web site without authorization would not. Fair use rules are explained in more detail at school library Web sites.

Finally, creative commons copyright is a vehicle to freely license materials. CC copyright meets that an author agrees that others are free to use the author's creations as long as they attribute the author. There are some further restrictions one may stipulate if desired, e.g., others may not change an author's creation without authorization, or a creation may not be used for commercial purposes. There are actually six license variations and the details may be reviewed at www.creativecommons.org.

Conclusion

The advantages of Web-based education are tremendous, well beyond mere multimedia use and distance learning. Web-based educational content is easily created with PowerPoint presentations using the save-to-Web feature. Lectures can be captured to be broadcast later online via podcasts. More sophisticated educational modules with video, tables, graphs, and quizzes can be created with LMS. Collaboration or TBL can occur in real time or in an asynchronous nature with the use of LMS, cloud-based computing, wikis, or videoconferencing. It used to be that Web-based materials required sufficient technological savvy, including programming skills and knowledge of client–server technology. Nowadays, many of these tools demand less technical skill but more appropriate instructional design to educate the learner with the right methodology. The time, effort, and creativity to develop these Web-based educational materials are no longer just a labor of love, but now recognized as an academic activity worthy to be listed in one's curriculum vitae.

Words to the Wise

- Do not be afraid to transform your teaching material into a new way of learning.
- Start with products available at your institution, such as an LMS.
- There are no mistakes, only learning opportunities, with technology.
- Analyze, design, develop, implement, and evaluate. Repeat.

Ask Your Mentor or Colleagues

- What inspired you to use that software or technology?
- How much time did it take to learn to use it?
- If you had to do it over again, would you use the same software or something else?
- How much technical support did your institution provide?

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How to Maintain Excellent Clinical Documentation

Sharon E. Williams

Excellent clinical documentation is a necessary and key component of providing quality care as an attending. Documentation of clinical service is an integral part of the care provided to patients and serves as the primary record of your work. It serves as both the medical and legal representation of all aspects of care from appointments and prescribed treatments to communication with colleagues and billing. While paperwork can at times seem like a burdensome aspect of providing clinical services, timely, accurate, and thorough documentation is an integral part of quality patient care. Documentation of direct encounters with the patient and findings from your visit serves as a record of your clinical excellence. Documentation of indirect encounters, such as phone calls with pharmacies, family members, and colleagues involved in a patient's care, also serves as an indicator of clinical excellence and reflects thorough, conscientious care.

Components of Clinical Documentation

Notes written both for direct and indirect patient encounters should be clear, concise, and comprehensive. They should be well organized and accurately reflect all aspects of the clinic visit. Components of documentation will vary based on discipline and treatment provided but should reflect the standard of care for the patient's particular diagnosis or procedure completed. Standard considerations when documenting clinical care are listed in Table 1.

It is notable to mention that mistakes in documentation can occur. When that happens, corrections should be clearly delineated in the record and completed as soon as possible to minimize the impact on patient care.

Table 1 Basics of excellent clinical documentation entry

Be accurate and honest, including uncertainties
Be clear and describe your thought process in clinical decision-making
Be complete and concise
Minimize duplication
Identify sources of information
Include contacts with family
Be timely with entries – same day whenever possible
Maintain transparency when correcting errors or making late entries in record
Avoid use of idiosyncratic abbreviations
Include informed consent

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Consumers of Clinical Documentation

Clinical documentation serves not only as a record of the clinical work you provide but also as documentation for the patient, your colleagues, and your institution. Each of these audiences requires information guided by different objectives, but all are important to the overarching goal of providing quality patient care.

Colleagues

One of the primary ways to communicate with colleagues who are involved in the care of your patient is through your documentation. It serves as a guide for others to coordinate care in concert with your practice. Clearly laying out the course of treatment can facilitate clear communication and minimize duplicate or conflicting care. Additionally, notes that are organized into sections can make finding pertinent information easier for others to identify.

Institutions

Individual medical centers have different requirements regarding documentation, and reviewing those requirements with your supervisor or section chief at the start of your appointment will ensure that you are compliant with these rules. Requirements may include when documentation should be completed (i.e., within 24 hours of seeing a patient), how documentation should be done (i.e., electronic or paper), what information should be included (i.e., for certain diagnoses or procedures), and who can provide documentation (i.e., medical student, resident, support staff).

Institutional requirements regarding documentation will also reflect the financial aspects of care such as the Current Procedural Terminology (CPT) codes that can be utilized, the type of payer (commercial or government), and the need for authorization of services.

Patients

Patients are a relatively new but important audience for clinical documentation. As we have become a more consumer-generated society, medical documentation previously read only by colleagues and those in healthcare entities is now part of the growing body of information that individuals have access to. Through the electronic health record (EHR), patients can retrieve parts of their medical record instantly. Depending on your institution and how the EHR is configured, patients can access immunization records, lab results, after-visit summaries, and, in some cases, actual notes from a direct patient encounter.

With this increase in access comes the need to be more mindful of how information is presented and how a reader may make sense of what is documented. Research evaluating patients' understanding of medical record information identified common problems such as confusion regarding medication, clinical concepts, and findings from visits, and noted that patients benefit from supporting materials to better understand information documented in their records [1]. While the primary goal of documentation continues to be the facilitation of medical care, providing supplemental information to patients during or after a clinic visit can help to mitigate misunderstandings. After-visit summaries, a common part of the EHR, are a direct form of communication with patients that become part of the medical record and can serve to provide supplemental information, review findings, and restate recommendations.

Legal and Ethical Entities

Documentation in the medical record serves as evidence of the treatment provided over the course of care. Content of documentation should always be truthful and accurate as it serves a legal and ethical representation of your work. Should your treatment of a patient be subpoenaed and become part of or the focus of a legal issue, you should be confident in your documentation's

ability to accurately represent the care you provided over the course of treatment. Missing notes or missing details within a note can call into question whether or not certain aspects of care occurred. Complete and accurate information not only helps to ensure quality patient care but also serves as evidence of your care.

Compliance Agencies

In the climate of increasing healthcare costs, documentation is scrutinized by external entities to ensure that services billed are consistent with the treatment documentation. CPT codes define patient-related activities from surgical procedures to phone calls, standardizing what actions constitute which billing codes. Specific details are required in documentation to justify the use of specific CPT codes and their associated fees. The careful and accurate alignment of these documentation details with the CPT codes billed is crucial in avoiding allegations of billing fraud. A meeting with a compliance officer at your institution at the beginning of your appointment will be beneficial to ensure that your documentation is lawful and compliant with hospital policies.

Research and Education

Finally, documentation can serve additional benefits in healthcare beyond those related directly to the needs or care of the patient. Research and education are integral parts of most major medical centers, and documentation plays an important role in both. For research, clinical documentation can serve as stimulus for new research questions and as a source of pilot data for the development of clinical trial research, comparative effectiveness research, and evidence-based research [2]. With regard to education, documentation can serve as teaching tool for practice-based learning, integration of care with other providers, and a means for tracking clinical experience [3].

How to Be Productive

Electronic health record systems have become common in the workplace. Research has shown that the EHR can increase efficiency, improve patient safety, and facilitate improved access to patient records [4, 5].

Spending time up front to customize your EHR platform can streamline your workflow and allow you to more efficiently document your clinical care [6].

Create Templates

Work with your EHR support team to develop templates for your standard clinic visits. Create sections in your notes for areas of documentation that aligns with the standard of care for your specialty, common patient diagnoses, or type of treatment being provided.

Create Smart Phrases

Create a list of commonly used phrases or sentences for findings, recommendations, and attestations. These can be easily accessed from drop-down menus and dot phrases and help to cut down on the need to reproduce redundant information.

Utilize Tools

Streamline your view in the EHR by customizing the tabs and links that best reflect your typical workflow, thereby cutting down on the time spent navigating through the system. Commonly used items can be highlighted or pulled forward so they are easily accessed.

Prep Notes

Prior to the visit, prepopulate your note with historical information and lab results. Pulling for-

ward existing information and prepopulating documentation cut down on the time spent recording redundant information and allow for more focused time on current issues.

Team-based care models can distribute the responsibilities of clinical documentation and free up time for more focused direct clinical care. Some clinics and disciplines allow for the bulk of documentation of a clinical visit to be performed by health professionals working in concert with you such as a nurse practitioner or physician assistant [7]. As the attending overseeing the care of the patient, your documentation is then reduced to confirming their documentation and writing a brief statement. Similarly, the use of scribes can reduce the overall amount of time dedicated to a patient visit [8]. Additionally, training medical assistants to collect initial information and preform specific tasks as dictated by treatment protocols can increase the efficiency in the clinic visit and also decrease the amount of information you need to document [9].

It is noteworthy to mention that as the demands of documentation become more present in clinical practice, natural language processing has gained greater attention as a way to streamline the documentation process [10, 11]. By facilitating real-time documentation, attendings can be freed up to focus more of their time in clinic on direct clinical service. More exploration of this medium is needed, but initial findings are promising and align with the reported needs of attendings to streamline documentation workflow.

Pitfalls and Challenges and How to Avoid Them

With multiple competing demands of the academic medical environment, clinical documentation can sometimes become the casualty of a high-paced, high-demand setting. While excellence in clinical documentation is not typically a specific category in the appointment and promotion process, it does speak to your overall degree of clinical excellence. Being mindful of how you prioritize documentation, what factors influence your productivity in this area, and how you rec-

ognize the warning signs of being overwhelmed can help to ensure that your documentation is on par with the level of excellence you aspire in all aspects of your career.

EHR Burnout

While the EHR has increased ease and efficiency of clinical documentation, it has also inadvertently increased the clinical workload and added to the list of factors impacting burnout among healthcare professionals [12]. The increase in the types of information that must be reviewed and recorded for patient care as well as for compliance, billing, and reconciliation purposes has increased the workflow of a patient visit. Without systems tailored to clinical practice and without adjustments in time allocation for these activities, attendings are increasingly managing more with less [9, 13, 14]. The ideas previously described regarding productive documentation practices can also protect again burnout from the demands of documentation. Additionally, interventions at both the individual and institution level to address burnout have been shown to have beneficial effects [15, 16]. In addition to maximizing your individual documentation productivity, working with your institution to develop EHR workflows that benefit departmental clinical practice can positively impact your ability to sustain a healthy career.

Time Management

As is the case with all aspects of your career, managing the demands on your time is a key component to success. Setting aside time in your schedule for documentation helps to ensure that it gets done in a timely manner. For some, building in a few minutes after each patient visit to finalize documentation allows one to close out their thoughts on the patient before moving onto the next person. For others, setting aside time at the end of a clinic day to document once the hectic pace of the day has ended is more efficient. Attending to the nuances of your particular style

and aligning your schedule with that style can help maximize your efficiency.

Managing Distractions

In the complex environment of an academic medical center, there are always competing demands for your attention. Finding time for documentation when those demands are less attractive will help to ensure that you complete the necessary work. For some, it may mean finding a quiet terminal in an adjacent hallway, clinic, or office to gather your thoughts and complete your documentation. For others, it may mean staying in clinic so as not to get pulled into other non-clinic-related issues. Then again for others, it may mean waiting until the end of the day when the phone stops ringing, emails stop coming, and family life has settled down for the night to complete the work. Learning which environments work best for you will increase your efficiency and productivity.

It is important to recognize that even in the best of circumstances, all attendings can find themselves behind at some point or another. When that happens, stop and re-evaluate your strategies.

- Talk with colleagues about how they manage their documentation. They can offer a wealth of advice as to what strategies they have found that work best for them, particularly when they are balancing multiple deadlines or competing tasks.
- Meet with the EHR support team to find out what new solutions may be available to you that were not there when you first started. Systems are often updated and with that can come new tools and techniques to further streamline your work.
- Seek consultation with a mentor to reassess how you are structuring your time and how to rebalance your schedule and priorities.

Words to the Wise

- Be clear, concise, organized, honest, and thorough in your documentation.

- Utilize the experiences of colleagues to gain expertise in how to adeptly navigate the EHR for your clinical practice and patient population.
- Consult with your EHR support team annually to learn about how updates can improve your efficiency.
- Consider a patient visit completed only after your documentation is finished.

Ask Your Mentor or Colleagues

- What are the best resources in the department to learn about the nuts and bolts of clinical documentation?
- What are three short cuts or functions that you have discovered in the EHR that have helped you be more efficient with your documentation?
- What recommendations do you have about balancing time spent doing documentation with other clinical responsibilities?

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How to Avoid Medicolegal Problems

Liliana Kalogjera Barry

Patients want physicians to be sensitive and caring as only humans can be, but they also want physicians to perform in the consistent and controlled manner of machines [1].

Fear of medical malpractice litigation is a common concern among both novice and seasoned physicians, and the quotation above captures the pressure many may feel to practice in a manner that achieves perfection in both the humanistic and technical aspects of medicine. It is highly likely, if not inevitable, that a physician who practices for a significant amount of time will eventually commit some sort of error or participate in a case involving an unfortunate outcome. However, there are ways for a physician to avoid medicolegal problems in the first place and strategies for dealing with the medicolegal problems that occur in a manner that minimizes risk while honoring the physician's ethical and other professional obligations.

The Reality of Medical Malpractice Litigation

An important aspect to avoiding medical legal problems is a basic understanding of the landscape of medical malpractice litigation in the United States. How often do patients sue their physicians? How often do physicians lose such lawsuits? What are some of the predictive factors associated with the initiation of a medical malpractice lawsuit? These are just some of the many relevant questions physicians may have.

A landmark 1999 study by the Institute of Medicine (IOM) found that as many as 98,000 deaths annually in US hospitals are attributable to preventable medical errors [2].

Subsequent research has contributed to a greater understanding of the extent of medical errors, which now appears significantly higher. For example, a Johns Hopkins study published in 2016 estimated the incidence of annual deaths in the United States from medical error to be 250,000, making medical error the third leading cause of death in the United States [3], and a 2017 University of Chicago survey reported that 41% of adults in the United States have experienced medical error personally or in the care of someone close to them [4].

Despite the high rate of medical error, there is a mismatch between medical error and medical

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malpractice suits. Most patients who are injured by medical malpractice do not file a claim [5], with only about 1% of adverse events due to medical malpractice resulting in a claim [6]. Conversely, many malpractice claims do not arise from medical error [7], which is consistent with the data on legal outcomes; most medical malpractice claims are dismissed or withdrawn, and the vast majority of the relatively few claims that proceed to trial result in a defense victory [8].

The American Medical Association's 2016 Physician Practice Benchmark Survey found that while a physician's risk of being sued in the past year was low, 2.3%, over a third of all physicians have been sued during the course of their careers [8]. The overall rate of malpractice claims against physicians appears to be declining, as shown by a 55.7% decrease in paid claims reported to the National Practitioner Data Bank from 1992 to 2014; however, mean payment amounts and catastrophic payments have increased [9].

Findings relevant to predicting malpractice risk include the following:

- Physician demographics: Physicians over the age of 55 have an approximately 40% higher incidence of claims than younger physicians, and women physicians have fewer claims than men [8].
- Specialty: Risk of being sued varies by specialty, with surgeons and OB/GYNs at the high end and psychiatry and pediatrics at the low end [8, 9]
- Care type: Diagnostic errors, followed by surgical and medication/treatment errors, respectively, represent the most common allegations among paid claims [9].
- Care setting: While the number of paid malpractice claims is similar between inpatient and outpatient settings, mean payment is substantially higher for inpatient claims, and the basis for claims differs, with surgery-related events as the most common reason for inpatient claims and diagnosis-related events as the most common reason for outpatient claims [5].
- Communication: Communication deficiencies and breakdown of the doctor-patient relationship appear to be significant triggers for mal-

practice claims [7] and increase risk of surgical and medical complications [10].

As a whole, the data suggest that although a physician's risk of being sued for malpractice is real, it is also nuanced. There are predictive clues of litigation risk and, thus, strategies physicians can take to avoid being sued.

The following strategies for physicians represent attainable means to prevent litigation: (1) be aware of clinical expectations, (2) communicate and document well, (3) consider disclosure, (4) remember ethical considerations, and (5) utilize institutional resources. Although this chapter focuses on avoiding "litigation," the same strategies are applicable for avoiding less formal types of medicolegal issues, e.g., patient complaints, credentialing and privileging problems, and reporting to the state licensing board and National Practitioner Data Bank.

Strategy 1: Be Aware of Clinical Expectations

An important aspect of avoiding litigation is to "concentrate on good medicine without obsessing about the risk of legal liability" [11]. "Good medicine" involves both meeting the standard of care and not providing unwarranted care for the purpose of avoiding a lawsuit.

When facing a lawsuit for medical negligence, the law holds a physician with a duty to a particular patient to the "standard of care," which essentially equates to what a "reasonably prudent physician" would have done under similar circumstances [12]. In addition to proving that a physician breached the standard of care, a plaintiff must also establish that he or she was harmed and that the harm was caused by the deviation from the standard of care [13].

Courts typically rely on expert testimony to establish whether the physician acted reasonably under the circumstances. Exceptions to this practice occur when the negligence was so obvious that "the thing speaks for itself," *res ipsa loquitur*, e.g., a surgery performed on the wrong side of the body or a surgery resulting in a retained

instrument [14]. Clinical practice guidelines and other forms of evidence-based medicine may also be relevant for establishing the standard of care, and their use in litigation appears to be growing, albeit with some controversy [15]. Regardless of the formal use of clinical practice guidelines in litigation, however, staying current on the developments within one's specialty helps to ensure that a physician is aware of the standard of care, which may evolve over time.

In addition to meeting the standard of care, physicians should avoid overcompensating for liability concerns by practicing unwarranted defensive medicine, i.e., "clinical practice that is driven by the physician's perception of legal self-interest (specifically, avoidance of physician exposure to personal litigation or legal liability risk), rather than by concern about expectation of patient benefit" [16]. Examples include avoiding high-risk patients and ordering excessive tests or procedures [16]. Unwarranted defensive medicine is problematic both pragmatically and ethically. Defensive medicine may expose physicians to potential liability if it is not clinically indicated, and it raises ethical concerns such as the potential conflict of interest between the physician's fiduciary duty to the patient and personal interest in avoiding litigation, which is discussed in greater detail below.

Strategy 2: Communicate and Document Well

Communication – both between the physician and patient and among the care team – is a critical aspect of litigation prevention, and numerous studies have found that physicians who communicate poorly have higher rates of malpractice claims [17]. Specific communication issues that appear to increase risk of being sued for malpractice include the following:

- Rude and disrespectful behavior toward patients
- Lack of patient trust
- Failure to provide information to patients

- Conduct that discourages patient communication, including both explicit comments and implicit behaviors such as rushing through the appointment
- Rude and disrespectful behavior toward other health care team members [10]

Data also supports a correlation between communication issues and clinical outcomes, illustrating that good communication is a patient safety issue and not merely a means for physicians to avoid getting sued. A recent study by Cooper et al. found that patients of surgeons with greater numbers of unsolicited patient complaints have more surgical and medical complications [10]. Extrapolated to the United States, the findings of this study suggest that communication issues "could contribute to more than 350,000 additional complications and more than $3 billion in additional costs to the US health care system each year" [10].

Physicians can practice good communication with patients by communicating in a patient-centered manner, i.e., by considering patient needs, perspectives, and values [17]. Specific best practices include (1) fostering the relationship, e.g., building rapport; (2) gathering information, including patient preferences and clinical facts; (3) providing information to enable patient understanding; (4) making decisions in a collaborative manner that respects patient autonomy; (5) responding to emotions, including expressions of sympathy and empathy; and (6) enabling disease- and treatment-related behavior, e.g., by treatment planning that facilitates patient involvement [17]. Empathy is particularly significant, and expressions of empathy by physicians may reduce patient thoughts of malpractice [18].

Failure to communicate among the health care team is also significant and may contribute to nearly two thirds of all medical errors [19]. Such communication lapses can contribute to system errors and other situations when a patient "falls through the cracks." Avoidance of system errors is particularly important given the fact that the 1999 Institute of Medicine Report concluded that most medical errors are due to flawed systems and processes and not individual negligence [2].

Physicians can help to prevent systems errors by ensuring that all relevant information is transmitted to other providers during transitions in care such as shift changes and other time periods when the risk of lapses in care may increase.

Documentation serves the dual functions of communicating and providing proof of communication, hence the common catchphrase among risk management and legal professionals that "if it's not documented, it didn't happen." Among providers, the medical record is meant to transmit all pertinent information about a patient's status, history, and treatment plan and is, thus, a vital component of patient safety. If potential litigation arises, the medical record may also prove useful in a physician's defense by providing evidence of discussions between the physician and patient and insight into the rationale behind treatment decisions, which may be particularly valuable in a case involving a deviation from a clinical practice guideline [20]. The litigation of a single medical malpractice matter can take many years, and good documentation is crucial to ensure that favorable evidence is preserved.

Strategy 3: Consider Disclosure

Disclosure of medical errors and adverse outcomes is closely related to good communication. In the event of a medical error or adverse outcome, a physician should consult with the institution's risk management professionals and consider whether and how to disclose the error or outcome to the patient.

Contrary to what some may expect, existing data support disclosure as a means for reducing litigation risk. Patients who feel they have been treated honestly appear less likely to sue [12], as do patients who receive assurances that the provider or institution is taking appropriate patient safety measures to prevent recurrence [21].

Formal processes for disclosure have become more prevalent, such as Communication and Resolution Programs (CRPs) that help to facilitate the disclosure of adverse events, apologize, resolve associated disputes without litigation, and compensate for associated injuries [12, 21].

Two frequently cited examples include a study involving the US Department of Veterans Affairs (VA) Medical Center in Lexington, Kentucky, and one at the University of Michigan Health System.

Following two losses in medical malpractice cases that totaled over $1.5 million, the VA Medical Center in Lexington adopted a humanistic approach to risk management that included proactively identifying medical errors and accidents. Following an investigation of the facts, the center fully disclosed the incidents to patients and/or their next of kin, providing the patient or next of kin with the opportunity to file a claim and attempting to settle any corresponding claims in a timely, fair manner [12, 22]. The VA subsequently adopted a policy of full disclosure of adverse events for all of its facilities, and the results appear promising. For example, from 1990 to 1996, the average payment on a tort claim by the Lexington VA Medical Center was only $15,622, and the average private sector judgment for medical malpractice cases was approximately double that for the VA system ($1,484,000 vs $720,000) [22].

Similarly, the University of Michigan Health System began implementing a program of full disclosure and compensation of medical errors in 2001 [12]. Since implementation of the program, the University of Michigan has seen a decrease in the number of claims, liability costs, and length of time to resolve the claims [12].

These and other studies appear to have prompted legal efforts to promote disclosure of medical errors at the federal and state level. In 2005, then Senators Hillary Rodham Clinton and Barack Obama proposed the National Medical Error Disclosure and Compensation (MEDiC) Bill (S. 1784) [23]. Although the MEDiC Bill did not become a law, it represented a national-level effort to promote full disclosure of medical error, timely and fair compensation for such errors, and subsequent patient safety efforts to prevent recurrence [23, 24]. Thirty-six states have adopted "apology laws" to encourage disclosure by precluding statements of empathy or sympathy – and, in some states, even admission of fault – from being used as evidence in a malpractice suit [25]

(although there is some concern that the laws do not do enough to promote transparency [12]). Similarly, the Joint Commission requires providers to disclose outcomes of care, including "unanticipated outcomes" [12].

Due to the variation in laws regarding disclosure of medical errors and institution-specific policies, a physician should check with the facility's risk management professionals for advice on how to proceed if the need for disclosure arises. Assuming that disclosure is warranted, the risk management professionals should also be able to provide guidance on how to disclose incidents. The VA approach includes a face-to-face meeting, in which key staff provide the details of the case in a sensitive manner, communicate the facility and personnel's regret, describe any corrective action taken to prevent reoccurrence, and offer to answer questions and provide restitution, e.g., through corrective treatment or financial compensation [22]. This approach is consistent with findings that patients want the following: "(1) an account of why the harm occurred; (2) an apology from the health care professionals involved; (3) information about how similar harms can be avoided in the future; and (4) appropriate restitution for avoidable harm" [12]. Other tips include respecting patients' privacy needs, anticipating families' financial needs, providing the opportunity for involvement of children who are either the patient or part of the patient's family, and following up with the patient following the process to solicit feedback, to acknowledge the anniversary of the event, and to report progress on subsequent patient safety efforts [21]. In addition, whether disclosing an error or making a medical record entry, physicians should generally focus on the clinical facts and avoid making legal conclusions, such as statements that treatment was "negligent" or "substandard."

Strategy 4: Remember Ethical Concerns

Although a physician should always be mindful of the ethical obligations that arise with the practice of medicine, this awareness is particularly important when facing medicolegal issues, due to the increased potential for conflicts of interest. A physician may face many varying ethical or contractual obligations including those to patients, employers, and medical malpractice insurance carriers and other legal obligations (e.g., state-based duties to report medical errors). These obligations may compete with each other, for example, when the physician's employer advises that the physician take a course of action that is not in the patient's best interest, as would be the case if an employer advocated less than full disclosure of a medical error. The obligations may also present ethical challenges to the physician if his/her personal interests are distinct, for example, when disclosure of an adverse event may be ethically warranted but the physician feels pressure not to disclose due to personal fears of litigation and potential reporting to the state licensing board and National Practitioner Data Bank.

Despite these competing pressures, the physician's primary duty remains to the patient, as the doctor-patient relationship is fiduciary in nature, i.e., based on trust. As mandated in the Hippocratic Oath, patients trust their physicians to "do no harm," a concept known as "nonmaleficence," [26] along with the converse principle of doing good for the patient, "beneficence," which some see as the primary imperative of medicine [27]. In the event of an error or unfortunate event, the fiduciary nature of the doctor-patient relationship obligates the physician to be honest with the patient, an obligation that Woods has characterized as an extension of the informed consent process or "ongoing informed consent" [28].

The American Medical Association's Code of Medical Ethics explicitly addresses the ethical obligations of physicians faced with potential disclosure issues at Opinion 8.6, Promoting Patient Safety, which acknowledges the patient's right to knowledge about his/her medical status, including results from medical error, and emphasizes the need for honesty and patient welfare above personal liability concerns [29]. Opinion 8.6 is broad in scope, extending disclosure duties even to situations when new information regarding the error will not change treatment and imposing duties on physicians to self-regulate and promote a culture of patient safety

through such means as encouraging other providers to disclose their errors and reporting impaired or incompetent colleagues [29].

Closely related is the AMA Code of Medical Ethics Opinion 11.2.2, Conflicts of Interest in Patient Care, which emphasizes the primary duty of physicians to serve humanity and the priority of patient welfare over the economic interests of others, including the economic interests of the physician and hospital or other entity [30]. A physician who practices unwarranted defensive medicine risks violates Opinion 11.2.2 if he/she orders unnecessary tests or treatment for purposes of avoiding litigation and its associated costs. Such care is ethically problematic because it is aimed to further the best interests of the physician, not the patient [12].

Thus, when faced with a medicolegal issue, a physician is ethically obligated to honor the primacy and fiduciary nature of the doctor-patient relationship by placing the best interests of the patient before any competing interests and engaging in complete, honest disclosure.

Strategy 5: Utilize Institutional Resources

Perhaps one of the biggest mistakes a physician can make in dealing with a medicolegal issue is to face it alone. Many institutional resources, such as CRPs, are available to prevent medicolegal issues and address existing ones. These types of efforts can enable institutions to improve organizational culture to support individual providers and meet patient expectations when unfortunate outcomes occur [31]. For example, at the University of Pennsylvania's Department of Surgery, institutional efforts to educate physicians on risk reduction, e.g., on communication and the informed consent process, appear to reduce malpractice costs [32]. Such institutional resources can help to minimize litigation risk and provide support to the physician facing the stress and other challenges associated with a medicolegal issue. As discussed above, good starting points include the institution's risk management professionals. These individuals have the necessary expertise to investigate the facts and coordinate an appropriate response, and they are knowledgeable about applicable law, institutional policy, and other requirements such as those set by the Joint Commission and state licensing boards. Physicians may also benefit from the less formal counsel and support offered by supervisors and peers. The institutional ethics committees may serve as another valuable resource; although not typically tasked with a risk management function, such committees can help to clarify clinical and ethical issues, identify stakeholders and decision-makers, define legal and ethical boundaries, and resolve conflicts.

When indicated, e.g., institutional resources so advise or it appears that the physician's interests may diverge from the institutions and litigation is foreseeable, a physician should consider obtaining personal legal counsel and inform the physician's professional liability carrier [1].

Conclusion

In conclusion, "[t]he skilled and humane practice of medicine turns out to be the best form of risk management" [11]. When physicians practice good medicine, i.e., medicine that meets or exceeds the clinical standard of care, in an ethical manner and communicate well, they prevent medicolegal issues (Fig. 1). However, even the

Fig. 1 Best practice model for avoiding medicolegal problems

best physicians may face legal scrutiny at some point. By continuing to adhere to professional ethical standards and communicating with patients, e.g., through appropriate disclosure of medical errors, physicians can minimize both patient harm and their personal liability exposure.

Words to the Wise

- Focus on practicing good, ethical medicine.
- Keep current on evolving clinical standards in your field.
- Maintain good communication with patients and other health care providers; documentation is the best proof of this.
- Seek help when facing a medicolegal issue.
- Disclose medical errors when appropriate.

Ask Your Mentor or Colleagues

- What resources does my institution offer for dealing with medicolegal problems, both preventatively and in response to litigation?
- What specific areas of my clinical practice are ripe for potential medicolegal problems?
- How can I improve the systems issues related to my clinical practice?
- What policies does my institution have regarding disclosure of medical errors and/or adverse events?

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Pathways for Success in Academic Medicine for an International Medical Graduate: Challenges and Opportunities

Nyapati R. Rao and Vijaya Padma Kotapati

Introduction

"International medical graduate" (IMG) describes physicians who have completed their undergraduate medical education outside of the United States in schools that have not been accredited by the Liaison Committee on Medical Education. IMG physicians have played an extremely important role in delivering healthcare to underserved populations and helping sustain psychiatry as a medical specialty over three generations. Each year, thousands of medical graduates trained in these highly diverse contexts seek residency positions in the United States. In 2016, the total number of physicians in the United States was 953,695, and the number of IMG physicians among them was 216,182 [1].

In the United States, 26% of practitioners and one third of all trainees in psychiatry are IMG physicians. IMG physicians constitute 25% of the membership of the American Psychiatric Association. As trainees, IMG physicians are heavily represented in geriatric psychiatry (42.6%), addiction psychiatry (41.2%), child and adolescent psychiatry (34.5%), forensic psychiatry (29.4%), and psychosomatic medicine (32.2%). Demographically, the majority of the IMG psychiatrists involved in patient-care activities attended medical school in South Central Asia (34.9%) or the Caribbean (12.0%). The J1 visa is the most commonly used visa [2].

This chapter is a summation of the experiences and observations of the authors and may not be generalizable to all IMG physicians. Also, though the authors are psychiatrists, the observations are not limited to psychiatry. IMG physicians are a heterogeneous group in their educational, cultural, and linguistic backgrounds, and some of them are more familiar with US-styled academic medicine and research than others. By and large, given the time period of our experience, we have found that their background emphasizes clinical service and teaching; research and scholarship are not major priorities in foreign medical schools. Anecdotally, graduates from Eastern Europe may be more familiar with basic science and research than graduates from South Asian countries, who may be more clinical in their identity.

IMG physicians have made noteworthy contributions to academic medicine. For example, they are responsible for various schools of psychoanalysis and the invention of electroconvulsive therapy (ECT) as a modality of treatment. They have been elected presidents of professional organizations and appointed directors of federal agencies,

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and they have become more visible in the field as department chairs, training directors, researchers, and clinical faculty. IMG physicians have made major contributions in biological psychiatry, psychopharmacology, and descriptive psychiatry. Similarly, they have been noticeable as presenters at national meetings and as authors and editors in prestigious journals. Despite these gains, the pace of their integration is slower than one would hope for. In this chapter, the main characteristics of US academic medicine will be discussed and contrasted with what is practiced abroad as academic medicine. The obstacles encountered by IMG physicians as they seek to integrate themselves into academic medicine will be discussed. Finally, strategies to succeed in academic medicine as an IMG physician will be enumerated, and the key points will be highlighted.

Professional Identity

Starr [3] defines *profession* as "an occupation that regulates itself through systematic, required training; that has a base in technical, specialized knowledge; and that has service rather than profit orientation enshrined in its code of ethics." Professional identity, on the other hand, is an individual's self-definition as a member of a profession and his or her enactment of specific roles of the profession [4]. Professional socialization is the acquisition of the values, attitudes, interests, skills, and knowledge of the group in which the individual is attempting to become a member. Professional identity is acquired through professional socialization. In the following, the problems faced by an IMG physician in acquiring identity as an academic physician will be described on the basis of our experience. Being a faculty member exposes IMG physicians to different and more intense pressures than when they were residents without any guidance.

Traditionally, academic medicine's mission in the United States has been threefold: teaching, research, and service. Academic medicine is an approach, a state of mind, and a way of practicing medicine. It is associated with prestige, opportunity to travel, vanishing freedom from excessive

clinical demands, and malpractice and regulatory concerns. In addition, it denotes freedom to think, write, publish, and conduct research. Furthermore, academic medicine is marked by careful and comprehensive attention paid to diagnosis and formulation of clinical phenomenon, search for evidence for treatment efficacy, refusal to blindly accept opinions, and a questioning and evidence-seeking approach to patient care. Also, these factors influence the treatment of a patient from a biopsychosocial approach. While, historically, an academic medical center referred to the dyad of a medical school located in a university setting and a teaching hospital, in the current climate, its practice venues have expanded to include community-based organizations, community hospitals, and clinics.

The twentieth century saw the pinnacle of academic medicine in the United States, which was set in motion by reforms made by Abraham Flexner in medical education [5] in the 1910s. Flexner's recommendations turned what some perceived to be a chaotic, unregulated, corrupt, pecuniary interest-driven, and unscientific medical educational enterprise into a system that has become the envy of the world. The core ideas of his reform included a shift from rote learning to critical analysis of evidence and learning by doing for medical students. Flexner's reforms required certain qualifications for students to be accepted to medical school, introduced standardization of medical education, created full-time faculty, and forged strong ties between the university and the medical school. Many believe that medical education evolved into a discipline marked by emphasis on research, teaching, publication, and scholarship with excellence in patient care. This process was aided by generous governmental and philanthropic support in the United States. In other countries, medical education may prioritize mainly clinical and teaching due to lack of resources and enormous social pressures in the post-colonial environment.

Academic medicine, in contrast to clinical medicine, is organized into various tracks and ranks to indicate the faculty members' primary focus of work and their contributions to the field [6] (see also chapters "How to Understand

Criteria for Academic Promotion on "Traditional" and "Research" Tracks" and "How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks"). Faculty tracks are academic and clinical. The ranks are instructor, assistant professor, associate professor, and professor, and each rank has specific criteria for appointment and promotion based on academic productivity. Finally, tenure means job protection and is a way of assuring the faculty "the freedom to challenge dogma" and follow unpopular paths of inquiry without fear of administrative or ideological pressure [6].

In comparison, in many international medical schools, faculty ranks may be assigned on the basis of one's seniority in the civil service employment system. They may not consider for advancement of individual faculties accomplishments in teaching and research scholarship. Therefore, there may be only one track—a clinical administrator/educator track. Grant-funded research may be rare, scholarship and publications may not be as valued, and tenure as it is understood in the West may not exist because a position obtained in a bureaucratic hierarchy may be protected by government rules. The faculty might need to retire at a prescribed age regardless of their personal choice or their involvement and contributions in academic medicine. However, as a result of globalization, spread of the Internet, and inexpensive travel, faculty members may be exposed to Western ideas of academic medicine and become able to implement them in certain centers of excellence.

Faculty compensation in US academic medical centers is generally multisourced. For example, a portion might be earmarked as a base salary, whereas the rest might come from practice plans and other programmatic sources. One must familiarize oneself with various sources of one's income and learn thoroughly the policies regarding additional income from consultation, public speaking, royalties, and expert testimony, for example. It is critical to understand that in academic medicine all important decisions regarding salaries and other requirements of the job are made by the chairman of the department, and it is important for IMG physicians seeking careers in academic medicine to develop a positive relationship with their supervisors and department chairmen.

Obstacles to Success in Academic Medicine

In this section, we will mention some of the obstacles that IMG physicians may have to overcome in order to succeed in academic medicine.

Absence of a Role Model

Some IMG physicians may lack a model of academic medicine from their educational background prior to arriving in the United States. We have observed that bedside and classroom teaching are the predominant activity of academic medicine in many other countries. As a result, the true nature of academic medicine, based on original contributions of new ideas or concepts in medicine, and the role of philanthropy and funding of research by government in the United States may be unfamiliar. The generally lower salaries of academic medicine and the complex requirements that govern one's professional life may discourage an IMG physician from seeking an academic career. The relatively higher income, independence, and the familiarity and comfort of clinical work might make a clinical career more attractive than an academic position. IMG physicians might feel that professional life in an academic medical center is isolating and lonely due to a shortage of IMG physicians who seek a career in academic medicine. In addition, difficulties with written English and conceptualizing a study might act as deterrents. Lack of experience in obtaining grants and authoring scholarly publications before arriving in the United States might also be major factors.

Employment Setting

By virtue of immigration requirements, for instance, working in underserved areas for those

on J-1 visas, IMG physicians may take clinical and service-oriented employment in areas of the country where their intellectual aspirations cannot be easily nurtured. Consequently, many IMG physicians who start with enthusiasm for academic medicine may settle for a career in an area that is mostly service oriented. Lately, the knowledge and advanced skills obtained by many IMG physicians in public health, basic science, and conduct of research before entering their residency training may be lost to the field due to the existential compromises they may have to make.

Type of Residency Program

While others may have different life stories and career trajectories, our observations have been that traditionally many IMG physicians receive their training in community hospital-based residency programs. Such residency experiences may not fully prepare them for a career in academic medicine. Residencies with excessive clinical loads, absence of research-oriented faculty, and low priority to do research may hinder the international graduate in honing in his or her reflective learning, evidence seeking through skillful use of literature searches, acquisition of writing skills for thoughtful and comprehensive reports, and public speaking. All these factors may adversely affect readiness to seek a career in academic medicine.

Discrimination

In general, the United States is very welcoming to IMG physicians. Nevertheless, systemic issues may block and thwart the progress of some IMG physicians in academic medicine. One such issue is discrimination at the workplace, which may take many forms, including denial of desirable positions, promotions, patient referrals, and leadership positions in professional advancement. IMG physicians may face discrimination in spite of having the necessary qualifications and the requisite skills. Some factors may stem from misunderstandings by teachers on the basis of culture,

absence of mentors who can advocate for the international graduate, and damaging stereotypes about intelligence, medical education, and cultural, technical, and linguistic competence. Outbursts of anti-immigrant feeling might contribute to a systematized and unapologetic discrimination.

Strategies to Succeed in Academic Medicine

In order to succeed as a faculty member, in our experience IMG physicians must convince the system that they have the wherewithal to succeed in the system. They must understand the importance of individual initiative, ambition, and a non-sentimental view of personal success and pressures. Consequently, IMG physicians must manage the following areas efficiently: treat all relationships with respect, empathy, and tact; participate in activities of professional organizations; find mentors both in and outside institutions; develop specific skills in teaching, research, grant writing, and scientific presentations; be mindful of ethical conflicts; and become culturally competent [7].

Be Proactive and Volunteer

As early-career members of the department, we believe that IMG physicians will benefit from volunteering to participate in a wide variety of activities, for example, by offering to teach medical students, supervise residents, and participate in teaching medical students and asking to be included in educational committees that have experienced faculty and academic leaders as members. They should also learn the mechanics of applying for a grant; grant funding will make their positions more stable in their departments. Each grant application writing process provides substantial education. Teaching and research must not be viewed as distractions that cannot be afforded but as opportunities to substantiate one's academic identity and advance it further. Management of time and learning how to say no to multiple requests received are also key skills.

Polish Presentation and Public Speaking Skills

One can use any number of courses given on public speaking at professional meetings or available on the Internet to improve one's public presence, speaking style, and anxiety. Accent and diction issues must be addressed for some IMG physicians, perhaps by imitating the standard speech patterns of newsreaders, for example, on National Public Radio. One can also seek speech therapy for help in this regard.

Publishing and Other Scholarly Activities

Faculty must overcome inhibitions about the value of a scholarly contribution in order to get started. A first offering may be rejected, but persistent work may lead to publication. Serving as a reviewer for as many journals as possible is instructive, such as in seeing how a paper is modified from the first submission to the final accepted version. One can also learn how fellow reviewers addressed various shortcomings in the manuscript, which will enhance one's reviewing skills. One must not hesitate to seek writing courses or use grammar software and copy editors to improve one's manuscript and to develop mastery over written English, expand vocabulary, and advance grammar and syntactic skills. Physicians are often perplexed about the duality that exists in their professional roles, such as between a clinician, who cares for his or her patients, and a researcher, who maintains a scientific focus in his or her research activities. Easter et al. [8] found that while some researchers managed to combine the roles, others prioritized one over the other.

Find a Mentor

Finding a mentor is a critical step for IMG physicians [9] who aspire to an academic career. A mentor is an experienced professional who shares his or her knowledge and skills in a non-threatening and non-exploitative relationship with an early-career colleague with a view toward helping him or her with honing skills and knowledge. It is important that IMG faculty members develop one or more mentorship relationships. Finding a mentor one can trust and benefit from is not easy. Some IMG physicians coming from certain Asian cultures may hold models of student–teacher relationships that could be viewed as too dependent or obsequious or thwarting the autonomy of the student by their colleagues in the United States. The mentor–mentee relationship has clear boundaries in the United States. The mentor is not a parent and does not have infinite patience or tolerance for ignorance.

One learns from the mentorship relationship various aspects of professional life, including the choice of subspecialty, how to write and publish, how to conduct research, how to apply for a grant, and how to handle interpersonal conflicts between faculty and administration. In addition, the mentor can introduce the IMG physician to leaders in the field. The IMG physician may have to try multiple mentorship relationships, because one mentoring relationship would not be able to answer all of one's needs. The benefits from the mentorship relationship do not happen automatically and require the full participation by the protégé as well, who must be fully committed, open, and sharing. Truthfulness and integrity are essential, as is an ability to handle frustrations and accept boundaries.

Become a Member of Professional Organizations

In an unpublished survey exploring the attitudes of IMG physicians toward organized medicine, 70% of the respondents indicated that they are not members of the American Medical Association [9]. The likely reasons include that many IMG physicians do not have experience with organizational medicine in their countries of origin and that in international medical systems, medicine may be state-controlled due to the fact that the healthcare system is run with state funds—the government, therefore, has consider-

able say in how medicine organizes itself. Consequently, IMG physicians may not have models of autonomous professional societies. In some countries, professional organizations, when they exist, may limit their interactions to social occasions and rarely take a public stance on issues that affect patient care as well as impediments to physicians' practice. When IMG physicians come to the United States, it may take time for them to truly appreciate the nature of professional organizations.

Many are bewildered to learn that the US government has very little control over the profession of medicine. Membership in professional organizations offers extremely valuable experiences. Besides providing opportunities to connect with colleagues from various backgrounds, they also provide opportunities for keeping current with professional knowledge and priorities. The scientific programs are constructed with a view toward providing overviews on many topics. Becoming familiar with the leadership team of professional organizations gives the IMG physician the chance to get to know the personalities, the politics, the priorities, and the policies of the organizations. Offering to participate in committees and task forces and to conduct workshops and give presentations is a good way to increase involvement.

Manage Complex Academic Relationships

Success in academic medicine depends on one's ability to network and develop enduring and supportive relationships. In some cultures, relationships between teachers and students may be paternalistic. In the United States, greater clarity of boundaries and communication, including disagreements, may be experienced more. It may surprise IMG physicians to learn that their US colleagues do not mind discussing differences of opinions and that being assertive may not be equated with being aggressive. In other traditions, disagreements with a teacher may stir up considerable anxiety in students.

Develop Cultural Competence

Cultural competence is the integration and transformation of knowledge about individuals and groups of people into specific standards, policies, practices, and attitudes used in appropriate cultural settings to increase the quality of services, thereby producing better outcomes [10]. The mental health of the faculty member is critically important. One cannot succeed if one is deeply immersed in a grief reaction over leaving one's country of birth, for example. One must do everything that one requires to overcome cultural barriers. Balance issues between one's personal and professional life must be considered on the journey to cultural competence in the United States.

Conclusion

This chapter has described professional development in academic medicine specifically for IMG faculty members on the basis of our experience and from our particular personal histories. Obstacles to the process and recommendations have been offered according to the experience of the authors and may not be generalizable to all IMG physicians. For an international graduate, developing and succeeding in an academic career, although challenging, is often fun, enriching, and deeply gratifying.

Words to the Wise

- Academic medicine consists of education, research, and clinical care.
- Reflect on your reasons for seeking a career in academic medicine and learn all that you can about the structure and the process of academic medicine.
- Be proactive and volunteer time and effort.
- Polish presentation and public speaking skills.
- Become involved in publishing and other scholarly activities.
- Find a mentor.

- Become a member of professional organizations.
- Attend professional meetings at local and national levels.
- Offer your time and work to participate in various committees of professional organizations.
- Manage academic relationships. Honest and open communication style, being prompt in delivering your commitment.
- Develop cultural competence.

Ask Your Mentor

- Do you know who is an IMG physician? Have you had any dealings with IMG physicians either as a colleague or as student? How did that relationship go? What are your observations about your experience?
- How do my goals agree with the department goals?
- How do you assess my strengths and weaknesses for the job I am aspiring to pursue?
- How sensitive is the department to my cultural issues?
- What professional organization(s) should I join?
- What professional meetings should I attend?
- In which committees should I get involved in the department and the university?
- Can you introduce me to some of the graduates of this program?

Key Concepts

- *International medical graduate physicians* are physicians who received their medical education in schools outside North America.
- *Professional identity* refers to the attitudes, values, knowledge, beliefs, and skills that are shared with others within a professional group and relates to the professional role being undertaken by the individual.
- *Cultural competence* is the integration and transformation of knowledge about individuals and groups of people into specific stan-

dards, policies, practices, and attitudes used in appropriate cultural settings to increase the quality of services, thereby producing better outcomes.
- *Acculturation* is a process in which members of one cultural group adopt the beliefs and behaviors of another group, resulting in assimilation of one cultural group into another; successful acculturation may be evidenced by changes in language preference, adoption of common attitudes and values, membership in common social groups and institutions, and loss of separate political or ethnic identification.
- *Mentor* is a senior colleague who shares his or her observations and advice in a non-threatening and non-exploitative relationship with a junior colleague with a view toward advancing the interest of the junior colleague.
- *Academic medicine* is a track of the medical profession that encompasses the traditional tripartite mission of educating the next generation of physicians and biomedical scientists, discovering causes of and cures for disease, and advancing knowledge of patient care while caring for patients.
- *Discrimination* refers to the treatment or consideration of or making a distinction in favor of or against a person or group to which that person or group belongs rather than on individual merit.
- *Tenure* refers to a guarantee of the permanence of a faculty position, awarded upon successful completion of a probationary period, for providing job security, academic freedom, and right to pursue scholarly activities.
- *Track* is one among many career path options available based on one's professional or occupational style or category. In medicine, available tracks are academic medicine, clinical medicine, and health management, for example.
- *Rank* refers to a relative position in the range of job categories. For example, ranks include instructor, assistant professor, associate professor, and professor, and each rank has specific criteria for appointment based on qualifications, merits, and credentials.

Conflict of Interest The authors declare no financial conflict of interest.

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Part III

Approaching Work with Colleagues

How to Strengthen Your Own and Others' Morale

Michael D. Jibson

Morale is the collective measure of job satisfaction, personal well-being, quality of interactions, and activity level of individuals that work together. This chapter addresses how to build an environment that supports and enhances the job satisfaction of the people with whom you work and for whom you are responsible. The principles presented are equally applicable to a clinical teaching service, laboratory group, residency program, department, or medical school. They are less about how to succeed in formal administrative roles and more about specific behaviors that enhance the morale of everyone you supervise, direct, or with whom you collaborate. Despite its recognition as an essential component of a successful organization and a core responsibility of leaders, relatively little attention has been paid to the factors that drive resident and faculty morale in the medical literature [1, 2]. Extensive work within the field of organizational behavior has focused primarily on the business community [3], whose goals and methods may overlap with but are not identical to those of health care in general or medical education in particular. Consequently, the following are suggested best practices based on observations of groups that succeeded or failed to work well together in academic medicine. They begin with four basic principles that are applicable across a range of situations (Table 1). These will be followed by a series of specific issues that require special attention.

Table 1 Essential qualities to strengthen morale

For the faculty member/ supervisor	For the academic administrator
Engagement	
Accept your role as a leader Recognize the people who depend on you Respect their roles and work Facilitate smooth working relationships	Lead by moral (not administrative) authority Be visible, involved, and active Recognize the work and achievements of individuals and groups
Support	
Be respectful and empathic Emphasize the positive Avoid condescension and implied criticism Share your experience and perspectives	Know your trainees, faculty, and staff Facilitate personal and professional growth Give priority to individuals' needs over administrative convenience Confront problems promptly and respectfully

(continued)

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Table 1 (continued)

For the faculty member/ supervisor	For the academic administrator
Transparency	
Be clear, fair, and consistent Be specific about your expectations Give prompt, specific feedback Accept feedback from others	Build a culture of openness, fairness, and integrity Seek input and consensus whenever possible Be consistent and fair in setting priorities Explain the basis for decisions and policies
Balance	
Be clear and open about your interests and goals Seek areas of alignment between your interests and the needs of the department Be responsible with the autonomy you are given	Know your trainees and faculty Be clear about the program or department's priorities Facilitate appropriate autonomous activity Say "Yes," whenever possible; say "No," whenever necessary

General Principles

Be Engaged

Leadership is fundamental to academic medicine. From the clinical instructor supervising a medical student to the dean managing a medical school, academic life inevitably includes responsibility for the welfare of the people around you. Engagement means recognition and acceptance of your responsibility as a leader. The capacity to encourage and empower your trainees and colleagues does not arise from administrative authority, but from a personal interest in them and a genuine desire to facilitate their work and professional development. Your goal should be for trainees and faculty to accept your directions not because of your position, but because they know you care about them, understand their concerns, are fair, and have good reasons for your decisions. It should never come down to them doing something because you have the power to force them. Ironically, this principle of leadership is easier to learn at the bottom of the academic ladder than at the top.

Every faculty member works within an academic and health-care hierarchy that has expectations of performance and grants autonomy within the unavoidable limits of institutional mission, financial priorities, regulatory requirements, and administrative directives. Although it is easy to see the organizational chart extending above you (seemingly to infinity, as every chair has discovered), it is equally important even as an entry-level faculty member to recognize who is depending on you and how you can serve them.

Take a moment to notice the people who are looking to you for direction. Most conspicuous are likely to be the medical students and house officers assigned to your clinical service. Consider your role in terms of their needs. You are responsible to provide them with direction, to serve as a role model, and to create an environment that facilitates their professional growth. They will soon be your colleagues; treat them as such and help them get there.

Next you may notice allied health or technical professionals, such as nurses, social workers, laboratory technicians, activity therapists, dieticians, and innumerable others. You are responsible for their integration into clinical and research operations. Their work is essential to yours; help them do it. You will inevitably encounter clerical and administrative staff. The paperwork they handle may seem an annoyance or even a hindrance to your work, but no system can operate without them; comply with their requests and they will keep you on track and in compliance with critical regulations. Less conspicuous may be the housekeeping, maintenance, and security staff. Much of their work is invisible; that does not mean it should be overlooked. All of these workers are skilled at what they do and take their responsibilities as seriously as you do yours; respect their roles, their training, their professionalism, and their judgment. None of these people really works for you, but sometimes they may have to follow your directions (e.g., medical orders), and they are always affected by how you lead (see Case Study 1).

In the normal flow of academic life as your career progresses, formal leadership roles are expected. The skills you develop early in your career will serve you well as you take on these responsibilities. Your challenge will be to fully

assume the role you are assigned and learn to adapt your relationships to the new position.

As your administrative role grows, so do your obligations to faculty, trainees, and auxiliary staff. They need to know that someone is at the helm directing everyone's efforts and protecting them from threats to their own goals, priorities, and job security. Be active and visible in the role. Few things undermine staff morale more than their feeling unnoticed and unappreciated. Give people the assurance that you are there and are aware of their work, their needs, the rules that govern them, and the forces that affect them. Regular acknowledgment of their challenges and achievements is an important element of group leadership. Invisible or absentee leadership rarely engenders confidence, enhances energy, or facilitates individual or group success. If 80% of success is showing up, make sure you are there (see Case Study 2).

One effective approach is to be present on the front lines of the work. Administrators who sit in distant offices making decisions about work hours, clinical quotas, and staffing ratios are unlikely to fully grasp the impact of their policies on job satisfaction or the work environment. Leaders who maintain a clinic schedule, cover an inpatient service, and schedule themselves for regular call shifts gain insight and credibility available no other way.

Additional efforts may be required to identify career milestones such as awards and publications; personal events such as birthdays, births, and deaths; and individual issues such as medical or family problems. The extra effort to ask about these things periodically not only communicates interest but allows you to appreciate that you are surrounded by real, three-dimensional people. They will respond accordingly.

Be Supportive

Relationships with colleagues are an important source of job satisfaction [4, 5]. To make the most of this resource, it is essential that relationships be positive, constructive, and supportive. Support for individuals covers a broad range of intellectual, emotional, social, and academic needs experienced by trainees, faculty, and other staff. Support for these needs may be offered up or down the chain of command, laterally among peers, and elsewhere. It may take the form of personal warmth, career advice, clinical consultation, research collaborations, or any number of other means by which the interests of another person become paramount. As a general attitude, several elements are essential.

Be respectful in every interaction. Recognize the worth of the person you are seeing as a professional (or potential professional), a colleague, and a fellow human being. Seek to understand his or her perspective, feelings, and needs. Ask yourself how you might be most helpful and follow through on your thoughts, if only with a word. Be aware of the unspoken implications of your feedback and recommendations regarding the value of a person's skills, interests, and potential. Few things are as demoralizing as disregard or condescension [6]; take care to emphasize the positive and to convey your respect and desire to be helpful.

Support does not always mean agreement. Confrontation of incorrect information or maladaptive responses may be the most constructive response [7]. In some cases, it may even be helpful to directly question someone's priorities or goals. Faulty understanding of the facts is relatively easy to detect and is essential to correct. Take the time to probe how your trainee or colleague understands things; be straightforward in addressing errors of fact. Errors of interpretation are equally important but may be harder to counteract. Be willing to share your perspective on what is happening behind the scenes and on the implicit meaning of policies and decisions. Care enough to confront maladaptive behaviors; do not stand by and allow a trainee to unknowingly build a reputation as oppositional, high maintenance, or entitled. Prompt, focused feedback on these behaviors is hard to give and painful to receive but is essential to professional development (see chapter "Maximizing Effective Feedback and End-of-Course Evaluations"). Good reality testing is a precious service, even when that reality hurts.

Be attentive to individuals' career development. Programs and departments differ in the degree to which work assignments are allocated based on the needs of the department versus the interests of the

individual. The morale of trainees is closely correlated with their perception of the educational value of their clinical rotations as compared to the service needs of the department. The attachment faculty members feel to the institution will be affected by whether they perceive that their positions represent a positive career move or just fill gaps in clinical or research operations. From an administrative perspective, policies differ as to whether they primarily serve the department or its individual members. For example, when taking corrective action, a training program may have a low threshold for termination in order to maintain the integrity and reputation of the program or may favor extensive remediation in the hope that every trainee will successfully reach graduation. To some degree, the difference is how these issues are framed. More substantive is how they are actually approached. As a steward over the education of trainees and career growth of faculty, remember that their success is your success and their morale is dependent on your support (see Case Study 3).

Be Transparent

Regular, high-quality communication facilitates every aspect of clinical care, education, and administration. In contrast, job satisfaction and performance suffer when policies are announced without context, decisions are made without discussion, and evaluations are issued without prior expectations. Even controversial or difficult decisions will be accepted more readily if the process by which they are reached is explained. Similarly, summative feedback should be the culmination of a series of earlier communications about performance. The endpoints of these processes should not be their only visible feature.

Transparency promotes both the reality and the appearance of fairness and integrity. These are essential qualities of leadership that build confidence and satisfaction among trainees and faculty [8]. Openness in decision-making encourages a balanced approach and carries with it a built-in corrective for bias and favoritism. It builds trust in the leader and demonstrates the leader's trust in the group. This working relation-

ship encourages an alignment of individuals' values and goals with those of the institution. Beware of decisions that you do not want to be widely known; this is a warning sign that your integrity is compromised. As a general rule, it is a poor policy that is based on not being exposed.

Whether as a supervisor or administrator, be clear about your expectations for trainees, faculty, and others for whom you are responsible. Establish standards of performance, explain how they will be monitored, and provide frequent feedback on how each person is doing relative to those standards and to their peers. Meet with them regularly to review expectations and performance. Be clear when standards are not being met and about the consequences of nonperformance (see Case Study 4).

As a supervisor and as an administrator, transparency works both ways. Listen to others' opinions and be open to different perspectives. Make it clear that you have heard what they have to say and that you are taking their views into account. Decisions made by consensus have a power not shared by administrative decrees, providing greater understanding and acceptance. When announcing decisions, take not one but two moments to explain them: first to share the background information that informed your choice and then to review the rationale you followed. Even those who disagree will at least have the correct information in front of them and will know the basis on which the decision was made.

Balance Direction and Autonomy

Productivity and a positive work environment require a constructive interaction between the leader and members of a group [6, 9]. Professional satisfaction and effectiveness improve when the goals and methods of the group are clear to everyone and their efforts are united [3]. Leaders give direction and structure to group endeavors; workers provide the energy and productivity necessary to accomplish them. Good leaders motivate not only through support and clarity of expectation but also through clarity of vision; good workers accept that vision as their own and align their activities with it.

The directive nature of leadership stands in contrast to the need to promote independence among the members of the group. Medicine is hardly the place to find individuals who will be satisfied with subservient roles and rote activities. Little wonder, then, that personal control over job descriptions and work hours are among the most common factors cited in studies of physician morale, among both faculty and residents [4, 5]. Part of the role of a faculty member is to find ways to grow professionally; part of the role of a leader is to facilitate that independent activity and growth in others.

A key challenge of life in academic medicine is to balance these seemingly incompatible goals [10]. The least elegant approach is for the administrative leader to give everyone control over a few things and to retain control over everything else. More effective strategies include the exploration of convergent interests, education and persuasion, job matching, and creative negotiation. Faculty at all levels have a role to play in this process.

Convergent interests are those areas in which what someone wants to do and what the administration needs him or her to do are the same. This is an essential element of contract negotiation for a new faculty member. To be effective, both parties need to be clear about their goals and motivations. As an entry-level faculty member, think carefully about your priorities, interests, and dislikes. Keep in mind that an activity that you found tolerable for a few months of residency may be less so when telescoped over decades. If your true motivation for taking a job is only partially related to the job description (e.g., you want to teach medical students, but the only faculty job available is on an inpatient unit you barely survived as a resident), say so before you sign the contract. As a senior administrator in the department, be clear about the prospects of career development and flexibility of assignment for a new faculty member. The two of you must work creatively to match personal interests with departmental needs, and each must be willing to adjust expectations.

This process will go on as interests and job descriptions evolve over the course of a career.

Much of your contribution to your own career development as a faculty member is your ability to find professional interests that will benefit your department. Much of your contribution to faculty as an administrator will be your ability to find the right person to meet a need in the department. The right person is not only the person with the right skills but also the right interests and career goals. If that faculty member is not obvious, opportunities for faculty training may develop both the interest and the skills the department needs.

For trainees, the process has the added dimension of certification requirements. Students and residents must achieve certain competencies to graduate, and the department has an obligation to make those available and to facilitate the process. Education directors must maintain the quality and integrity of their programs. Consequently, certain activities and standards cannot be neglected or compromised. Even with these constraints, however, it is possible to introduce a measure of independence to the process. Directors of medical student education can offer a variety of clerkship options and can direct students to the sites most compatible with their interests. Residency program directors can be flexible with scheduling, creative with electives, and active in arranging faculty mentors. A simple rule to follow when a trainee asks to deviate from the standard schedule is, "Say, 'Yes,' whenever possible; say, 'No,' whenever necessary."

Specific Issues

The general principles just described come into play in a variety of situations, a few of which are delineated below. These are specific areas that will be especially important to the morale of trainees and faculty. They are described from the perspective of the person best positioned to have an impact on the group dynamic.

Supervision and Mentorship

The learning environment is among the most important factors cited by residents in the quality of their training experiences [11], and no one has

a more profound effect on that environment than the clinical supervisor. It is essential that faculty master the skills needed to oversee the work of their trainees, recognize their strengths and weaknesses, guide them toward a mastery of the field, and support them in their struggle to achieve it.

As a supervisor, be clear about your expectations and your standards. Accrediting bodies for both medical schools and residencies require that every training experience has explicit learning objectives and that these be made clear from the outset to the trainee. Most of these address global goals related to competencies expected at graduation and during subsequent practice. As such, they are essential for both teacher and learner. In most settings, they are well developed and regularly distributed to trainees. It is somewhat surprising therefore that one of students' and residents' most frequent complaints is that they do not know what is expected of them or the standard by which their performance will be judged.

To a large degree, the missing element is clarity about specifics. Students should already be aware that a goal of the rotation is for them to master diagnostic skills in that rotation's clinical area. What they most want to know is what time you expect them to come in, what information to present at rounds, and to whom their routine questions should be addressed. House officers understand that they will be evaluated on their patient care. They need to know what that means to you. Do you want them to check every order with you ahead of time? Do you want them to use lab tests liberally or conservatively? Do you prefer conservative observation or aggressive treatment? To the degree that you are aware of your style compared to that of your colleagues, make it clear to your trainees.

The second complaint of residents is that they do not know how they are doing [12]. Give formative feedback regularly, including both positive and negative elements [13]. Give specific direction for improvement and follow-up feedback on the trainee's progress. Be sure your supervision includes the standards you will use in your summative assessment. There should never be a surprise when a student or resident reads a final evaluation.

Finally, trainees seek mentors more than supervisors [14]. Supervision is about direction, over-

sight, and evaluation. In the clinical setting, it is about ensuring that patient care meets appropriate standards and that trainees demonstrate appropriate skills. In several important ways, supervision is less about education than it is about the protection of patients in spite of education. Mentorship, in contrast, is a relationship between a trainee and a more experienced colleague who come together to share experience, knowledge, skills, and attitudes. A supervisor gives the trainee assignments; a mentor brings the trainee along as they work side by side on a common project. Supervisors give directions; mentors explain their thinking and invite the trainee to reason with them. Supervisors seek objectivity in evaluations; mentors seek a relationship that fosters growth. Supervision produces graduates; mentorship produces colleagues. Serve as a mentor by taking an interest in your students and residents, by inviting them into your professional world, by coming to know them as individuals, and by focusing your teaching less on the goals and objectives of the rotation and more on their goals as physicians (see chapter "How to Be a Good Mentor").

The principle of mentorship applies equally well to relations between early-career and experienced faculty. As a new addition to the department, seek out senior people worthy of your trust and confidence. Ask them questions, seek their guidance, and learn from their experience. As you grow in experience, reach out to younger faculty, include them in your projects, share the insights you have gained, and try to help them move up the academic ladder. Treat their requests for your time and attention as the honor that they are. The relationships that result and the growth that follows will create a satisfying and productive work environment for early-career and experienced faculty alike.

Work Expectations and Schedules

One of the most frequently cited correlates with burnout among house officers and faculty is lack of control over schedules, work settings, and job expectations [4, 5]. To the degree possible, seek residents' input in their rotation and call schedules and give faculty control over their daily

schedules. Of course it will be necessary to set limits on their autonomy, but make clear the reasons those limits are set and how decisions are made. Once the schedule is in place, avoid unnecessary and last-minute changes. Constant and unpredictable changes in schedules are frustrating and demoralizing, enhancing the sense that their lives are out of their own control.

Monitor work expectations to ensure that they are reasonable. It is easy to achieve burnout among faculty simply by holding them accountable for 25% more work than they can possibly do. The outcomes will be demoralization, cynicism, and exhaustion (see chapter "How to Recognize and Avoid Burnout"). Establish meaningful metrics of their work, such as hours, patients, or projects. Listen to their feedback on the viability of their workload. Spend time walking in their shoes, rotating through the clinics, or completing a specific assignment. Make adjustments to keep things reasonable. Be careful not to hold them accountable for things beyond their control, such as patient no-shows or patient dissatisfaction with long waits for appointment times.

For trainees, the workload must be managed to avoid a compromise of the learning experience. Assignment of too few patients wastes their time and effort; assignment of too many deprives them of the opportunity to be thorough and reflective about what they are doing. Keep track of the numbers of hours they work, patients they see, and other work that they do. Seek their input regarding the value and burden of specific assignments. Make necessary adjustments promptly.

Social Activities

There is a reason that universities provide homes for their presidents and departments have catering budgets for their chairs [9]. Social gatherings are important to people who work together. In part, this is because eating, drinking, and socializing tend to be more fun than working. As such, receptions and parties can be ideal ways to thank people for their hard work or congratulate them on a recent achievement. Even a simple gift of

food or flowers goes a long way to demonstrate recognition and appreciation.

The immediate effect of a social hour on morale is augmented by additional benefits. Some business is easier to conduct without a formal meeting, but other more global consequences are equally important. Opportunities to meet in a relaxed environment allow people to develop personal relationships that will assist them in the workplace. Informal meetings facilitate introductions across disciplines and along administrative hierarchies. Senior leaders usually seen at a podium or experienced only via mass-mailed communications become real and accessible people. New faculty members have faces and voices to accompany their names. Trainees stand equal ground with faculty as they chat together.

A good place to begin as a new faculty member is with bagels before rounds or cookies for a workroom. A word of explanation and a few minutes to share the snacks together will be appreciated as much as the food. Once or twice a year, consider hosting a picnic or theme party for trainees and their families. As you move up the administrative ladder, more formal gatherings may be appropriate. Take care to reach out to everyone within your sphere, including colleagues, trainees, and staff who might otherwise be overlooked. Develop the habit of social activity early. The benefits far exceed the costs.

Response to Complaints

No program or department is free of problems. Whether they are transient obstacles or long-term structural inadequacies, issues will periodically arise that cause dissatisfaction. The existence of these difficulties is less important than how they are handled [17] Trainees and faculty want to be heard and respected when they call attention to a problem. They want to see some indication that their opinions make a difference. Morale may actually improve in the face of a challenge if people feel that they have a role in addressing it.

An effective leader welcomes feedback on the status of the workplace and quality of the work. Workers who care enough to confront a smolder-

ing issue and offer an opinion about what is not working should be seen as an asset, not a liability. They may well hold the key to the problem and its solution.

Take seriously complaints from whatever source. Look into the problem to see if there is substance to it. If it cannot be objectively verified, try to understand why it is seen as a concern. Take action promptly to explore possible solutions. Engage those most affected in the process. Keep everyone apprised of what is going on. Make changes where you can; give explanations where you cannot (see Case Study 5).

Disaffected Personnel

A spirit of collegiality within a department can make the difference between a satisfying work experience and a tense, abrasive environment. One angry individual can stir up an entire program or department, often without it being immediately apparent where the trouble originated. In some cases, even the person who is agitating the situation is unaware of his or her role. Left uncorrected, the destructive influence of that individual on group cohesion and satisfaction can be devastating (see chapter "How to Intervene with Unethical and Unprofessional Colleagues").

Your first obligation when an individual stirs up a group with complaints and angry dissatisfaction is to determine if this is a legitimate whistle-blower or if the person has become a scapegoat for a larger problem. A whistle-blower calls attention to an unacknowledged violation of legal requirements or local policies. A scapegoat is blamed for a systemic problem not of his or her making. A capable leader promptly recognizes and addresses the whistle-blower's concerns and helps to disentangle the scapegoated worker's role in the problem.

Once it has become clear that an individual is creating chaos and inappropriate concern within a group, several actions are appropriate. Make a sincere effort to understand the person's perspective. Promptly engage the rest of the group in the discussion to determine how widespread the concerns are. Educate everyone about the factors that led to the policy or situation about which some of them are angry. Seek their recommendations and act on the reasonable ones. Work to find common ground; avoid allowing the group to split into warring factions. If the problem persists, give the person at the center of the storm feedback on your view of his or her role. Throughout this process, your goal should be to bring the outlier back into the functioning group. Once that happens, things will calm down quickly.

Adverse Events and Disciplinary Action

Negative events are an unfortunate reality of academic medicine, whether they are related to unfavorable clinical outcomes, unsuccessful educational experiences, or transgression of regulatory expectations. These events require investigation, sometimes involve assignment of fault, may require corrective action such as remedial training or disciplinary sanctions, and occasionally result in legal action. Because of the sensitive nature of the events that lead to these inquiries and the potential consequences of the findings, they are exceptionally difficult for the subject of the investigation, the investigator, and the administrative leader charged with deciding and implementing corrective action.

Less well appreciated is the secondary impact of such action on the individual's peers, who are likely to perceive the procedures not only as a problem for the subject of the action but as equally threatening to themselves. Never underestimate the depth of vulnerability felt by students, house officers, and early-career faculty even under the best of circumstances. Insecure in their clinical skills and uncertain of their reputation among senior faculty, the prospect of their being found at fault and subjected to corrective action as a result of an adverse event or an administrative peccadillo can be overwhelming [5]. When the inevitable adverse event occurs, they fear the worst [15, 16]. In some cases disciplinary action may cause more than a theoretical threat to peers, as when a resident's suspension from clinical duties affects others' rotation and call schedules.

Transparency and support are the key elements of leadership when any investigation of clinical care becomes necessary. For routine adverse event reviews, make sure that the process and intent of the review are clear. Most trainees and even many faculty are unfamiliar with quality assurance procedures and assume that any review is about their performance, rather than a study of how systems of care can be improved. Take the time to explain the process, keep them informed about the findings, and above all, share the conclusions with them. Offer personal and professional support when appropriate. If the case is to be presented in a mortality and morbidity conference, ensure that it is done constructively. If there is a risk of legal action, involve risk management staff as early as possible.

Most cases of corrective action do not involve specific adverse events, but a failure to meet the expectations of a training program or faculty appointment. When this occurs, meet with the trainee or faculty member early and often through the process to explain exactly what is happening at each step. Offer support wherever possible, even if the outcome may be unfavorable. Consider the appointment of a faculty member to serve as advisor and advocate for the person during the case. Work to find the most constructive outcome for everyone involved. Give preferential consideration to remediation over termination. Even for the extreme case in which termination becomes unavoidable, do everything possible to establish a follow-up plan, such as a transfer to another program (with full disclosure to the receiving program), medical evaluation and treatment, and additional training, to address contributing factors. If someone has to walk the plank, make sure there is a lifeboat at the other end.

These extra actions are appropriate even in cases of egregious ethical violations, not least because of the collateral damage to morale that disciplinary actions can have on a program or department. Meet with residents and faculty periodically to go over the policies that govern corrective actions. When such action is contemplated, confidentiality prevents disclosure of details of the case, but a review of procedures will help allay fears of arbitrary, unfair, or disproportionate actions. Pay attention to the consequences of the action for other residents or faculty. Your attitude and willingness to address such issues during these meetings conveys as much as the policies you present (see Case Study 6). Make clear that your goal is for every resident to successfully complete the program and for every faculty member to develop a flourishing career. Make sure your actions reflect that.

Key Concepts

- Morale: the collective measure of job satisfaction, personal well-being, quality of interactions, and activity level of individuals that work together
- Engagement: recognition and acceptance of your responsibility as a leader, involvement with the people and processes with which you work, and active participation in decision-making
- Support: development of relationships that are respectful, warm, positive, and constructive, exemplified by empathic listening, emotional engagement, career assistance, and prompt feedback
- Transparency: clarity regarding goals and objectives, performance standards, decisions, and the processes by which they are established and monitored
- Direction and autonomy: the degree to which a person's work is directed by institutional versus individual priorities

Conclusion

Morale requires the involvement of every person who works together, but there is much that a single individual can do, even from the bottom of the hierarchy. Awareness of self and others, constructive engagement, balance of direction with autonomy, and openness in decision-making and communication will set the stage for specific actions that contribute to a positive work environment and individual job satisfaction.

Words to the Wise

- As a supervisor and mentor, be supportive and transparent. Be clear in your expectations. Give prompt, specific, and constructive feedback. Share your experience and insights. Invite others to share in your work.
- Monitor trainee schedules and workloads to ensure that they are both manageable and constructive. Minimize noneducational service responsibilities (i.e., "scut work"). Be flexible about the amount of control you exercise over faculty job descriptions, giving as much autonomy as possible.
- Use social activities to build relationships, recognize accomplishments, and engender positive feelings.
- Be involved and supportive when handling complaints. Get those most affected by a problem engaged in finding a solution. Identify issues that can be corrected and move quickly to address them.
- Address difficult situations promptly, openly, and supportively. Be sensitive to those who have experienced untoward events. Use corrective action to help people succeed rather than to punish. Do your best to reintegrate those who are angry or discontent.

Ask Your Mentor or Colleagues

- What have been the hardest things for your students and residents to deal with? What have been the hardest things for the faculty?
- What things do the students and residents most value? What is most valued by faculty?
- What parts of your career have brought you the greatest satisfaction? Which parts the greatest frustration?
- What behind-the-scenes administrative issues (e.g., how work quality is judged, what it takes to get promoted, how adverse events are reviewed) most surprised you?
- How can I be most helpful to my colleagues and the department?
- How can I ensure that I have time to work on my most valued activities?

Appendix: Best Practices

Case Study 1

Dr. Beth Davidson, a second-year resident on a busy inpatient service, was in constant conflict with Linda, an experienced nurse on the service. Frustrated and angry by a recent caustic e-mail exchange, she sought out her attending to ask for help quashing the nurse. "Look at this sarcastic comment. You need to call her on the carpet for the way she is treating me." Dr. Rhoades, who had experienced a few of these communications himself in the past years, chose a different approach. "Beth, I want you to take care of this yourself. You are responsible for the smooth operation of your team and who is at fault is less important than who will take the lead in fixing the problem. I will be interested to see how you handle it." A few days later, Dr. Davidson returned and excitedly reported, "I really had to bite my tongue, but I sat down with Linda and asked her to talk with me. She had some hard things to say about me and I did not agree with a lot of them, but I can see her point now. In the end, the only real change I needed to make was to give her a head's up before I wrote orders for her patients. I had no idea that was the problem."

Case Study 2

Dr. Wilkins was both excited and intimidated by his new role as program director. He loved teaching and had good relations with the residents he supervised. He quickly found, however, that the regulatory requirements of a residency program were daunting, especially with an accreditation site visit on the horizon. He soon found himself lost in administrative details and making decisions based on what looked good for the program rather than what was good for the residents. When the site visitor came, the files were in great shape, but the residents were not. They were all too anxious to share their dissatisfaction with the site visitor. "We never hear from Dr. Wilkins unless we are behind on our documentation, we have no idea how we are doing as residents, and

no one seems to notice that we are here unless something goes wrong." Most of them said they were unhappy with the program and several wished they had gone elsewhere. The primary citations in the accreditation report were for poor engagement of the program director and low resident morale. In an effort to understand what was happening, Dr. Wilkins spent time over the next few weeks visiting residents on their clinical services, meeting with them after their lectures, and inviting them to his office for informal chats. Within a short time, before he implemented any other changes, morale was already improving.

Case Study 3

Dr. French was considering her options as she approached residency graduation. Always interested in community outreach and underserved populations, she hoped to find an outpatient position that would allow her to develop new clinic models to provide this service. Dr. Parker was the chair of a prominent research-oriented department that struggled to retain clinical staff, especially in its outpatient operation. With that in mind, he told Dr. French, "We have an opening in our outpatient clinic that we would like you to fill. With your interest in outreach, you should be able to do the work with no problem." Across town, Dr. Gage had a similar opening in a more modest department. After meeting with Dr. French to discuss her career interests, she said, "With your interest in outreach, a good place to start would be our outpatient clinic. With the experience you gain there, you will be well equipped to take the next step." Wanting an academic career, not just an academic job, Dr. French chose to forego prestige in favor of upward mobility and accepted Dr. Gage's offer.

Case Study 4

Dr. Norris enjoyed having medical students on his inpatient service. He found the opportunity to chat with them and hear their thinking about cases to be especially enjoyable. Dorothy, a third-year student, was anxious about the rota-

tion. She had always been a bit awkward in social situations, and she found discussions in rounds especially trying. She tried to make up for this by studying hard and staying on top of every issue with her patients. Dr. Norris quickly noticed that Dorothy was not jumping in to answer questions and assumed that she was poorly prepared. Preferring the livelier interactions with the other students, Dr. Norris stopped calling on Dorothy, who experienced relief to be out of the limelight. Not having heard that anything was wrong, Dorothy was taken aback to receive an evaluation that said she had a poor fund of knowledge and seemed disengaged from clinical care. Her evaluation of Dr. Norris complained that she was never told there was a problem or given the opportunity to improve things. Taking this evaluation to heart, Dr. Norris began to give feedback promptly and frequently and soon noticed a sharp improvement in students' performance and his own evaluations.

Case Study 5

Dr. Logan worked hard to ensure that duty hour restrictions did not disrupt her residents' educational experience or clinical care. Her carefully planned senior resident night float effectively limited PGY-1 residents to daytime work seemed the perfect arrangement to keep both classes within the guidelines. She was taken aback, then, to learn that both the interns and the senior residents felt overburdened and unhappy with the experience. Her initial response was anger at their complaints, and she planned to confront them with work-hour reports to show that they were not working harder than previous classes. Instead, what she heard when she met with them changed her mind. They pointed out that most admissions to the inpatient unit came in late in the afternoon and were directed to the night float, placing most of the assessment and planning for new patients in the hands of the senior residents and leaving the interns to implement the plans the following day. Consequently, the senior residents felt like they were "on call every night," and the interns felt like they were being denied the educational value of conducting admission interviews. They did not want fewer

hours but more direct involvement with the new patients and suggested a rotating "short-call" assignment alongside the senior residents. This would allow them to perform more patient assessments and plans and would change the senior residents' role to teacher and supervisor. Dr. Logan made a few phone calls to affected faculty and implemented the change the following month. The residents commented that the responsiveness of their training director to their concerns was as important to them as the change in job description.

Case Study 6

Dr. Carter was a popular and capable third-year resident, with a roguish disdain for meaningless bureaucracy. Though attentive to his patients, he was openly defiant about treatment plans, billing forms, and insurance reviews. Despite repeated reminders and warnings, he refused to complete this paperwork until a major payor threatened to terminate its relationship with the clinic because of noncompliance with these requirements. The program director, Dr. Walters, was finally forced to convene a disciplinary hearing. Morale plummeted as Dr. Carter stirred up his colleagues over the issue. Bound by confidentiality rules regarding the hearing, Dr. Walters could not share the details of the case but arranged a meeting of the residency class to explain the rationale for the documentation requirements, the procedures that had been followed before the hearing, who was on the hearing committee, and the mechanics of the disciplinary process. One member of the class commented afterward, "Dr. Walters did not really tell us anything about Dr. Carter's case, but we felt a lot better knowing what was going on behind the scenes."

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How to Network and Be a Good Colleague

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At first blush, "how to network" and "how to be a good colleague" may seem like disparate topics. However, there is substantial overlap between them. They both involve attending thoughtfully and genuinely to the relationships that pervade our professional and personal lives. Both involve considering others' needs and our own. Moreover, learning the skills and habits to network well and be a good colleague holds immense potential to improve the quality of our lives—and our connections to one another—in academic medicine.

Our relationships with others have strong effects on our well-being and that of our colleagues and patients. The importance of the physician–patient relationship is exemplified in the model of relationship-centered care (RCC), which was proposed in 2006 as a reframing of clinical care beyond "patient-centered care" to a model anchored in values and relationships. The principles of RCC focus strongly on relationships—not only those of physicians with their patients but also the interactions physicians have

with one another [1]. Regarding collegial relationships, the RCC model states:

> Relationship-centered care recognizes that the relationships that clinicians form with each other, especially within hierarchical organizations, contribute meaningfully to their own well-being as well as the health of patients…Relationship-centered care emphasizes that clinicians ought to listen, respect colleagues, appreciate the contributions that colleagues from other disciplines bring, promote sincere teamwork, bridge differences, and learn from and celebrate the accomplishments of their colleagues.

Further evidence recognizing the value of collegial relationships comes from the Institute of Medicine's report *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curricula*, which rated learning to work in teams and organizations and physician well-being as high priorities for medical school curricula [2].

Thus, the topics addressed in this chapter have direct relevance not only to our professional lives and personal well-being but also to those whose lives we touch.

Networking

Networks—whether defined as one's network of friends, family, and colleagues or permutations of all three—can serve to support and promote our personal and professional needs while

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fostering a greater sense of connectedness and responsibility within our community. The term "social network" has taken on added meaning with the advent of Internet-based networking. Here, we use the term "social network" to encompass the entirety of one's contacts, both personal and professional.

In academic medicine, our social networks—if tended to thoughtfully—can be a primary source of social support, satisfaction, and personal and professional development. Moreover, these networks are strongly associated with scientific creativity, job performance, finding new jobs, and promotion. In addition to driving individual development and success, social networks are also associated with departmental and even organizational success.

Despite the large impact of social networks, many in academic medicine feel uncomfortable with "networking." We may have unexamined assumptions about what networking means—perhaps associating the term with insincerity, using other people for one's own gain, or other negative connotations. If we do recognize the utility of networking, we may feel that we do not know how to network or that we do not network as much as we could or even as much as we believe we "should." This is unfortunate, for several reasons. First, those who are uncomfortable with networking and developing the power of their network may misunderstand what constitutes "effective networking" and how "social networks" affect their members—and therefore may be missing out on important opportunities. Second, those who are more uncomfortable with networking may be precisely those individuals who should network more—in other words, lack of networking may reinforce avoidant tendencies and may become a self-fulfilling prophecy of relative isolation. Third, failure to network has costs, which, though difficult to measure, are nevertheless important to our individual and collective success.

The need for improved use of the positive aspects of our networks has never been greater. Recent research on peak and frustrating experiences of academic physicians revealed that relationships were a central theme in respondents'

descriptions of their most satisfying and frustrating experiences in academic medicine [3]. Using qualitative interview methods, the authors reported that faculty who discussed their most frustrating experiences tended to identify a lack of supportive relationships, feeling socially isolated, not being recognized as a person beyond her or his professional work role, disrespect and mistrust or low trust, and the negative effects of "competitive individualism." On the other hand, faculty who discussed peak experiences linked them with positive relationships, emotional support, a sense of belonging, and collaboration. Positive aspects of relationships with colleagues illustrated the support and connection that networks can provide. For example, one of the senior women interviewed expressed both her lack of overall connectedness within her institution and the importance of the research group itself to her sense of belonging: "I felt very little of a sense of belonging except to my own research group, which felt like a team with a wonderful mix of people." Another early-career faculty member described his feeling of isolation by stating: "I couldn't pick out anybody that I corresponded with by e-mail or letters out of a line-up. I knew very few people in different divisions. It was very much an isolated situation. Go to your clinic, do your thing, go back to your office, go to the medical suite, do your procedures, go back to the office."

The authors of this study concluded that disconnectedness is a major challenge in academic medicine and recommended that institutions work to improve "relational practices in medical schools," with putative beneficial effects on communication and collaboration in all of the core missions of medical schools, as well as "a more satisfied and energized faculty."

Another recent study found substantial levels of depression, anxiety, and job dissatisfaction among medical school faculty, although overall life satisfaction was high [4]. The authors were particularly concerned about findings of higher levels of depression and anxiety among younger faculty. Taken together, such findings underscore the need for greater attention to the relationships that support, promote, and nurture the current

and future generations of academic medicine faculty. Effective networking is one way that individuals can work to bolster their sense of belonging and foster greater connection among their colleagues. Moreover, institutions can and should work harder to help faculty develop broader networks of ties with one another, in turn fostering greater institutional cohesion and morale.

Effective networking does not mean collecting as many business cards, phone numbers, or online friends or connections as possible. It does not mean being inauthentic or viewing others instrumentally or in an objectified fashion. It does not have to substitute for performance but, rather, can become a tool for performing well.

Key Concepts

- Social networks: The social structure of a group, comprising the individuals and the relationships (or lack of relationships) between them
- The power of weak ties: The finding that people are more likely to get help from weak relationships than strong ones
- Relationship-centered care: Care in which central principles and values are focused on relationships, i.e., between patient and clinician, among clinicians themselves, and between clinicians and themselves [1]
- Positive "no": A "no" sandwiched between two "yes's" or other affirmative statements

An entire field of social network analysis examines how social networks operate [5]. However, most in academic medicine remain unaware of this field, its findings, or its implications for effective networking. Social network scholars view an individual as embedded in a larger web of relationships. In this web, a node represents each individual, and the lines connecting the nodes represent the ties or relationships between individuals. These ties can be strong or weak and can be of various kinds, for example, friendship networks (who likes whom) or advice networks (who goes to whom for advice). In this

way, a social network can be mapped and made visible. As shown in Fig. 1, our social networks are the context in which each of us is embedded.

Networks provide social support. They also affect one's professional life. In one of the seminal studies in social network analysis, Granovetter explored whether people tended to get new jobs from job postings or through informal social networks and whether jobs were found primarily through stronger relationships or weaker ones [6]. The main finding was that most people found their jobs through informal relationships. Another finding was that the strength of the relationship also mattered. Surprisingly, Granovetter found that people were far more likely to get jobs through weak ties rather than strong ones. This is a key finding for understanding how "weak ties" in social networks can translate into important opportunities in academic medicine.

We share information with those in our network. And new information is a primary mediator through which social networks translate into results. For instance, one may learn new and critical information that will only be available to others at a later date, e.g., that a job will be available in a given department or specialty in approximately 3 months but that this information will not be made public until then. Even more beneficial is knowing about an opening in a given clinic or hospital ahead of time—even before the job duties and requirements have been finalized, when one can help negotiate the job requirements to match one's skills and background.

If social networks are the key to information, why is cultivating "weak ties" important? Further research in social networks discovered that it was not the weakness, per se, that caused the advantage. It was something that tended to correlate with weakness—diversity [7, 8]. Our tendency is to like people who remind us of ourselves. This "similar to me" effect is a widely studied phenomenon in social psychology [9, 10]. Internists, pediatricians, surgeons, and psychiatrists—we tend to stick together and feel more comfortable with our colleagues most similar to us. This may be even more of an issue in medicine than has been documented, because of increased specialization.

Fig. 1 Example of a social network: *circles* = people, *lines* = relationships. (Image from Burt RS. Brokerage and closure: An introduction to social capital. New York: Oxford University Press; 2007. Reproduced with permission of the Licensor through PLSclear)

Left unchecked, however, this tendency can cause us to limit our strong ties (and perhaps all of our ties) to overly similar others. This is problematic in academic medicine because we tend to know the same people, read the same journals, and have access to similar information. Even though we may be motivated to help one another, our "help" may not be very helpful. If your network largely comprises people who are very similar to you, they are unlikely to have information that is new to you.

The key to enhancing the benefits of one's network for problem-solving and performance is diversity. Access to new and different information enhances creativity. Sometimes creative solutions are developed by importing something (e.g., information or a procedure) that is common in one domain into another domain in which it has not been used. For example, medical education may draw on leadership principles that are

common in the fields of organizational behavior or organizational development to create physician leadership programs that are novel and effective in the medical domain. Organizational scholarship was enhanced by applying open systems models from biology to organizations.

Diverse networks can also lead to creativity when one brings together unconnected information in new ways. Dr. Deborah Rhodes' development of gamma mammography exemplifies this type of creativity [11]. She had an identified problem, the high error rate in X-ray mammography interpretation. Rhodes met a nuclear physicist, Michael O'Connor, who mentioned that he had just returned from a conference in Israel where someone had reported a new type of gamma detector. The new detector was manufactured through a completely different process and could be made very small. Rhodes knew that breast density is strongly associated with X-ray

mammography interpretation error rates and that gamma detectors are not influenced by breast density. But gamma detectors have not been very useful in detecting breast cancer because of their size and bulkiness. She wondered if the new detector would be usable for mammography. Rhodes, an internist, and O'Connor, a nuclear physicist, along with a biomedical engineer, two radiologists, and some duct tape, were able to develop and test the molecular breast imaging machine (MBI), which has now been demonstrated to work extremely effectively with high-density breast tissue.

There are two complementary ways of looking at diversity. One is to directly look at your network members. To whom are you connected? To what extent does your network have diversity or manifest homogeneity? Another approach is to look at the map of the larger network structure. This method is particularly important for accessing information that others do not have. If you are connected to people who are also highly connected with one another, you all probably share a lot of the same information. If you are connected to people or groups of people who are not otherwise connected to others in your network, you are in a brokerage position. This position will provide you with more opportunities and more information that is not shared by others. Practically, this also means that you are more likely to be seen as an "opinion leader."

Networks may be even more important for women and minorities in academic medicine. Women in academia tend to experience more social isolation [12–14], which negatively affects career progression. But everyone can benefit by paying attention to networks, increasing the diversity of the networks, and enhancing the ties within these networks.

How can you increase the diversity in your network? By being authentically curious about others. People are interesting. And if you learn more about them, you are more likely to learn something about them that you like. You are also more likely to identify something that you share in common. We already mentioned the "similar to me" effect. People like people who are seen as similar to themselves. However, the "similar to me" effect is perceptual; it does not take very much to induce a feeling of similarity. If you discover something that you and another person share in common, this similarity, however small, is likely to cause both of you to like each other more. In this way, the "similar to me" effect can be harnessed to increase diversity in a network by building trust and liking among people who are dissimilar in many ways by finding something (e.g., hobby, interest, and attitude) shared in common. However, feigning similarity is ill-advised: although it may increase another person's liking for you, it will do nothing positive for your liking of him or her. You may even like the person less for believing your falsehood. That said, it is usually not too difficult to find something in common with others.

Woody Allen famously said that 80% of success is just showing up. You need to be visible and interact with others in order to build relationships with them. Increasing your visibility keeps you "top of mind" for others. When someone discovers information or opportunities that would be relevant for you, that person needs to remember the relevance or will not do anything about it. Visibility also matters because people like what is familiar, the mere exposure effect (Bornstein, 1989). Being seen more often makes you more familiar and thereby increases liking. Finally, visibility and frequency of interaction provide the opportunity to develop relationships with others and to build a reputation.

A famous study at MIT found that functional distance on a dormitory hall was a powerful predictor of friendships [15]. People were 41% likely to be friends with their next-door neighbor. The likelihood of friendship dropped by almost half for those living two doors away and to 10% for those living four doors away. More recently, Lee and colleagues studied the relationship between physical distance apart among Harvard biomedical researchers and the effect on publications [16]. They found an inverse relationship between the actual distance between the first and last author and the mean number of citations of their publications.

Physical space and distance continue to matter, despite the ubiquity of technologies that make it easy to work together over distance. So, engage in activities that bring you into greater proximity

to colleagues and potential colleagues or collaborators. Going to conferences, joining special interest groups, and volunteering your time all provide activities in which you are likely to meet others and engage meaningfully. By trying something new, you are also more likely to meet interesting others who are different from you. Meeting people while engaging in activities is also helpful because it allows you to interact in a way that enhances the likelihood of learning about another as a unique human being rather than as an object. How many people do you see regularly? Who are they? And what do they see when they see you?

Exchanging favors is a powerful way of building relationships with others. Helping others requires thought about others' interests and what would help them, which builds the habit of seeing others as people rather than objects. Attempting to thoughtfully help others sends a signal that you care about their well-being. Helping others also elicits reciprocity, a desire to respond in kind [17].

We have two caveats regarding favors and mutualism. First, do not downplay favors. How many times have you responded to a strong and sincere thank you from someone else by saying, "It was nothing"? How many times have you said it was nothing when, in fact, doing the favor entailed real effort? If the favor really required no additional effort, by all means say so. However, if effort was required, you are shortchanging yourself by discounting your effort on the other's behalf. Even worse, you, in effect, signal that you were not concerned about the other's well-being; you merely helped because it was easy to do so. This is the wrong message to send and can undermine relationship building. Instead, a brief "It was my pleasure to help" or "Happy I could help you out" is more genuine in demonstrating your underlying motivation. Second, although reciprocal favors often ensue, they should not be expected.

Being a Good Colleague

Nice is different than good. –Stephen Sondheim

We receive many messages in academic medicine, including the message to be a "good citi-

zen" within our department and institution. Does being a "good citizen" entail being "nice"? This confusion between "nice" and "good" may be one of the seeds of disillusionment. In the study cited earlier, a lack of recognition for the daily work of academic medicine was mentioned as a negative aspect of professional life by an early-career woman physician:

> We're not rewarded by the medical school at all. We're not recognized. A few people each year might be recognized, but for the ongoing day-to-day grind, we're not recognized by the medical school for our efforts. [3]

Thus, while many in academic medicine feel a great deal of pressure to meet some standard for being a "good citizen" or "good colleague," there may be a knowledge gap in understanding what these standards entail. Some try hard to be "good" by, in essence, being "nice"—e.g., by volunteering for many committees, taking on numerous clinical duties, shouldering heavy teaching responsibilities, or taking on more in writing or editorial responsibilities than one can realistically handle. If these tasks begin to feel like more than one's fair share of citizenship, they can lead to burnout, resentment, and disillusionment. Therefore, it is worthwhile to get clarity on what it means to be a "good" colleague.

Increasing the diversity of your network does not mean that you will blindly build relationships with everyone, nor even everyone who is different than you. If someone demonstrates that he or she is untrustworthy or unpleasant, you may choose to not build a relationship with that person. To what kinds of colleagues are we most suited to being "good" colleagues? This kind of reflection means being honest with ourselves. Personal experiences may have taught us that some colleagues may just rub us the wrong way or treat us disrespectfully or be manipulative or even dishonest.

We do not need to "force" a relationship that we know is not going to work, and we need to listen to our instincts. It is important to find mentors and collaborators whose work and team style mesh well with our own and to acknowledge that it is fine to *not* want to work with everyone and to say no to collaborations or other collegial activi-

ties that we know will not be productive, will be psychologically unhealthy (e.g., an abusive colleague), or will otherwise be too stressful. "Going along to get along" in spite of our reservations may be at the root of many of the difficulties we encounter or witness in academia. Therefore, being a good colleague does not involve subjecting oneself to harmful situations or even situations that are less than satisfying, simply for the sake of some notion of "harmony." This may go against the ways that some of us were socialized to behave; however, it is fundamental to healthy relationships with others and ourselves to heed one's better judgment, including listening to nagging doubts. When in doubt, seek out a trusted friend or confidante with whom to discuss these issues before jumping into, or ending, a work relationship.

Similarly, we have recommended engaging in favors. However, this does not mean that you should say yes to every request (see chapter "How to Be Organized and Manage Time"). Saying yes and saying no are equally important. Saying yes to a committee assignment, clinical or teaching duty, or research collaboration simply to be nice is a recipe for resentment. If others fail to recognize and value your favors, you may choose to say no. Saying no when you lack the interest or time to invest and do a good job is not only good; it is the right thing to do. Your colleague will be better off having a teammate or collaborator who can put in the needed effort. If you say yes when you do not have the time or resources, you are likely to fail to follow through and thus develop a reputation for unreliability, not helpfulness. See Table 1 for tips on saying yes and saying no.

If you realize you have simply agreed to too many obligations, it is better to let your colleague know sooner rather than later, in fairness to the other person. Waiting until later leaves the colleague with even less time before the deadline to make up the work that you have chosen to not do. Avoiding a difficult conversation simply puts the other person in a tougher position later. If at all possible, find someone who can fill in for you in the task.

If you have a colleague who is asking things of you that you feel are unreasonable (e.g., to edit

Table 1 Tips for saying "yes" and saying "no"

Saying "yes"
Be enthusiastic about new roles or duties when you do accept them (no one wants a grudging commitment)
Indicate your desire to do a good job (no one wants a colleague who is saying "yes" but does not intend to do their best.) Even though you may think that this goes without saying, it does not
Be clear *why* you are saying "yes," as this can be an opportunity to strengthen relationships and indicate your interests and your desire to help others (e.g., "I enjoy working with you." "I liked our previous collaboration a lot." "I know I will learn a lot about [X] while working on this." "I enjoy working on these issues with others who care about them.")
Discuss any limits up front and negotiate these when necessary (e.g., if you need additional time, want to enlist a coauthor, etc.)

Saying "no"
Saying "no" with no explanation can appear abrupt or rude
Saying "no" but being clear *why* one needs to say "no" is likely to be respected
When saying "no" to specific requests (e.g., manuscript reviews), consider whether this may be an opportunity to help a colleague (e.g., suggest a colleague with appropriate expertise who might be able to review the manuscript and who may need some scholarly activities.)
Saying "no" to obligations that one cannot fulfill is appropriate and helps your colleagues. When possible, try to identify an appropriate alternative
If there are conditions that might turn your "no" into a "yes," ask about these. The other person may not have considered these possibilities, but might be grateful for your creativity. For example, a writing assignment may be more feasible, and more fun, if you enlist a colleague or a mentee

a manuscript with a 2-day turnaround time), you need to speak up—for your own sake and your colleague's. Being clear and straightforward—and leaving out any associated emotions—is the best way to address these situations. For example, here is some wording to handle the urgent or quick-turnaround request:

I am eager to read your manuscript and appreciate your asking for my thoughts on this. However, it is important to me that I do a good job in my responses so they can be most useful to you. I would need a week to get this back to you, due to my other obligations. I had a couple of thoughts about how we could handle this: one would be that I go ahead and send you my comments by the end

of next week; the other option would be for me not to take this on at this time. I would be more than happy to look at a later draft. Let me know what you would prefer.

Colleagues and Life Balance Issues

We all have times when it is wholly appropriate to invoke our "life" as in need of care and feeding, including setting limits on new obligations—e.g., not accepting work with urgent deadlines prior to leaving on vacation.

William Ury, the negotiator and author of *Getting to Yes*, has written in *The Power of a Positive No* that the key to saying no effectively is respect [18]. This idea sounds simple, but it can be very challenging to deliver a respectful "no" that does not hurt or offend. Ury does an excellent job describing the components and skills needed to use "no" effectively and to maintain relationships in the process.

In developing strong and trusting relationships with colleagues, much of the advice on networking applies: Stay in touch. Be genuine. Be curious. Basic courtesy is also critical. But most important, be trustworthy. If someone confides in you, do not use that information to gain an advantage. The benefits of being trustworthy in the work setting far outweigh any perceived benefits of being "strategic" in manipulative ways.

Finally, development of a network of trusted colleagues can make all the difference between a fulfilling career where great satisfaction comes from our work relationships and a job that one is eager to leave each day. Being a good colleague to others will bring its own rewards.

Supporting Your Colleagues in Their Careers

Being a good colleague also means looking for opportunities to help your colleagues advance. You can nominate people for awards and recognition within your institution and in local, regional, national, and international organizations. It is quite an honor to be recognized by one's peers as deserving of these awards. Look for opportunities to nominate people who have not received recognition already but who are clearly excelling in their work.

Other opportunities exist to help your colleagues—such as by suggesting their names as speakers, teachers, administrators, or collaborators for any number of projects. This fits in nicely with the concepts of saying no in a positive way: "I would love to help you out with this chapter. However, I am overcommitted right now. But I do have a colleague who I think would do a great job on this."

Clearly, one of the most common requests in academic medicine is for help for another colleague's relatives, friends, or neighbors with medical issues, questions, or referrals. Curbside consultations, requests to "squeeze in" new patients, and even urgent calls asking for help are commonplace. Clearly, these requests can put the academic clinician in a very difficult situation on several levels—personally (by taking up precious time), professionally (by putting pressure on the academician and sometimes by challenging the limits of competencies), as well as ethically (by seeking favors that allow well-connected people to "jump the line" for clinical care). When possible, offer help within your comfort zone of competence, offer referrals to clinicians in whose skills you feel confident, or simply try to provide a positive no if you truly cannot help at that time. Clarify that while you are happy to brainstorm quickly, you are not always available to solve complicated problems or take on new clinical responsibilities.

Being a good colleague, then, involves knowing oneself, knowing one's limits and traits, and working with those optimally, with appropriate boundaries, in one's interactions with colleagues.

Ironically, those who are focused on instrumentally "networking" tend to behave in ways that cause them to lose network benefits. Networking by developing an interest in others and growing authentic relationships with colleagues supports the individual and the network. The more that one thoughtfully gives to one's network through social support and diverse information and skills and greater creativity, the more benefits that one (and one's network) reaps. Many

of the biases that can disrupt powerful networks (e.g., the "similar to me" effect) can be avoided and even harnessed to increase diversity and authentic relationships rather than minimize them. The key is to be authentic and to care, both about others and for oneself.

Words to the Wise

- Be passionate.
- Be sincere and genuine.
- Be curious about others and demonstrate your interest.
- Expect the best and see the best in others.
- Identify nonobvious similarities with others.
- Seek out diversity.
- Engage in a variety of activities.
- Serve on committees.
- Attend grand rounds and participate.
- Interact with others you might not otherwise contact.
- Help others and do favors (and don't discount these).
- Accept help and favors from others (even small ones).
- Every interaction is an opportunity to demonstrate trustworthiness and reliability.
- Keep in touch with others.

Ask Your Mentor or Colleagues

- What have been the most effective ways you have found to network?
- What organizations have you joined, and what has been your experience with those?
- Where/how would you suggest I consider looking, if I am trying to diversify my network?
- What skills and qualities do you find most/least helpful in your colleagues and collaborators?
- What do you find most satisfying/least satisfying in your day-to-day work relationships? What would you suggest as ways to improve those relationships?
- Have you had any experiences that you found to be particularly good/bad for networking? Why? What would you have done differently?

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How to Collaborate Interprofessionally

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Collaborating with other professionals is not only necessary, but it can also be one of the most rewarding aspects of working within the medical field. Increasingly, medical decisions are being made based upon the input of a team of healthcare providers, each providing a unique perspective based on his or her specialty. An effective collaborator communicates information clearly and concisely, creating a seamless transition from one provider to the next. A bad or poorly planned hand-off can result in unnecessary frustration for the medical team, increased medical costs, lengthy stays, and potential negative consequences for patients.

Interprofessional collaboration, defined as different professionals working together to achieve a common goal, is utilized in other settings besides clinical care [1]. Many research projects now integrate multiple specialties in order to incorporate findings into a larger medical picture. Education regarding the role of other disciplines is also increasingly encouraged as a way to facilitate collaboration and further knowledge.

Despite the often-vital role of interprofessional collaboration in medical decision-making and in research, best practice guidelines are often loosely defined. The aim of this chapter is to provide helpful advice on how to get the most out of collaborations in the three domains of research, clinical care, and education.

Research

Setting Up a Research Team

Conducting research with professionals from different fields can be stimulating and result in creative and diverse approaches. Finding and selecting research collaborators requires planning and deliberation. An experienced researcher will carefully consider all aspects of a project and the contribution each collaborator can provide. Below are examples of elements to consider when forming a collaboration:

- A collaborator should be chosen based on the needs of the project, area of expertise, and publication track record. In clinical studies, a collaborator with experience in both research and clinical care can be invaluable.

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- Collaboration history, personality style, and collegiality are other attributes to consider in forming a team.
- The PI should communicate clearly how emergencies should be handled, who is to be contacted, and contingency plans if that person is unavailable, particularly for research involving human subjects.

Choosing to Become a Collaborator

Being offered an opportunity to collaborate on a project can be flattering, and early-career faculty especially may readily accept without considering the situation realistically. It is easy to overextend oneself with a resulting decline in work quality and production. Before accepting a request to collaborate, consider the following:

- Is the project something that utilizes your skill set, or is it a task that might be better suited to someone else?
- Is the project/research question something that interests you enough to make the time and effort expended worthwhile? Does the project fit within your academic portfolio and research career trajectory?
- What are the burdens and benefits to you? Will saying "yes" open professional doors? Will it help build a case for academic promotion?
- What are the reputations of the PI and other collaborators?

Make the Collaboration Work for Everyone Involved

Fostering a strong and collegial relationship can pay dividends for a researcher in the future. Not surprisingly, successful groups often continue to work together on future projects and can be highly productive. Developing this type of cohesive group has some particular challenges when collaborators are from different disciplines or have different areas of expertise. Communication becomes even more important as it is easy to

assume that others have the same knowledge base and experience.

- Set clear expectations regarding roles, work division, staff supervision, data checking, and expected completion of the project.
- Discuss authorship at the onset. Most professional organizations have clear guidelines determining authorship and authorship order, but creating a consistent standard within a collaborative group can prevent future conflict. See chapter "How to Write and Publish an Empirical Report" for more on authorship.
- Be proactive in managing work with collaborators. Progress on a research project is often contingent upon feedback from collaborators. Procrastination can delay the project and be discouraging for the team.
- If your circumstances impinge on timelines, inform your colleagues. Professional demands may cause delays in meeting research deadlines. Yet, publication submission may be necessary for academic promotion or a grant submission for yourself or for your colleagues.
- In academic centers, costs change over time (e.g., increases in annual fees, replacement of equipment, and other operating costs). The principal investigator (PI) should draw input from collaborators to include these potential changes in a grant proposal.
- Communication by e-mail is convenient, but regularly scheduled conference calls or meetings allow interprofessional collaborators to ask questions and explain issues more fully. It also aids in group cohesion.
- The team should set a clear itinerary for study participants based on input from involved collaborators. If a study subject has multiple stops during a day, does a research assistant meet the participant at each department? Who collects the consent form? A sloppy hand-off or disorganized agenda look unprofessional and can deter a participant from returning.

A well-designed and organized multidisciplinary study can be productive for everyone involved. Conversely, failure to adequately plan

and communicate can be frustrating and wasteful of time and resources. An interprofessional research team that is carefully selected and thoughtfully constructed can facilitate a comprehensive and integrative study.

Clinical Care

Today's health care has been changed by an aging population, a transition from acute to chronic disease management, and a shortage of physicians. In the context of limited resources, there has been increased interest in and experimentation with interprofessional collaboration in clinics. This is particularly true in primary care and is most evident in collaboration between the primary care provider and advanced practice providers (nurse practitioners and physician assistants). Other disciplines have also begun working in primary care settings, including pharmacists and mental health providers. Their focus on education and treatment adherence is part of a trend toward wellness, as is increased inclusion of the patient in their own health-care decisions [2].

With these changes, interprofessional collaboration in clinical care has become increasingly recognized as valuable; research has shown that effective teamwork in a medical setting decreases medical errors and increases patient quality of care [1, 3, 4]. As a result, implementation of health-care standards now explicitly requires collaboration in some instances. For example, Universal Protocol, mandated by the Joint Commission on Accreditation of Healthcare Organizations, requires a surgical team (including the surgeon, anesthesiologist, nurse, and surgical technician) to together perform a final time-out prior to surgery, thus reducing wrong site, wrong procedure, and wrong person surgery [5].

As health care has become increasingly competitive, a customer service model drawing on "lean" methodology used by Toyota (i.e., Toyota Production System) and other manufacturing industries is being implemented in health-care settings. This patient-centered model, designed to ensure safety and quality of care by reducing inefficiency and waste, also places importance on interprofessional collaboration. For example, the interdisciplinary rounds that have been standard on inpatient acute rehabilitation units and psychiatric wards are increasingly being used on medicine units. Rounds include different specialties (e.g., pharmacy, nutrition, rehabilitation, case management, nursing, and medicine) as well as the patient and family, in some instances. These rounds, in which each patient is briefly discussed, maximize communication as the team summarizes goals, and each provider contributes to advance the plan for care and for discharge. This open communication ultimately improves patient care and decreases length of stay [6, 7].

Successful interprofessional collaboration within a medical team is often reliant upon top-down and bottom-up strategies. Top-down factors are predominantly organizational in nature, using structure and formal processes (e.g., team meetings) to facilitate communication among team members [8]. In addition, bottom-up factors foster an environment conducive to collaboration. For example, structuring the work environment so team members are housed within a shared yet confidential space has been identified as important in promoting informal consultations and increased communication between providers [8].

The Institute of Medicine Committee on Quality of Health Care in America has suggested that interprofessional health-care teams can best address the complex health needs of today's patients [9]. Teaching health-care professionals the skills to work in a collaborative setting has becoming increasingly valued, and university health-care systems have begun implementing interprofessional education programs to address this need [10]. Simulation-based trainings are increasingly used in medical settings to teach learners effective interprofessional collaboration in a safe environment. Learners are placed in mock critical scenarios in situ (e.g., medical code on an inpatient unit) and asked to participate in their expected roles, followed by a debriefing [11]. Such trainings can highlight the real tensions that can occur in a hierarchical team setting and facilitate better understanding of effective collaborative care.

In 2010, a joint panel of health profession schools proposed four core competencies for interprofessional collaboration in health care, which include the promotion of value and respect among professionals, being cognizant of professional roles, effective interprofessional communication, and an appreciation for the value of teamwork [12]. Unfortunately, many present-day clinicians have not received any training in interprofessional collaboration, and the following section provides some practical suggestions.

Consultation

Basic knowledge of other disciplines has been a neglected component of medical education. Even within a specialty, knowing who is best to evaluate a particular patient is often unclear. Before issuing a referral, the referring clinician may want to consider the following:

- What do I want to know? Does the referral question state my request clearly?
- Am I sending the referral to the appropriate department or person?
- If there are other referrals or tests to be performed, is there an order in which they should be done to best answer the question in a way that ensures accurate information and yet minimizes overall cost?

If unclear about the department's services or the appropriate provider, the referring clinician may consult with colleagues or a mentor, search the Internet, contact someone in the proposed department, and/or request a quick curbside consult. Requesting an in-service training may be especially helpful if it is likely there will be some overlap of care in the future.

If, on the other hand, the health-care provider is serving as the consultant, he or she may find the referral question to be unclear or vague. As a consultant, you can be most effective by being proactive:

- Contact the referring provider directly via a phone call, or secure e-mail to best understand what information he or she is seeking and any further history or concerns.
- Clarify who will provide feedback to the patient, as this may be only one consultation in a sequence.
- Write the medical note/report clearly, minimizing jargon and avoiding acronyms and abbreviations.
- Explain how conclusions were formed and why other diagnoses may have been ruled out.
- Assume that the patient will see the report or medical note. Answer the referral question but couch it in a sensitive manner.

Coordination of Care

Communication between providers is imperative for successful clinical care. Lack of role clarification and decreased time dedicated to communication with team members can each be a factor in poor coordination of care [13]. Below are several tips for improving communication in interprofessional collaborations.

- Unless ordering a specific procedure or laboratory test, the referring provider should leave the method to answer the referral question to the consultant's expertise and discretion.
- The consultant should be sure that medical notes/reports are routed to all pertinent treating providers.

In some instances, when a patient requires specialty care on an ongoing basis, such as with a neurological illness like stroke or epilepsy, the consultant becomes a principal care provider. This new dynamic may complicate clinical care [14, 15]. Below are some tips to improve interprofessional collaboration in these situations:

- If there are multiple health-care providers, the treatment team should determine who will be the point person for coordinating care.
- The report or medical note should clearly state who will follow up on suggestions and who will issue any further recommended referrals.

- Providers should educate the patient on each consultant's role within care planning and who will be conducting follow-up care. This will prevent patients from feeling shunted between providers and will add clarity to roles.

Education

Presenting material, whether through the larger audience of grand rounds or at a smaller departmental meeting, is an important aspect of facilitating departmental collaboration (see chapter "How to Give a Lecture"). A health-care professional may be asked to perform in-service training for another department, provide his or her expertise on a difficult case, or simply present an outline of the services a specialty clinic can provide.

The purpose of the lecture will greatly influence what and how material should be covered. It is important that the lecturer is clearly informed of any expectations. For example, if the lecture is for a course, is there an expectation that the lecturer covers specific material? Should the lecture be designed to address course objectives, or will there be exam questions based on the presentation? Furthermore, if the material presented is to help students prepare for a board examination, the lecturer should be notified so that he or she can adjust material accordingly.

Know the Audience

An effective presentation provides material that is at the level of the audience. This is particularly important when presenting to another discipline or several other disciplines. The presenter may want to consider the following questions when designing a presentation:

- What does my audience already know?
- If lecturing in someone else's course, what information does the professor want me to provide?

- What information can I provide that is directly relevant to the clinical population treated by the audience members? Are there frequently asked questions I can address in my lecture (e.g., what is an appropriate referral)?

Collaborating in a Multi-presenter Course

A course director may wish to consider using an interdisciplinary team when presenting information. This can be beneficial for several reasons. First, the inclusion of presenters from different backgrounds will likely create a well-rounded picture of the topic. Second, an interdisciplinary presentation can develop a richer understanding of how different fields interact and increase respect for the services each discipline provides. It is important, however, for the presenter to talk with his or her collaborators in advance and communicate who will cover what material.

Training Program Collaboration

Increasingly, training programs are recognizing the role of providing an introductory overview of disciplines that frequently collaborate, such as medical residents briefly shadowing other professions during their clinical duties. A cursory understanding of the clinical services provided by each team member results in more appropriate consults, coordination of clinical language, and better understanding of how to optimally utilize services. These informational rotations and trainings can be delivered in clinical settings without detriment to clinical care or significant burden on trainee schedule [16]. In academic training programs, whether student clerkship, residency, or fellowship, all members who participate in the program must meet regularly, preferably in person to discuss the program's strengths and weaknesses. Setting clear expectations for program goals will reduce ambiguity. Areas of needed change can then be implemented.

There are also formal training programs in place aimed at improving interprofessional collaboration. In 2007, Veterans Affairs (VA) initiated the VA Interprofessional Fellowship in Patient Safety with the goal of training learners in ways to improve patient safety in medical settings [17]. The program examines factors that are associated with effective interprofessional collaboration by utilizing systems theory and implementation science, which has resulted in dozens of publications focused on methods to improve team-based care and decrease medical errors.

Conclusion

One of the greatest benefits of working in an interprofessional team is the ability to utilize others' areas of expertise. For many beginning professionals, knowing who to ask and how to clearly communicate a request is sometimes more difficult than expected. The most important recommendation is to ask questions and form key contacts within your center. Taking the time to communicate clearly and frequently can be invaluable in both a research and clinical setting. Similarly, basic knowledge of other departments can facilitate effective teamwork and prevent future frustration.

Words to the Wise

- Set clear expectations regarding professional roles when collaborating on a research project. Make sure to discuss who will perform data analysis, how authorship will be determined, and who will be in charge of IRB submissions.
- When issuing a referral to another department, clearly state the question and the role of the consultant, such as who will provide feedback to the patient.
- When presenting material to other providers, take into account the knowledge base of the audience and what information is pertinent.

Ask Your Mentor or Colleagues

- Who are good resources to help you answer a question or get things done? This is important for administrative tasks as well as professional ones.
- Who has shared research interests and is a good collaborator? Is the individual's personality a good fit with yours?
- What department would be most appropriate for answering a particular clinical question? Who is the skilled professional to refer to?

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How to Approach Mentorship: A Student's Perspective

Frederick Grady

Introduction

Students and mentors will have different perspectives on the approach to mentorship. The role of the student in a mentoring relationship is to inquire and absorb information and to learn from the experiences of those who have walked the path before. The role of the mentor in the mentoring relationship is to provide support for the student's educational growth.

Clarity, commitment, and consistency are vital to a successful mentorship experience. Students and mentors, ideally, should be in sync about their expectations of one another, creating mutual respect and appreciation for the time spent together. Accountability in the mentorship relationship builds trust between the student and the mentor. Students should engage in activities to enhance their progress in academic medicine, while mentors should participate in guiding these activities directly or indirectly.

Students endure an incredible amount of stress in their careers and may benefit from emotional support, career guidance, and sponsorship. It is especially important for mentors to help students in academic medicine to remain inquisitive by allowing students to express their creativity and discuss new ideas without fear of being shut down before the idea has had the opportunity to grow or move in a different direction.

The student must be clear about what he or she is looking for in a mentorship relationship. Once the student's needs have been established, the mentor can decide how best to approach guiding the student. It is important to understand that there is a difference between sponsorship and mentorship. Sponsorship is a model used most frequently in business [1] that involves what a mentor says about a student outwardly. Sponsorship can play a critical role in a student's development in academic medicine. Sponsorship and inclusion in grant writing are some examples of how to provide educational opportunities for students. Mentorship allows the student to continue growing in academic medicine and allows the mentor to sharpen his or her mentoring skills. In this chapter, insight into the components of a good mentoring relationship, based on experience as a medical student, are discussed.

Commitment and Consistency

Mentorship is a key component of the academic development of students in academic medicine [2, 3]. Mentorship requires more than an email once a month and casual salutations when passing in the hallway. For the student, an important part of mentorship is the mentor's commitment not only to the student as an individual but also

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to the student's goals in academic medicine. It will take time for the mentor to understand the student's goals and motivation for seeking guidance. Placing mentorship on the priorities list is an excellent way to work toward commitment.

Being a conscientious mentee involves considerable time and energy – two things that students in academic medicine have very little of. Students should make a conscious effort to show that they are committed to the mentorship that is being offered. This can be done simply by following through with verbal commitments, tracking events in a calendar, and communicating when plans change. This is a great way for mentors and students to stay on the same page and prevent falling out of touch. Mentorship should not be taken for granted, nor should the efforts of a good mentor. The student must remember that the mentor is not obligated to extend help and wisdom.

The relationship between the mentor and the mentee should be a priority for both. Students will appreciate a mentor that is willing to make time for them. Each student will require a different time commitment, and it is up to each mentor to use their best judgment on how much time to invest in order to have a successful mentoring experience. When students see that a mentor is organized and intentional about setting time aside for them, they will be encouraged to keep the mentor updated about their academic activities. Commitment and consistency build trust between the mentor and the mentee. Standards on how mentorship in academic medicine should be approached can be modeled after the 6Cs standard for nurses (care, compassion, competence, communication, courage, and commitment) [4].

Accountability

A professional relationship of any kind is based on accountability. Between a mentor and mentee, accountability is especially vital. People are generally more willing to help another person when that individual is accountable. It is imperative that mentors hold themselves accountable to check in with their mentee as often as necessary.

A good mentor will also hold his or her mentee accountable to reach out when he or she requires assistance. Barker, Rendnon, and Janis found that postgraduate mentees contacted their mentor once a week, mostly via email [5]. The mentor and mentee can ensure accountability by having mutual respect for one another's time, asking for help when necessary, and owning mistakes in order to absolve difficult situations.

Academic medicine is a non-stop, dynamic journey. Students can show respect for their mentor's time by acknowledging that their mentor wears many hats and by doing their best to navigate through challenges within their scope independently. Students should seek assistance when a situation becomes too taxing for their level of experience.

Students and mentors that are able to own and talk about their mistakes show integrity and willingness to improve. Mentors who show that imperfections can always be improved can facilitate the development of an organic professional relationship and possibly strengthen the ethical and moral compass of students.

Foster Student Growth

Sometimes students have to take initiative to advance their education. A mentor will surely be enthralled when a student asks for more tasks instead of waiting around for added responsibility. A mentor guides a student's growth; however, students are responsible for initiating and completing this growth. Students should not pester or harass their mentor for new challenges just to show that they are able to complete assignments quickly. Students should become active participants in their personal and professional growth [6]. A mentor can step in and put the student back onto the path to success when things go wrong on a specific task.

It is imperative that students are able to plan, ask questions, listen, and request feedback [6]. When receiving feedback, and especially when receiving criticism from a mentor, students should try to keep an open mind. Even if the mentor's delivery is experienced as harsh, the student

should attempt to actively listen and effectively hear what is being said. It is crucial to remember that a good mentor will have students' best interest in mind. Students would also do well to remember that their mentor has a different perspective based on his or her own experience.

Allow Open Thinking in a Safe Space

A student may not always have the answers to everything; that is why good mentorship is valuable. It is important, however, for mentors to allow students to think and speak openly about their ideas. Some of the greatest interventions and discoveries have come from the minds of students. For example, heparin, insulin, the sinoatrial node, and ether anesthesia, all of which contribute to the practices of medicine and surgery, have come from medical students [7].

Mentors should allow their students to dream and create big goals. These aspirations should be within reason of course, but mentors should try to encourage their mentees rather than tearing down their ideas. Using phrases such as "That's a great start, have you considered…" or "Brilliant, what are your thoughts on adding…" could be beneficial in facilitating critical thinking. Finding a balance between creating a close professional relationship and providing educational opportunities in order to set goals is imperative to a good mentorship experience [8]. A simple strategy to guide students in completing their goals is to allow creativity, facilitate the production of a feasible plan, and set reasonable checkpoints for the student to adhere to.

Mentors can teach students strategic development skills. The ability to create a plan is useful in academic medicine, where there are always deadlines to meet. Teaching students a fluid system that can be used to plan, execute, and adjust where necessary is essential to their development as part of the academic medicine workforce. Gaining insight into different planning techniques will not only benefit students in their education but also in their careers as professionals.

Types of Support for the Student

Students gravitate toward mentorship for various reasons, particularly because they are in need of guidance. Discovery of each student's reason for seeking mentorship will help mentors with developing an approach to best guide their mentee(s). Examples of support for students include, but are not limited to, emotional support, career guidance, and sponsorship (discussed later in this chapter).

Emotional support can be taxing on the mentor; however, it has been shown that students' self-reported mental health improves when they receive appropriate emotional support [8]. Additional recent studies have shown that medical students' sense of anxiety decreased when changes such as increased emotional support were implemented [9, 10]. Mentors can play a pivotal role in teaching students the skills needed to handle the intense emotions they may experience while making their way through the milestones of academic medicine.

Students that are looking for emotional support are seeking someone who will actively listen to them. Active listening involves using words to signify that an individual is paying attention [11]. Active listening can include eye contact. Active listening requires mentors to be intentional about the concerns of their students. When active listening occurs, it facilitates longer speaking times, thus increasing the chances of the student sharing shortcomings and problems in an open and honest way [11].

While some students may only need emotional support, others may also need career guidance.

Career guidance is an important reason why students look for mentorship. Mentorship will bring benefits to students throughout their educational development and career. It has been demonstrated that mentorship in career guidance plays a key role in the professional development and career satisfaction of students [2, 12]. Career guidance may potentially lead to a lifelong mentor-mentee bond in which both parties can share the joys of the student's success. Career guidance can direct the course of a student's path in academic medicine; therefore, it is important

that the mentor is committed to the best interests of the student.

It is imperative to work with the student to come up with a plan regarding the progression of his or her career. A mentor can then determine which personal career experiences are relevant to share with the student and how best to assist the student on his or her journey.

The Importance of Sponsorship

Sponsorship is a concept that is mostly used in the business world but has applications to academic medicine. Sponsorship has been defined as the active support of a person highly placed in an organization who is willing to advocate for those with incredible potential [1, 14–16]. Sponsorship is one of the aspects of mentorship most valued by students. An established individual advocating for a student can lead to critical changes in the student's career [1]. There are several important differences between sponsorship and mentorship (Table 1); in mentorship, the relationship is confined to two individuals (the mentor and mentee), while in a sponsorship, the relationship is more complex and involves the network of the sponsor [1, 14].

Table 1 Contrast of sponsorship and mentorship

Sponsorship	Mentorship
Sponsor is to protégé	As mentor is to mentee
Using senior position to promote students with excellent potential	Offering advice and support to students
Utilization of influence to promote student progress	Utilization of discussion to help students build skills and confidence
Driving career vision	Crafting career vision
Gives access to network and helps new connections form	Gives suggestions for networking
Utilization of reputation to increase the visibility of a student	Gives insight on how to improve visibility

Adapted from The Key Role of Sponsorship from the inclusion department at SLAC from Stanford University [17]

Mentorship involves the relationship between the mentor and mentee, in which the mentor provides wisdom, inspiration, or advice based on his or her professional experience to the early career mentee [13]. Sponsorship involves the act of speaking about the mentee in a positive way in public situations, which can lead to opportunities for the mentee [14, 15]. Acts of sponsorship are astronomically important gestures; some mentees have felt that sponsorship was necessary for the advancement of their careers in academic medicine [1]. Mentors can act as sponsors by publicly advocating for their mentees. Sponsors can also act as mentors [1, 14].

While students may avoid speaking highly of themselves so as not to be labeled cocky or pompous, sponsors are able to praise students more freely. Still, sponsorship has its risks, as it requires the sponsor to publicly vouch for the skills and abilities of the student [13]. Sponsoring only those that are deserving of high praise is good practice.

Mentors can provide students with important educational opportunities [7] and foster the development of skills not necessarily obtained through the curriculum. For example, mentors might encourage students to work on grant writing techniques or to attend academic and medical conferences.

Including students in grant writing meetings is one way of fostering important educational growth. Exposure to the style of writing that is necessary for a successful grant can be beneficial in the early career of a student. Grant writing is a key component of academic medicine (see chapter "How to Approach a First Grant Application"); however, this is not always apparent to someone early in their career.

Allowing students to attend medical and academic conferences is another way of contributing to their educational experience. This is a great way for students to gain insight into where a certain field is heading in regard to science, medicine, and technology. Conferences are also a great way for mentors to help their students practice networking skills.

Guidance for Students Seeking Mentorship

Students are often unfamiliar with how to navigate mentorship, especially early in their careers. There are many different ways to seek mentorship, and each mentor will bring a different perspective. Some tips for students approaching mentorship include the following: have more than one mentor, ask questions, take information with a grain of salt, make the most of opportunities, and pay it forward.

Having more than one mentor will allow for multiple perspectives on the same situation. Students will come to realize in their careers in academic medicine that what works for one person may or may not work for them. Students can use advice from more than one mentor to shape an approach that is best for their individual situation. Information from mentors should be taken with a grain of salt, as not all information will apply directly to a student's situation.

Students should always ask questions to ensure that they receive the information they need. If students do not speak up, their mentor may not know how best to support them. Asking questions is always good practice.

Students can show appreciation for the wisdom received from their mentors by "paying it forward" to others. Mentees can use what they have learned to help individuals on the same path. Paying it forward is a good way to signal to mentors that they have made a positive impact.

Conclusion

Commitment and consistency when mentoring students is key. Mentors and students must communicate with one another and must have mutual respect for one another's time (Table 2). Accountability in the mentoring relationship builds trust between the student and the mentor. Students should take responsibility to engage in activities that can enhance their development in academic medicine, while mentors should participate in guiding these activities directly or indirectly. Creating an open learning environment allows for ideas to be discussed without fear. Students endure an incredible amount of stress and may benefit from emotional support, career guidance, and sponsorship. Sponsorship and inclusion in grant writing are some examples of how to provide educational opportunities for students. Mentorship allows students to continue growing in academic medicine and allows the mentor to sharpen his or her mentoring skills.

Table 2 Communication tips for mentors and students

Mentor	Student
Share applicable experiences	Ask for guidance, listen with intention
Be open to students' ideas	Share ideas openly
Balance praise and constructive criticism	Be open to criticism
Check in with students	Update mentor often

Key Concepts

- Commitment and accountability by both the student and mentor are crucial to a good mentoring relationship.
- Educational opportunities are valuable to students.
- Students may require different types of support from their mentor.
- Mentorship is one on one, while sponsorship is a publicized acknowledgment of a student's.

Words to the Wise

- Create an open dialogue with mentees in order to build a strong professional relationship.
- Don't be afraid to challenge mentees, but remember to stay positive and to offer encouragement.
- Sponsorship speaks volumes.
- Realistic expectations on behalf of mentees and mentors will help maintain a professional and mutually beneficial relationship.

Ask Your Mentor or Colleagues

- What methods have you found to be most successful in maintaining accountability in your professional relationships?
- What techniques have you found to be most successful in providing educational opportunities for your students?
- What methods have you found to be most successful in providing appropriate emotional support for students?
- What methods have you found to be most successful in promoting mentorship?

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How to Approach Mentorship as a Mentee

Amy Donahue and Joel Yager

Early- and middle-career physicians, scientists, and clinicians face multiple time demands, especially within the context of academic medicine. The developmental steps from trainee to faculty entail very steep learning curves. Called upon to prioritize their time and rapidly assimilate to academic cultures, new faculty are obliged to utilize time wisely and draw upon available resources to promote efficient and successful transitions, and in these transitions mentees can greatly benefit from relationships with mentors.

Relationships between mentors and mentees may be something already familiar to early-career faculty, as the fortunate may have either formally or more serendipitously been matched with experienced faculty mentors as students. However, as some studies show that mentorship occurs for only one-half to one-third of faculty members, this is frequently not the case [1].

The concept of mentor dates back to the time of Homer's *Odyssey*, where we find the goddess Athena disguised as Mentor. Mentor provides guidance and wisdom to Telemachus, as he sets out to find his father Odysseus following victory in the Trojan War. More contemporary literature and research carries forward a similar view of mentor within the context of business management and medicine. However, a generally accepted operational definition is lacking. In an effort to standardize the construct of mentorship within academia, an Ad Hoc Faculty Mentorship Committee at Johns Hopkins University proposed the following characterization:

- A mentoring relationship is one that may vary along a continuum from informal/short term to formal/long term in which faculty with useful experience, knowledge, skills and wisdom offers advice, information, guidance, support or opportunity to another faculty member or student for that individual's professional development. [2]

Roles and responsibilities of mentees are equally as essential to these relationships as contributions of mentors. Mentoring relationships are dynamic, mutually beneficial, and inclusive of both personal and professional gains. These relationships have been identified as influential in decisions of trainees and early-career faculty to enter and remain in academic medicine. Their numerous potential benefits include, but are not limited to, increased self-confidence, improved overall career satisfaction, greater productivity, and an improved sense of professional community [3, 4]. As mentorship affects quality of life and professional choices during formative career-building years, mentees must empower themselves with knowledge about how to create and sustain successful mentoring relationships.

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How to Get Started

Self-Assessment

Starting with the fundamental belief that mentees are ultimately responsible for their own professional growth and development, an honest self-assessment by the mentee is the first step in determining readiness and goodness of fit with any potential mentor. Borrowing once again from our Greek ancestors, Socrates urges us to "know thyself." Initiation of the mentorship relationship is mediated by the mentee's personality style. Management research has shown that individuals with self-generation, commitment, motivation, and willingness to "drive the relationship" experience greater success [5, 6]. Interpersonal effectiveness and well-developed social skills are additionally important assets, as they promote successful networking and self-promotion. Mentees should consider their own personal styles, identify which traits will lend themselves to successful initiation, and capitalize on their assets. These and other elements that mentees should consider and monitor in the course of preparing for initiating and sustaining mentorship relationships are listed in Table 1.

While considering personal qualities, mentees' thinking should expand to include considerations of values and priorities, particularly those considered requisite for any successful relationship. Honesty, trust, and integrity are crucial, as relationships with mentors will require a certain amount of self-disclosure and receipt of critical feedback. Inevitable power differentials within mentoring relationships and likely collaboration on scholarly work further elevate needs for mutual respect and collegiality.

Beyond character and values, mentees must consider any personal preferences they may have when selecting a mentor. Trainees and early-career faculty may prefer to work with a mentor of the same gender or race, as these similarities may enhance their sense of identification and understanding. The mentor's location might matter. While long-distance mentoring may offer advantages of accessing skills or knowledge that are not available to mentees at their home institu-

Table 1 Mentee checklist

Before contacting potential mentors
1. Personal reflection on character and values
2. Mentor preferences
3. Self-assessment of strengths and weaknesses
(a) Personal Skills
Strengths
Weaknesses
(b) Personal Knowledge
Strengths
Weaknesses
(c) Professional Skills
Strengths
Weaknesses
(d) Professional Knowledge
Strengths
Weaknesses
4. Professional and personal development plans and aspirations
(a) 3-month goals
Clinical
Teaching
Research
Personal/family
(b) 1-year goals
Clinical
Teaching
Research
Personal/family
(c) 5-year goals
Clinical
Teaching
Research
Personal/family
5. Identify prospective mentors
(a) Type(s) of mentorship
(b) Local contacts
(c) Regional and national contacts
Initiating contact with potential mentors
(1) Write letter of intent
(2) Update and send curriculum vitae
(3) Schedule meeting
Maintaining and sustaining mentorships
(1) Contact log
(2) Review and update CV
(3) Review specific elements of professional development plan
(4) Review work in progress (grant applications, manuscripts, project proposals, curriculum projects, productivity measures, etc.)

tions, mentees might also experience greater success with local mentors within same department, as distance can impact availability and interaction frequency.

The next step in comprehensive self-assessment is to inventory one's skill and knowledge strengths and weaknesses within both personal and professional domains. Starting with the personal domain, mentees should reflect upon such capabilities as their stress management and maintenance of work–life balance. Professionally, mentees should consider all facets of their career development, including clinical, teaching, and research expectations and capacities, and begin to focus their energies on pursuing excellence in their areas of interest. What naturally follows will be drafting a professional development plan, which includes short-term, mid-range, and long-term goals. A professional development plan should outline plans for growth in specific areas of interest. Not only will such plans allow mentees to begin to visualize road maps to the successes that they seek, but they will also enable mentees to identify the specific expertise they will require of mentors and to make mentor selections accordingly.

Mentor Assessment

After completing self-assessment and achieving clarity about specific needs, the next step is to identify mentors that best meet one's requirements. Formal mentoring programs exist at some institutions; by utilizing processes already in place, mentees will facilitate their information gathering and ability to make initial connections. In the absence of a formal mentoring program, mentees should proactively outreach peers and senior faculty. Identifying faculty with similar interests and complementary talents is crucial, but equally important is determining their interest in and availability for mentoring. Mentees should ascertain potential mentors' reputations for successful mentoring, which will reflect their enthusiasm, abilities, and commitment to the process. It is also important for mentees to align themselves with senior faculty who are accomplished and established within their areas of expertise, as they are most likely to have both theoretical and practical "know-how" and the ability to promote salient professional networking.

Mentees should appreciate diverse forms of mentoring, including dyadic, group mentoring, peer mentoring, and mosaic mentoring. Dyadic mentoring describes the more traditional form, one-on-one relationship with a more senior and experienced counterpart. Individual mentors may be called upon for overall guidance and support with life and career planning, but they may also be selected for guidance in areas of specific competency building, such as technical or administrative capacities. In group mentoring experienced individuals provide their wisdom and guidance to groups of early-career faculty, often as a way of extending their limited availability to larger numbers of mentees. Peer mentoring can also occur in groups, but without the immediate availability of senior influence or input. Peer mentoring can be beneficial by creating supportive problem-solving friendly environments for individuals at similar early developmental levels. Models for peer mentoring groups have been described in the literature; one such group at Duke University heralds over 4 years of member retention and measured results such as numerous publications, national presentations, and successful competition for career development awards [7]. Finally, mentees may consider mosaic mentoring, essentially combining all forms of mentorship. Seldom is one individual mentor capable of meeting all the complex and evolving needs of the mentee, so enlisting the support and guidance of multiple individuals will often yield the best results.

Next Steps

Engagement

Once the prospective mentor or mentors have been identified by the mentee, the next step will be to initiate contact. The initial contact may be via email or telephone call, to briefly explain the purpose of the outreach, to establish the mentor's availability and potential interest, and to schedule a meeting. Depending on circumstances, the mentee should also consider sending a curriculum vitae (CV) and cover letter of intent to any prospective mentor prior to a personal meeting,

approaching the relationship much as one would with any potential employer. Providing information in advance will not only allow the mentors to gauge if they can meet the mentee's specific needs but will also allow them to consider whether they have time and interest to invest in the commitment. In some instances, mentees will have to be persistent, since not all requests are going to be met with quick acceptance. Mentees may also discover that while someone may appear in theory to be an ideal match by reputation and credentials, a personal meeting may rapidly uncover incompatibilities in personalities.

At the time of the initial meeting, mentees should be clear about their requests and highlight what they have to offer the relationship in time, energy, and talents. Mentees are well served by following up the initial meeting with a written summary of the discussions and, regardless of outcome, expressing appreciation for the opportunity to have met. If the potential mentor turns out not to be a good match, the mentee should consider asking that person for additional personal recommendations, based on their understanding of the mentee's needs and approach to the mentoring relationship. While they themselves might not be suited to meet the mentee's stated needs, senior faculty may still serve as resources and might be able to make helpful connections.

Maintenance

Once a mentor relationship or mentorship team is established, the mentee should utilize the first few meetings to solidify the agenda for the relationship, for example, determining the frequency of visits, typically every 2–4 weeks, and agreed-upon goals. In advance of these meetings, mentees should always do their homework, demonstrating their commitment to the relationship by coming to mentorship meetings well prepared.

Communication may become increasingly nuanced as mentees become better acquainted with their mentors, particularly as challenges begin to arise. Mentees are well served by being mindful of the workplace, setting realistic expectations for themselves and for their mentors, accepting feedback gracefully, and being active listeners who invite and are open to constructive critique. The challenge for mentees is to find optimal balance between unconditionally accepting and questioning the voice of experience and being open to growth and change while maintaining one's own personal identity and career goals.

Mentees must also remain vigilant about maintaining professional and personal boundaries, since mentorship relationships are inevitably based on an imbalance of power in the relationship. They need to guard against being exploited by a mentor for personal or professional gain and to be aware of becoming too dependent upon these relationships. Developing an overidealizing view of the mentor may potentially compromise the mentee's ability to develop independent thought or question, at times even challenge, the advice that is being given [8]. The ideal mentor can altruistically separate his or her own personal agenda from the agenda of the mentee and enhance and support the mentee's ability to see an expanded vision for their future.

Outcomes

Measuring the outcomes—and, hopefully, successes—of any mentoring relationship has both subjective and objective aspects and starts with the assessments of the participating mentee and mentor utilizing the mutually agreed-upon goals and professional development plan as benchmarks. Updating and reviewing the mentee's evolving CV and academic products, both in progress and as they are completed, will serve as helpful measures of progress and aid in the systematic assessment of professional development across all dimensions. More formally structured tools for institutional or mentee oversight have been created that track specific areas of individual and programmatic interest and may be administered periodically through mentee survey or convening focus groups [9]. Business and psychology literature has also informed academic physicians concerned with fostering successful

careers. Both intrinsic and extrinsic factors such as financial remuneration, promotion, grants, publications, clinical achievement, administrative achievement, and life satisfaction are all included in these considerations. These models may offer helpful suggestions for early-career faculty members attempting to create their own all-inclusive visions for success [10].

Termination

Recognizing when a relationship with a mentor has run its course can be challenging. Relationships can be terminated electively prior to meeting objectives, as personality or professional conflicts become insurmountable obstacles to progress. Relationships may also end as professional appointments change, rendering necessary time commitments unmanageable or locations incompatible with frequent meetings. Relationships with mentors also approach termination as goals are met and mentees progress to positions of increased autonomy. As is developmentally appropriate, the mentor role may evolve to that of colleague and/or friend, and the mentee may in turn move into the role of mentor to other faculty members, thereby transmitting the legacy of mentorship to the next generation of aspiring physicians, clinicians, and scientists.

Conclusion

Mentorship relationships, seemingly part of the human condition, have undoubtedly been around since eons of time prior to the eighth century BC—the time of Mentor and Telemachus. The numerous benefits of these relationships result from hard work and commitment to the process. Early-career faculty are advised to educate themselves as to how to make the most of their mentorship experiences. These dynamic and reciprocal processes should be guided primarily by the mentee's self-determined goals and career vision that evolve and mature through the processes of mentorship.

Words to the Wise

- Since effective mentoring is likely to enrich and positively impact professional development and career accomplishments, up and coming academic faculty members should energetically pursue mentorship early in their careers.
- Although ideal matches may not come immediately or easily, mentees should proactively and persistently pursue mentorship. The good matches ultimately achieved are well worth the effort.
- In order to best maximize the benefits of these relationships, mentees should commit themselves by thorough preparation for meetings with mentors and diligence in following them up by attending to action items and assigned goals.

Ask Your Mentor or Colleagues

- What are your interests and experiences in mentoring early-career faculty members?
- What are your areas of interest and expertise?
- What is your availability for mentorship?
- What are your expectations of your mentee and/or yourself as a mentor in this relationship?

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How to Be a Good Mentor

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In academic medicine, a mentor is traditionally a more-senior physician or scientist involved in a formal, personal, and primarily in-person dyadic and interactive relationship with a less-experienced, more-junior physician or scientist (the mentee). This chapter will focus on the academic mentor's role in the two-sided mentoring relationship, while the complementary mentee's role is discussed in another chapter. Although ideally both the mentor and the mentee may benefit from this relationship, the mentor must be aware that it is an asymmetrical one, primarily focused on the educational, professional, and personal development and benefit of the mentee. Being a mentor is different than the many other functions that faculty members perform for their trainees or early-career faculty colleagues. Although a mentor is not primarily his or her mentee's teacher, supervisor, consultant, friend, or psychotherapist, some elements of each of these important roles may become part of, or result from, a particular mentoring relationship.

A number of responsibilities are critical to the mentor role. A mentor must listen to the mentee's professional experiences, issues, and problems; encourage and help the mentee to explore his or her possibilities and opportunities; educate and guide the mentee about how the institution, department, lab, and/or care system operates and how to be successful within these environments; connect the mentee to others who may help further the mentee's career development, including other mentors, important people in the field, and relevant organizations; run interference and, when possible, eliminate barriers facing the mentee within the institution and externally; set the boundaries, expectations, and responsibilities of the mentoring relationship; provide nonevaluative feedback that will help the mentee become more effective professionally; maintain the confidentiality of mentor–mentee conversations; and always stay primarily focused on the mentee's development, not the mentor's advancement, in this asymmetrical relationship.

Why Should a Faculty Member Become a Mentor?

Most academic physicians and scientists already have "full plates" of clinical, teaching, research, and administrative responsibilities. However, mentoring is a vital role in which faculty members provide an invaluable service to our "young" by devoting the time and energy necessary to mentor them to be successful during their training years and careers. Trainees and early-career faculty often are new to the city, institution, department, and/or laboratory in which they are

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working and need to learn both "how it is done here" and how things are done in the field in general. Mentees are especially needy of wise and experienced counsel about how to get the most out of their institution and its people and resources. Even though there is usually no immediate quid pro quo for mentoring, and often it is not a well-paid or academically rewarded role, if we do not take on this essential faculty role we are neglecting our duty to both the next generation and the future of our field.

Should/Can All Faculty Members Be Mentors?

All successful mentors must be generative, willing to give of themselves to be helpful to their mentee, able to listen to their mentees' issues and perspectives rather than impose their own, and willing to put their mentees' needs ahead of their own. It is an unfortunate reality that some faculty members do not inherently possess these generative, non-narcissistic qualities; such faculty members often fail as mentors and therefore probably should not be assigned to this role in the first place. The inability to take the mentee's perspective and focus primarily on the mentee's skill and career development can make a mentor unhelpful and often harmful to a mentee.

A mentor can be unhelpful to his or her mentee in many ways. Examples include the mentor who wants the mentee to only work on the mentor's personal research, even though this is not the primary area the mentee wants to pursue; the mentor who wants the mentee to become a clone and a "mini me" and does not provide sufficient space for the mentee to explore and become what he or she wants to be or might be best at; the mentor who cannot "let go" of the mentee and insists that the latter, and at times former mentees, continues to work in the mentor's area and/or publish with the mentor when the mentees need to demonstrate independence to advance their careers; the mentor who does not support or tries to block a mentee from leaving his or her current role or institution to work elsewhere; and the mentor who does not

provide sufficient time for the mentoring relationship or adequate encouragement for the mentee, therefore inhibiting the mentee's development. Unfortunately, some of us have experienced the detrimental effects of such mentors, and we must maintain constant self-awareness about these possible issues in our own mentoring relationships.

Types of Mentors

There are two basic types of mentors, technical mentors and developmental mentors, with each type providing different things to its mentees.

A *technical mentor* is a more-senior practitioner who is expert in a particular area, skill, or task that the more-junior mentee wants or needs to master. The technical mentor's role is to teach, supervise, guide, and advise the mentee about that area, skill, or task to help the latter achieve competence in it, and the mentee often works with or under the mentor. The technical mentor, therefore, may be the mentee's "boss," with responsibility for evaluating the mentee's work and productivity in that area, skill, or task.

In contrast, a *developmental mentor* is a more-senior practitioner of the general area or field in which the mentee needs to learn or work but need not necessarily be an expert in the exact area or perform the specific task or skill the mentee wants to master. The developmental mentor's role is to advise the mentee about more general institutional and career issues, help the mentee think through his or her career development possibilities, and link the mentee with others both within and external to their common organization who might further the mentee's career, including technical mentors who can help the mentee master specific skills. In contrast to the technical mentor, the developmental mentor usually has no responsibility for the mentee's work, productivity, or evaluation.

An important difference between technical and developmental mentors is the former's evaluative role. This role introduces an inherent conflict of interest into the relationship for both mentor and mentee. It may inhibit men-

tees' open discussion of professional priorities or career possibilities that differ from those of their technical mentor and make it more difficult for the mentor to openly support a broad exploration of possibilities that might lead to a change in the current work being done within the scope of the mentor's responsibility. The mentor with responsibility for evaluating his or her mentee's work product may find it more difficult to provide counsel and advice that meets the mentee's general career needs if these veer from the primary goal of achieving expertise and productivity in the technical mentor's field. For example, a mentee who does research in his or her mentor's lab will find it difficult to discuss moving to another lab or into a different area of investigation that might limit work on the technical mentor's project. In contrast, the developmental mentor, who does not have such evaluative responsibility, will not have a conflict about discussing a range of possibilities for his or her mentee's professional development.

Although mentees need both types of mentors to be successful, and the roles do have some overlap, most faculty members are better at one type than the other. On occasion, the same person can be both the developmental and technical mentor of a particular mentee, but it is a difficult tightrope to walk. For example, over the years I was the Department Chair and had many mentees, some of whom were faculty in my department. I was aware of the inherent role conflict when faculty mentees would come to talk about changes in their priorities and potential job opportunities elsewhere if I wanted ("needed") them to continue to fill specific roles in my department. I would acknowledge this conflict to such mentees and say that although as Chair I wanted them to stay in the department, I would do my best to "take off my Chair hat" to help explore their full range of professional possibilities and what was currently best for their career and personal situation. However, it is important to help our mentees understand that no one person can or will meet all of their mentoring needs. Both trainees and faculty thrive if they can develop a network of mentors, multiple helpful people who can provide mentoring about different aspects of academic life.

Initiating and Structuring the Mentoring Relationship

Mentoring relationships are initiated in two main ways. Some departments suggest that their trainees and new faculty members become familiar with the department on their own and invite them to ask more-senior faculty members to be their mentors. Other departments assign new arrivals to either or both technical and developmental mentors with the understanding that the pair will try out this relationship to see if it is helpful to the mentee, and, if it does not work for either party, there can be a "no fault" termination of the relationship. The advantage of making an initial mentor assignment to new trainees or faculty members, rather than letting them scramble to find their own mentors, is that it links mentees early on with faculty knowledgeable about the department who can guide the mentee to needed organizational resources. If this initial pairing is not a good fit, the first mentor can help steer the mentee toward a more appropriate ongoing mentor. However, whether by invitation or department assignment, mentors should not accept new mentees if they do not have adequate time, professional "space" and energy, or the desire to be a mentor, as without these the relationship will not benefit either party. If such mentoring is primarily an unrecognized "add-on" to a faculty member's already full plate of duties and unrewarded with money, academic credit, and/or time, it is unlikely to be successful.

It is the mentor's role to structure the relationship with the mentee. At the outset, mentors and mentees should explore and define the goals of their relationship to facilitate agreement on how to best operate to achieve them. Successful mentoring relationships require agreed-upon boundaries, roles, and responsibilities, and both mentor and mentee must devote sufficient time and energy to this relationship with clear, agreed-upon expectations of how it will work. The mentor should outline the frequency and length of meetings, expectations of inter-meeting work by each party, and an initial time frame for the relationship. The latter is necessary to set the expectation that the relationship will be periodically evaluated by both

parties to be sure that it is helpful to the mentee and not overly onerous on the mentor.

This structure may be written up in a formal "mentoring contract," but even without a contract it is important that the expectations of both parties are clear, understood, and agreed to early in the relationship. Without such an agreement, informal advising and other senior faculty/trainee or junior faculty interactions can be misinterpreted as a mentoring relationship with negative consequences. Although informal "hit-and-run" advice and curbside counseling can be helpful, they may mistakenly encourage the junior person to believe that a senior person is his or her mentor when the latter has not made such a commitment, which can lead to expectations not being met and a lack of needed mentoring.

Difficult Mentoring Relationships for the Mentor

At times, mentees have unrealistic expectations of their mentors. Examples include the relatively new mentee who expects the technical mentor to affirm competence that the mentee has not yet demonstrated, the mentee who expects the mentor to provide recommendations and entrée to colleagues and organizations which the mentee has not yet earned, and the mentee who does not fulfill his or her responsibilities to the mentoring relationship, such as coming unprepared to mentoring meetings, not doing the agreed-upon interim work, and otherwise being "wasteful" of the mentor's time and expertise. At other times, the mentee's skills may be beyond those of the mentor, and the mentor is unwilling to acknowledge this reality and then help the mentee find a more appropriate mentor. It is important that mentors provide direct feedback to their mentees (and vice versa) about how the relationship is going and that there be periodic, bidirectional evaluation of the mentoring relationship to be sure that it is meeting the needs and expectations of both parties. A mentoring relationship that does not work after a reasonable trial period and appropriate feedback should be terminated. It is hoped that this will be a rare occurrence accompanied by an explanation of the reasons the men-

tor or mentee feels the relationship is not working and, if possible, by referral of the mentee to another potential mentor. With academic time and energy always scarce resources, an unhelpful, nonproductive mentoring relationship should not be allowed by either party to drift along ad infinitum.

Mentoring Across Differences

Mentoring relationships by definition involve two people at different points in the academic hierarchy who come to the relationship with differing levels of knowledge, expertise, and experience. In addition, other differences between mentor and mentee should be acknowledged if the relationship is to be successful and ultimately most helpful to the mentee. These include mentoring relationships in which the mentor and mentee are of different genders, races, and/or generations. In such "cross-identity" mentoring relationships, the mentor has the obligation early on to begin a discussion of the differences between himself or herself and the mentee, expressing eagerness to learn about the mentee's background, views, and understanding of the relationship and the field. Such an invitation by the mentor will make it easier for the mentee to be open about these differences and promote more shared understanding of often differing views of the situation/institution in which they are working. Even when mentor and mentee are of the same gender, race, and generation, discussion of "where they are coming from" near the beginning of the mentoring relationship will reveal other differences in their backgrounds and personal and professional priorities that are best acknowledged so that they add to, rather than inhibit, the mentoring relationship.

Developing Your Mentoring Abilities

Mentors are *both* born and made. For faculty members who do possess the inherent generativity necessary for the mentoring role, there are ways to learn how to improve their abilities to be more helpful to mentees. We would not think

of sending faculty members to treat patients, undertake research, or teach without training and supervision until they can demonstrate basic levels of competence in these roles. Just because faculty members have been someone else's mentee at some point during their careers does not mean that they are knowledgeable about mentoring or could not do it better with training, supervision, and consultation. Too frequently we send faculty to be mentors of early-career colleagues without such preparation and then leave them isolated in this role, often leading to mentors becoming frustrated at their inability to be helpful to their mentees and giving up on this role. Mentors need opportunities to learn more about the mentoring role and discuss their mentoring experiences. These can include obtaining supervision on mentoring; seeking consultation about difficult mentoring situations or issues; accessing "mentoring toolkits" and other resources that provide references, best practice models, and other tools to use in mentoring; and taking formal mentoring courses (such as the one described in the subsequent text). All mentors need to have mentoring supervision and/or consultation readily available and then must be encouraged to use such help when they face difficult or complex mentoring issues.

At Brigham and Women's Hospital in Boston over a 9-year period, we offered a course to help established faculty mentors improve their mentoring skills. The "Faculty Mentoring Leadership Program" (FMLP) was stimulated by a 2008 all-faculty survey, which found that junior faculty wanted more mentoring and experienced faculty who already were providing such mentoring and wanted to learn how to be better mentors. Between 2009 and 2017, FMLP trained 7 cohorts of 20+ faculty members representing most of the hospital's departments with the goals of enhancing their mentoring skills and leadership and creating a supportive community of mentors across the hospital. As a prerequisite for acceptance into FMLP, faculty members had to have several years' experience mentoring other faculty to demonstrate their investment in this role and be willing to commit to attending all of the program's nine monthly meetings. While the initial cohort was composed solely of physi-

cians, the subsequent cohorts also included other doctorate level faculty to more fully represent the hospital's researchers, clinicians, and teachers. Each of these meetings focused on specific mentoring issues, including the benefits of mentorship; what is and is not mentoring; structuring the mentoring relationship's expectations and boundaries; difficult and/or complex mentoring situations; mentoring across generational, gender, and racial differences; mentoring networks; the life course of mentorship; mentoring and the mentor's career; and feedback within the mentoring relationship. We found that the most effective way to approach each of these issues is through interactive case-based discussions, with the case materials derived directly from the participants' experiences as mentors and mentees and then woven into anonymous representative cases that focus on the session's topic. Evaluation of FMLP's first (2009–2010) cohort, immediately after the course and at 6-month follow-up, found significant improvements in the participants' self-reported mentoring effectiveness and ability to accomplish their mentoring goals, as well as a positive effect on their careers. In recent years the course has become a Harvard Medical School-wide program available to faculty from throughout the medical school and its affiliated teaching hospitals. The interactive BWH Mentoring Curriculum and Toolkit is available and referenced below in Additional Resources.

The Life Course of Mentorship

As mentioned previously, all mentoring relationships should begin with a structure that includes an expected initial length with renewal possible by mutual agreement. But how long should a mentoring relationship continue? Although an easy answer is "as long as it is helpful to the mentee," often changes in the circumstances of either or both the mentor and the mentee make it impractical to continue. If either leaves the institution, a previously successful mentoring relationship can be continued long distance via phone or e-mail. The problem with continuing long distance as the primary mentoring relationship is the difficulty the mentor often has maintaining commitment to a mentee at

another institution; once the mentor assumes new activities and responsibilities, including working with new local mentees, providing sufficient time and energy for a former mentee becomes difficult. In such circumstances, it is best for the mentor to help the mentee find a new primary mentor at the mentee's institution, with continued long-distance mentoring becoming an auxiliary part of the mentee's larger mentoring network.

At some point, mentors need to "let go" and allow their mentees to gain the independence necessary for career advancement and academic promotion. Some technical mentors in particular have difficulty giving up control of their mentees' careers and authorship on their mentees' papers, even though this is not in their mentees' best interest. As mentioned earlier, at any time when it is clear to the mentor or mentee that the relationship is no longer productive or helpful, after appropriate feedback and discussion, the relationship should be terminated.

Most mentoring relationships do end, and academic faculty members usually have several different mentors over the course of their careers related to the faculty member's stage of professional development, institution, and professional focus. Former mentors often continue to play important ancillary roles, and their mentees may call upon them to discuss complex issues. In such cases, however, the former mentor and his or her former mentee must be aware that distance from the intricacies of the latter's current situation may make the mentor's advice less specifically helpful than previously, or conversely, provide an objective viewpoint from which the mentor can offer impartial advice.

Rewards for Mentors

To some extent, mentoring, like virtue, is its own reward. Being helpful to the next generation is in and of itself a gratifying reward. It provides the opportunity to give back, to be altruistic, and to have a hand in nurturing and guiding the next generation. In addition, technical mentors often receive assistance from mentees who work in the mentor's area as part of the relationship, and

this may help advance the mentor's productivity and career. In some academic institutions, a track record of successful mentoring, with a listing of successful mentees on the mentor's CV, has a positive influence on promotion decisions. Some institutions and departments also have formal mentoring awards, although these are relatively rare when compared to the large amount of mentoring needed in any academic setting. The major rewards for the mentor are the gratitude of his or her mentees and the good feeling the mentor gets from having helped the leaders of the next generation explore, shape, and succeed in whatever path they have chosen. One of the greatest pleasures for me in having mentored many trainees and faculty over the course of my academic career has been to have former mentees, many of whom have professional accomplishments that far surpass mine, still seek me out to talk about their lives and careers. Having helped them on their way up, I have found that, in a reversal of roles, former mentees have now been helpful to me in the later years of my professional career, which may be the ultimate reward for a lifetime of mentoring (Table 1).

Table 1 Nine characteristics of the good mentor

1. Sets clear boundaries on, and expectations for, the mentoring relationship
2. Is trustworthy and encourages the mentee to openly explore possibilities with the mentor, knowing that appropriate confidentiality will be maintained
3. Listens thoughtfully to the mentee's experience, issues, and problems
4. Explains how things "work" in their common field and institution and helps guide the mentee through the system
5. Encourages and helps the mentee explore career possibilities
6. Connects the mentee to other mentors, important people inside and outside of the institution, and organizations that might be helpful to the mentee's career
7. Runs interference and helps eliminate barriers to the mentee's professional development
8. Provides direct, nonevaluative feedback to the mentee about ways he or she could improve professionally
9. Acknowledges that mentoring is an asymmetric relationship in which the mentee's needs come first, with the primary focus always on the mentee's development, not the mentor's advancement

Words to the Wise

- Do constantly remain aware that your first mentoring obligation is to your mentee's development rather than your own career.
- Do explore how mentoring can help your career advancement and other possible rewards for mentoring.
- Do provide direct, nonevaluative feedback to your mentee when you are aware of ways the mentee could be more effective.
- Do learn more about mentoring via courses and/or supervision, and get consultation from colleagues in difficult mentoring situations.
- Do not take on a mentoring relationship in which you cannot be generative and responsible and provide the necessary time and energy, without it causing excessive strain on your other responsibilities.
- Do not take on a mentoring relationship in which you need more from the mentee than he/she does from you.
- Do not continue a mentoring relationship that isn't working, including those in which your mentee is not fulfilling his/her responsibilities or you cannot fulfill yours.
- Do not prolong mentoring relationships if they inhibit the independence and career development of your mentee.

Ask Your Mentor or Colleagues

- Where can I get consultation about a difficult mentoring situation?
- How and where can I get help to learn how to be a better mentor?
- What should I do if my mentee wants to go in a direction in which I am not expert?
- How can being a mentor help advance my career at our institution?

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BWH Mentoring Curriculum & Toolkit. http://bwhmentoringtoolkit.partners.org.

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How to Participate in Professional Societies

Linda M. Love and Gary L. Beck Dallaghan

One genuine relationship is worth a fistful of business cards. –Susan Cain (2013)

In our world of instant communication and access to information literally at our finger tips, the world seems to be connected every second of every day. With so much available to us, and time in short supply, one might question the need to join a professional society; some might even question if such organizations are a thing of the past. Growing up in an era of select sports, online gaming and shopping, Facebook friends, and a YouTube tutorial for everything, early career professionals may not perceive such societies as a worthwhile investment. Mid- to late career professionals may also feel they no longer need professional society interactions, maxing out their benefits in early career years [1].

In the digital age, however, professional societies are likely needed more than ever before. These organizations fill a unique niche by offering many benefits to members across the continuum of career stages [2]. Obvious benefits typically include access to reliable, quality, and vetted resources through the society's website, potential extramural funding, and targeted relevant email communication via listservs [1, 3]. Additionally, professional societies can be agents of change, providing advocacy on behalf of the profession and promoting the profession to lay people, policy entities, and change leaders [4]. The future is linked to the investment made by professional societies.

Even more than these tangible resources and benefits, professional societies offer a plethora of opportunities for career enrichment. Through active engagement with other members, whether face-to-face or virtual, professional societies facilitate building relationships that may lead to productive partnerships. Professional societies serve as network accelerators, especially valuable when time is a precious commodity.

In this chapter we will offer suggestions on how to leverage membership in professional societies. We will also offer strategies for getting the most out of annual meetings – before, during, and after the meeting. Like most career development goals, engagement with professional societies requires an intentional commitment and strategy. The following action plan is offered to maximize career success with efficiency in mind. While the recommendations are simple, the biggest

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Fig. 1 Professional advancement is aided by personal, sponsorship, and organizational commitments

challenge may be to push beyond one's comfort zone, toward better outcomes. We've demystified the secrets for moving your career forward, but these still require the will to make them happen (Fig. 1).

Don't Be Invisible

> Setting goals is the first step in turning the invisible into the visible. –Tony Robbins

Academia is replete with faculty who have an internal narrative about being introverted, scholarly, or introspective [5]. The background belief systems of faculty can often limit their investments and engagement with professional societies and their members, making positive career outcomes much more elusive. Purposeful actions during conferences and meetings such as checking email in public spaces rather than your hotel room open the door a little wider for the serendipity of chance connections. While not difficult, mindfulness is required for action.

Professional societies are designed to address the needs of the society, the medical profession, and its member community [6]. It's easy to fall into the habit of being a "consumer" of profes-

sional society benefits, but it is advantageous to move beyond this limited scope. To make this shift, a change in strategy and behavior is necessary. Commit to being a regular contributor to national meeting content, not simply attending a meeting. Creating a poster, podium presentation, and/or workshop submissions is a proven way of becoming more visible to both the professional society leadership as well as other members and a basic action for career advancement. It is a common misperception and misstep of early career faculty to delay contributions to society meeting content, deferring to more seasoned experts. Professional societies, however, are generally enthusiastic about bringing new ideas, new faces, and new research to the community and are excellent venues to expand exposure. While acceptance rates for professional meeting presentations are becoming more competitive, the experience continues to be of merit for visibility. Plan contributions to a society as a priority.

That first workshop or podium presentation can seem daunting, and a poster presentation may be a better place to start contributing to professional society dialogues. Presenting posters allows you to discuss the work you know well, is typically informal, and allows you to interact with people in a much more intimate, social forum. It is a golden opportunity to practice delivering a quick synopsis of your material or a 2-minute elevator pitch about your interests, with the added benefit of expanding your networks.

One of the secrets of highly successful professionals is having a plan well before attending any professional society meeting or conference [7]. Keeping tabs on difference makers and influencers in your interest areas will help you know who to connect with before, during, and after a meeting. If you are uncertain about key experts, ask a local colleague or mentor for advice. Consider electronic ways of porting papers, biographies, or other artifacts throughout the year so that when it is time for a live meeting, you know exactly who might be best to share a 30-minute coffee. Reach out via email and ask for breakfast, lunch, dinner, or other networking time, explaining that you have followed their work and would like to talk more about it. You should have clear goals

for the discussion, which could include developing a mentorship relationship regarding a specific issue, potential collaboration connections for research or other work, or evaluating future job opportunities. Most members are happy to connect if arrangements can be made around other commitments at the meeting. Use the help of administrative staff to help you research suitable times and places for meetings. Using this intentional, strategic action plan is far superior to "wait and see" options.

Make your professional society meetings work harder for you by following up with key connections via email following the conference. The virtual domain helps you to extend relationship building beyond the week of the meeting, but use this mode of communication judiciously. Tagging your email with the meeting name in the subject line will help you, and the receiver, archive connections to revisit from year to year, or in the near future. There is nothing more frustrating than losing an important business card!

If you are unable to attend the meeting, take time to review the program anyway. This will give you a chance to identify interesting material and trends and opens the door to connect with presenters via email or social media. Most people are happy to discuss their work. When connecting over shared interests, invest time in reviewing material, thinking about future directions, or advancing the dialogue. This type of asynchronous interaction can lead to fruitful long-term collaborations.

Nearly every professional society has a social media presence (LinkedIn, Twitter, Facebook). Making timely, relevant posts related to key interests of the society, using their preferred hashtags, is a highly effective way to gain visibility before, during, and after any national meeting. Using social media to connect people with cutting-edge research and ideas has the potential to expand the impact of the society beyond its own constituents, a desirable outcome for any organization [7, 8]. As an added bonus, if you are unable to travel to society meetings, following the meeting hashtag allows for "virtual participation," with the ability to track and contribute to important conversations. In the digital age, you can significantly enhance your professional brand without ever leaving home. Before posting, think "What will this post contribute to my professional brand?" and "What will this post contribute to the brand of my profession?". Social media platforms are never private endeavors and are arguably one of the most public and swift ways of accelerating or halting your professional image.

Ask for What You Want

Ask for what you want and be prepared to get it. – Maya Angelou

Successful mentoring relationships can be a game-changer for both mentors and mentees [9]. But often the benefits from this endeavor are hindered when mentees are shy about asking for what they really want or need. This tentative behavior can also cascade into how faculty engage with their professional society. Fundamental questions behind many career development activities are "Who's responsible for my success?" and "Who's responsible for the relationships I pursue?". Though we may bristle at the thought, the resounding answer should be "I am!". When we stop waiting for others to open doors for us, we gain more control and freedom to choose our own career outcomes. Gaining awareness of lurking and limiting personal narratives about being an introvert [10] is valuable to quell subsequent blunted results. Certainly, this requires a level of courage and a commitment to personal quality outcomes, but you don't need to feel alone. Learning to ask for what you want and need can be a practice that can be refined and readily supported by mentors [11]. Remind yourself that there is no better or important "quality improvement" project than you and your career. Review the key questions for your mentors at the close of this chapter.

Career coaches and mentors often caution about the risks of "becoming" who you choose to surround yourself with – how and with whom you spend volumes of time. Take a look at potential gaps in your favorite five people at work, and actively seek out complementary relationships

that can take you further. The ideal place to seek out these important roles is a professional society. Stretch your interactions with your professional society by electing to actively "network up." Don't settle for networking with someone like you, rather push toward diversity. Stretch to network with formal or informal opinion leaders to significantly widen your professional sphere [12]. Selectively investing in connections with others can bolster personal and professional resiliency by infusing inspiration, modeling habits to emulate, or decoding motivators that move you toward peak performance [13]. Actively seeking relationships beyond your expected peer group, and learning to develop a comfort with the network building process, will prove fruitful now and expand as your career flourishes.

One way to build these relationships is by partnering with a colleague who has attended the meeting in the past. This person could break the ice by introducing you to a variety of individuals, affording you a great advantage in exposure and the opportunity to widen your network. Colleagues functioning as sponsors [14, 15] can help you rapidly make connections within a professional society, but advancing that relationship is up to you. Make sure that you don't let the benefits of sponsorship slip away by failure to actively cultivate ongoing dialogues and relationships within these essential avenues for professional growth.

With a whole host of communication technologies available, connecting with society leaders and members has never been easier. Websites, social media, listservs, and other dynamic digital spaces make it easy to find and be found. Other members are best served by a reliable presence in both live and virtual domains [16]. Annual or semiannual appearances simply do not produce the recognition necessary for long-term impact. If necessary, automate your connections by scheduling time on your calendar to participate in society Twitter chats, post on national listservs, volunteer to lead or participate in a virtual interest group, or otherwise connect with other professionals. Automating and regularly scheduling time on your calendar to examine and recalibrate your career trajectory is a practice that yields long-term dividends [17]. Engagement practices

within your professional society should certainly be part of this equation.

Serendipity and the "Yes" Factor

> It's a bizarre but wonderful feeling, to arrive dead center of a target you didn't even know you were aiming for. –Lois McMaster Bujold

The pace of modern work and life can present challenges for actively watching for opportunities around us. When attending a meeting of a professional society or even participating on listservs, it is important to be present in the moment [18]. What does this really mean? For early career professionals, it may mean putting down your phone and striking up a conversation with other attendees about a topic about which you are passionate or firing up your curiosity to inquire what others are doing. Everyone has a story. You know your own story about your work, your dreams, and what would help move things forward. There is no better or easier approach to networking than to invite others to talk about theirs, and being ready to talk about yourself in return. Capitalize on the omnipresent moments of "waiting" (for dinner, for sessions to start, for the elevator) to ask "What projects are you working on these days?". This is a reliable gateway to exploring collaborations, whether it be a workshop submission for next year or, better yet, a multi-institutional research project.

When these golden moments present themselves, there is always a choice to either get involved or back away. The reward of saying "yes" is that you begin to build your network with new collaborators or advance and strengthen existing relationships. Being realistic about your available immediate, short- and long-term time is important when evaluating opportunities. Scoping a "yes," to meet the limitations of your availability or expertise, is an excellent way to keep your network vital while preserving balance in your career and personal lives. If you are uncertain of the time commitments for potential collaborations, and are hesitant to complicate your life, mentors can help you realistically evaluate

your priorities and the commitments that national projects may actually require. Ask for help!

Opportunities for a serendipitous "yes" often do not appear when you are hiding out in your hotel room or skipping the conference in favor of the local tourist activity. And let's face it, we are all attending professional society meetings with varying stores of energy. Making a simple concerted effort to maximize public or high traffic areas of a conference helps drive more potential connections. Maximizing overall visibility, coupled with increased targeted exposure, like asking important questions during sessions, creates the greatest opportunity for more dialogue. But being ready for opportunities that may take some creative scheduling or commandeering of priorities helps you say "yes" when doors open.

Saying "yes" can also mean opportunities to demonstrate leadership abilities in project management, communications, research, or other specialized skills [19]. Perhaps a new committee is being formed or an interest group chair is transitioning to new activities, leaving a gap. Time commitments for such activities often involve running meetings at the annual conference, conducting conference calls during the year, and providing activity reports to the organization leadership. This is an excellent way to say "yes" at an organizational level while developing a portfolio of leadership experience. Often these skills can be utilized and honed through a professional society before similar opportunities are available at our home institutions. Building a brand at the national level is often a useful way to enhance your brand at home. Does this mean you are suddenly an expert? Unfortunately, no, but imposter syndrome [20, 21] often unnecessarily stymies individuals from taking on leadership and other career growth roles. But, before you can get to these rewards, others must know you even exist!

Prove Your Value

Talent is cheaper than table salt. What separates the talented individual from the successful one is a lot of hard work. –Stephen King

Whether your involvement with a professional society begins via a call for volunteers, or you agree to help with a project at an annual meeting, it is important to develop a brand as someone who contributes. This is critical, particularly for early career professionals. One of the reasons we have emphasized the importance of carefully considering your personal and professional obligations is so you know what you can or cannot accomplish. Developing your reputation within your community of practice requires that you think before you act to avoid burnout, regret, and setbacks [22].

To reach "expert" standing, developing a sustained and untarnished reputation as a reliable collaborator is essential. Over time, as you cultivate your reputation, you will become a sought after colleague, and your early hurtles with networking may fade from memory [3]. Along the way, these tangible and intangible benefits should be moving synchronously with your promotion and tenure goals as well. But, new contributors to professional societies should take care in how and when they articulate their level of expertise within the community. Demonstrating authentic contributions is an important step to shaping your expertise [24].

The traditionally highly competitive microcosm in which physicians are trained and developed can set into motion long-term challenges in areas requiring collaboration and emotional intelligence [23]. Cultivating interpersonal communication, integrity, diversity, and inclusivity while working on projects can help to solidify the relational component that fosters lasting collaborations [23]. Professional societies are venues where physicians can hone their skills, behaviors, and identities as contributors to "communities of practice." This refining of professional identity can be extraordinarily impactful over a career trajectory, as one practices the art of both getting work done while understanding social norms, underlying power structures, nurturing places cultures of "belonging," and sustaining enduring relationships [25].

Professional identity development is a continuous cycle throughout your career (Fig. 2). Cruess and colleagues [25] developed a pyramid

Fig. 2 Reimagining Cruess et al. pyramid as a cycle of professional identity formation. Abbreviation: KSA, knowledge, skills, and abilities (Adapted from Cruess, Cruess, and Steinert [25])

Identity
(Is)
Consistently demonstrates KSA and values expected of one who embraces thinking, feeling & acting like a professional

Knowledge
(Knows)
Knows behavioral norms for how to behave as a professional

Competence
(Knows How)
Knows when individual behaviors are appropriate

Performance
(Shows How)
Demonstrates the behaviors expected of a professional under supervision

Action
(Does)
Consciously demonstrates the behaviors expected of a professional

of professional identity formation. However, as noted throughout this chapter, your identity as an educator will evolve as you progress in your career. Initially, you may identify more as a researcher and sometimes educator. This may evolve into identifying more as an instructor then to an educational scholar than a mentor. Our re-envisioning of their diagram removes the notion that you will ever achieve a pinnacle but can constantly evolve. Your involvement in professional societies can be a catalyst for your evolution throughout your career.

Be an Influencer

> You are not your resume, you are your work. –Seth Godin

Simply paying annual membership dues will not unlock the successful career of your dreams. Taking ownership and action to culti-vate national relationships from professional societies is an important consideration throughout one's career span. Whether you are a junior faculty growing your career, or a senior faculty transitioning to your next phase of life, professional societies are brimming with knowledge and wisdom. Tapping into this knowledge and wisdom will require moving out of the "tourist" mode of interacting with professional societies and professional national meetings, to being an active influencer. Challenge yourself to be a contributor to the society's mission. Offer to lead workshops, webinars, draft web articles, or create impactful infographics. Become known as a "doer" not a "watcher."

The skills and balance of both leading and following should be continually cultivated and practiced. Seize every opportunity to invite others to join you in drafting articles, developing presentations, and other impactful activities. Quieting the voice that reasons that you have little to contribute, and focusing on encouraging words from more seasoned professionals, will help to

dispel feelings of inadequacy [26–28] and move you toward career advancing work.

Generously connecting dots for medical students and residents can further maximize career outcomes. Making an action plan with learners and trainees while engaging with professional societies sets up multiple wins in opportunity. Canvasing a meeting alongside learners and trainees exponentially maximizes a small network and makes it possible to amplify valuable information about you and your organization while gathering key national connections and information. Clustering mentoring of the next generation of health-care providers around professional society activities is working smarter with limited time resources.

Fostering four career mindsets can serve as a positive compass for establishing your brand as an influencer and drive career success [29].

- *Generosity*. This mindset is focused on supporting the collective with equal zeal as paying attention to self-interests. Generosity helps trust to flourish and supports the kind of dialogues and creativity that is necessary in the connected age.
- *Vulnerability*. Expertise can often get in the way of intimate, sharing relationships. Being fearlessly drawn toward real human relationships allows trusting, long-term relationships to take root.
- *Candor*. Academics are well suited for deep thinking, critical reflection, and thoughtfully analyzing data and information. Communicating and encouraging stimulating, honest discourse around important issues is a timeless and necessary skill and behavior.
- *Accountability*. Real and sustained forward motion is only achieved by carefully navigating the intersection of time, skill, passion, and follow-through.

Calibrating these four mindsets as you refine your professional roles over time yields a solid return on investment. Likewise, failure in any of these areas can keep doors closed to you for years. Mindfulness is not only good practice, it is predictive of future success.

Final Thoughts

We hope that after reading this chapter, you can appreciate the benefits of becoming actively engaged in professional societies. Your involvement may provide different rewards depending on the stage of your career [2]. As an early career professional, being mindful of why and how to get involved in a specialty-specific society is beneficial to maximize engagement in your community of practice. Finding the "right" specialty society may take some exploration. Going to the same society meeting, expecting a different feel or result only delays finding the best fit for you. Professional societies are natural bridges to a network of organization. As you grow in your career, larger, more diverse organizations such as a regional Group on Educational Affairs or even a national specialty-specific organization like the American Psychiatric Association may push you further and align better with your goals. As a more seasoned professional, maintaining ties with specialty-specific organizations allows you to mentor others. No matter what stage you are in your career, professional societies offer opportunities to network, collaborate, and give back to the profession.

Words to the Wise

- Professional society meetings are often in wonderful locations which can tempt one to operate in "tourist mode" while attending a meeting. Using a "growth mindset" for strategizing and maximizing both formal and informal meeting time is a highly efficient means to nurture your career.
- Challenge yourself to have a voice at professional society meetings, on social media, and during conference calls or virtual meetings. Securing your presence through engagement, thoughtful questions, and sharing of humorous or real-life anecdotes can help listeners to remember you as a community contributor, thereby increasing the potential of advancing your professional goals.

- Strategically say "yes" to opportunities that present themselves for special projects or leadership opportunities. This opens the door to establish your credentials as a contributor and "doer."
- When you volunteer, become known as the person who gets things done early with high quality. To say "yes" to opportunities and not follow through limits future opportunities.
- Influence is the currency of our time. Practicing the art of engagement is a highly useful investment that pays off over the course of a career. Like compounding interest, the earlier professionals commit to practicing engagement, the greater the rewards. Starting the process can be as simple as setting your own goal of connecting with six new people from your professional society this conference or this year.

Ask Your Mentor

- What organizations do you recommend as high yield?
- Can you introduce me to key connections in the organization?
- How much support will I get locally when working with in a professional society or organization?
- Which learners of trainees can we mentor at the next society meeting? What are their interests?

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How to Recognize and Address Unconscious Bias

Magali Fassiotto and Sabine C. Girod

Despite the dramatic increase in the number of women and racial minorities pursuing careers in medicine, their representation among medical school faculty remains strikingly low. One potential explanation for this disparity is unconscious bias: opinions that we hold about different social groups that operate outside of our conscious awareness. During the past few decades, social scientists have discovered that unconscious bias can strongly influence the way we evaluate and treat other people. This chapter explains the nature of unconscious bias and how it might impact the careers of women and minority faculty members. We first explain what unconscious bias is and what social scientists know about why

unconscious bias exists. Next we briefly cover the ways that unconscious bias affects the careers of junior faculty. We then outline several specific strategies that individuals and institutions can take in order to prevent unconscious bias from negatively influencing careers. At the individual level, these strategies include promoting awareness in self and others, adopting a growth mindset, building and maintaining strong professional networks, and taking charge of one's own career development. Institutional strategies include promoting awareness across the workplace, developing structured recruitment processes, and reflecting inclusion in the institutional environment.

The medical field has become increasingly diverse in the past 50 years. In 2017, women made up 48%, nearly half, of all medical school students. The number of racial minorities in

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medical school has also increased: the number of those considered underrepresented in medicine grew by 28% from 2013 to 2017, while the total number of enrolled medical students in the same time period grew by just 7.9%. Despite these changes, a 2017 report by the Association of American Medical Colleges (AAMC) found that women and minorities make up a small proportion of faculty in academic medicine. According to AAMC estimates, women make up just 24% of faculty at the rank of Full Professor. African-Americans and those of Hispanic origin make up only 6% of all medical school faculty. The composition of medical school faculty has not kept up with either the growing diversity of physicians-in-training or society at large.

Enough time has passed such that "pipeline" explanations cannot explain these disparities. We believe that until individuals and institutions address the issue of unconscious bias, faculty from underrepresented groups will continue to have a difficult time climbing the academic ladder. The aim of this chapter is to help the academic physician identify and understand unconscious bias so that he or she may take steps to prevent it from negatively influencing his or her career.

What Is Unconscious Bias?

Unconscious bias includes opinions and attitudes that we are not consciously aware of having. Unconscious bias can be difficult to grasp because it contradicts what we intuitively believe about human behavior: we tend to think that most of our behavior and our thoughts are intentional and chosen. However, social scientists have found that thoughts and feelings outside of our conscious awareness have the power to influence us in important ways. Although we can hold unconscious biases about anything or anyone, this chapter focuses on the biases we hold about people from underrepresented social groups. For example, many people hold an unconscious bias that men are more likely than women to have an aptitude for science. In the psychology research literature, the terms *implicit attitude* and *implicit bias* are often used interchangeably with *unconscious bias*.

Where do our unconscious biases come from? Why do we have them? Psychologists believe that unconscious bias results from the way in which our brains process and store information. Research from cognitive psychology has shown that we use mental shortcuts in order to quickly process new information about the world. One of these shortcuts is automatically sorting people into categories such as age, gender, and race. Categorizing others in this way helps us quickly determine how to interact with people with whom we are not familiar.

Using mental shortcuts is not necessarily a bad thing. Without them we would be paralyzed by the amount of information that we receive from the outside world. Physicians often use mental shortcuts in order to make quick and efficient diagnoses of patients in time-pressured situations. However, mental shortcuts become a problem when they lead to s*tereotyping*—when we make assumptions about an individual based on what we think members of that person's social group are like. Stereotyping may lead us to treat people in unfair and unjustified ways. Many people believe that stereotypes do not influence their opinions about others. Regardless, numerous studies show that stereotypes can enter our minds without us being fully aware of them. This means that we can end up stereotyping others even when we have a strong desire not to do so.

This *unconscious stereotyping* occurs because of our tendency to automatically sort people into categories. When we encounter somebody who is new and unfamiliar, we instantly put him or her in one or more categories. These categories are linked in our minds with specific beliefs that tell us what members of that category are like. For example, the category of "women" is often associated in our minds with adjectives such as warm, nurturing, and yielding, and the category of "men" is often associated with qualities such as assertiveness, decisiveness, and influence. This pattern explains why men are more likely to be chosen as leaders in all kinds of situations. The qualities that we associate with good leadership are more strongly associated with men than women. When it comes time to choose an individual for a leadership position, these strong

associations tend to bias us against selecting a woman, even if we consciously believe that men and women are equally good at leadership.

Where do our biases come from? Psychologists believe that we learn them, starting at an early age, from our family, friends, teachers, and the media. There is evidence that young children often hold the same biases that adults do. For example, when asked to draw a scientist, the majority of elementary school students draw a white man in a lab coat. Since unconscious bias originates from the society in which we live, most of us tend to hold similar biases, regardless of who we are. Men and women are both likely to hold a bias that women are less effective leaders than men. When asked to draw a scientist, even African-American children are more likely to draw a white scientist.

Research has found that our unconscious biases tend to be stable over time. They are so ingrained in us that at the fundamental level, they are probably exceedingly difficult to change. However, by becoming more aware of them, we may be able to self-correct for their influence on our behavior.

Measuring Unconscious Bias

How can we know our unconscious biases? Psychologists have developed a computer-based test, called the Implicit Association Test (IAT), that can detect the type and strength of people's unconscious biases. The IAT does this by measuring the speed at which we associate a set of words or images with one category or another. For example, in an IAT assessing unconscious race bias, respondents are asked to quickly classify African-American- or White-American-sounding names with the categories "good" or "bad." The speed with which a respondent pairs good or bad words with either race represents his or her unconscious bias. The IAT has been found to be robust at detecting many different types of bias (e.g., race, gender, social class) and has become a widely used research tool. It is debatable as to how closely the IAT may predict behavior.

The Effects of Unconscious Bias

In the context of academic medicine, women and minority faculty may be especially vulnerable to the effects of unconscious bias. Although most people express a conscious desire to be fair and objective, unconscious bias influences the way they perceive other people. One study found that employers preferred job candidates with White-American names to those with African-American names, even though the study was set up so that all the resumes were identical in their qualifications. A similar study found that male and female psychology professors preferred to hire a male candidate over a female candidate for a faculty position in psychology, even though both candidates had identical curriculum vitae.

Women and minority medical school faculty are at special risk because of long-standing stereotypes that question their scientific and intellectual abilities. In addition to contributing to discrimination, these stereotypes can also undermine the performance of women and minorities through the phenomenon of *stereotype threat*. Introduced by social psychologist Claude Steele in 1995, stereotype threat describes the fear or anxiety that individuals face in situations where they might confirm a negative stereotype about their social group. This anxiety does not need to be conscious in order to disrupt intellectual performance, nor do individuals need to personally endorse the stereotype in order to suffer from its ill effects.

Stereotype threat happens because of the shared knowledge that people have about the stereotypes that exist about certain groups of people. The mere threat of confirming the negative stereotype is enough to disrupt people's actual performance. Studies have shown that women perform worse on math tests after being reminded of the stereotype that women lack mathematical ability. Similarly, African-American students perform worse on the SAT after being told that the test is a valid measure of intelligence. Fortunately, social scientists have begun to develop interventions that can prevent stereotype threat from happening. We turn to these and other strategies below.

Addressing Unconscious Bias: Individual and Institutional Strategies

Our underlying unconscious biases are difficult to change. However, there is promising new evidence that we can take steps to consciously self-correct for them both as individuals and as institutions, thereby limiting their influence on our thoughts and behavior. Here are several suggestions for faculty members and institutions on how to counter the effects of unconscious bias in academic medicine.

Individual Strategies

Promote Awareness in Self and Others

By reading this chapter, the academic physician has already begun the first step: becoming more aware of what unconscious bias is and how it affects people's behaviors. It is also important to educate others about unconscious bias. When the issue of stereotyping occurs in conversation, it helps to be knowledgeable about the ways our unconscious biases may operate. The physician may want to take the Implicit Association Test (available online), as it can be a useful experience for learning about one's biases. Sharing one's own biases can help others feel more secure about exploring their own. To protect against the influence of unconscious bias on one's judgments about other people, one must pay close attention to the specific thoughts that may be driving one's opinions about others. In addition, being open to alternate perspectives and opposing viewpoints may help the physician become more aware of the unconscious biases that drive his or her and others' opinions.

Adopt a "Growth" Mindset

What do academic physicians do when they suspect they may be on the receiving end of unconscious bias? Recognizing that the work climate may not be entirely fair can be very threatening. Indeed, there is evidence that many people would rather blame themselves than accept the possibility that the system may be unfair. When people perceive their environment as unfair, they start to feel helpless and unmotivated. Research on how people respond and cope with failure suggests that a person can cope better with a difficult environment by adopting the right mindset. Specifically, adopting a "growth" mindset may buffer people against the negative effects of being stereotyped. Carol Dweck, a developmental psychologist, has conducted a number of studies revealing how having either a "fixed" or "growth" mindset powerfully affects our potential for future success.

People with a fixed mindset tend to view human abilities, such as intelligence, as stable and difficult to change. In contrast, people with a growth mindset view human abilities as malleable and changeable through sustained effort. Fixed versus growth beliefs about intelligence have important implications for how well people do at school and in their careers. People who believe that intelligence is fixed from birth tend to experience more distress and give up more easily when faced with challenges. Meanwhile, people with growth mindsets tend to bounce back quickly from setbacks and persist longer in the face of difficulty.

These differences in mindset have particular relevance to people who belong to stereotyped groups. Because people with fixed mindsets view human traits as inherent and stable, they are more prone toward stereotyping others. They are also less likely to cope well in environments where stereotypes are pervasive. For example, in her study of women in a high-level calculus course, Dweck found that only those women with fixed mindsets seemed to react badly to the perceived stereotype that women are less gifted at math. By the end of the course, many of them no longer intended to pursue math in the future. In another study, researchers found that African-American students who had a fixed mindset were less likely to incorporate constructive criticism about their intellectual work, whereas students with growth mindsets were less likely to become discouraged after setbacks and more likely to view difficult situations as challenges rather than threats. Adopting a growth mindset is helpful for many people, but it might be especially important for

individuals who belong to negatively stereotyped groups.

How does one develop a growth mindset? Although it may seem difficult to change, Dweck has been able to change people's mindsets in experimental settings. Dweck suggests the following steps:

1. *Pay attention to what you are telling yourself.* When you succeed, do you think it is because of your natural ability or because of the effort you put out? Do you see failures as indicative of your inherent ability?
2. *Recognize that you have a choice.* It is possible to interpret failure in different ways. It is possible to view a rejection or a setback as a challenge rather than a disaster.
3. *Talk back to your fixed mindset "voice."* Instead of telling yourself that your manuscript being rejected is proof that you shouldn't pursue an academic career, remind yourself that it is an opportunity to improve your work and your knowledge of how to publish successfully.
4. *Accept challenges and interpret the results within a growth mindset.* Often when we have a fixed mindset, we avoid doing things that seem risky. By making it okay for yourself to fail, you can take on new challenges without too much fear and anxiety. If you do fail, interpret it as a learning experience and nothing more.

Expand Networks

In addition to focusing one's mindset, connecting with others and expanding one's professional networks can also be helpful in countering the effects of unconscious bias. Stereotypes can lower one's sense of belonging to an environment, which may have discouraging effects on one's career. Research shows, for instance, that women who do not feel that they belong in computer science are less likely to pursue careers in it, even when they have high aptitudes. Individuals who belong to stereotyped groups are at greater risk of feeling isolated, especially in mainstream institutions like school and work. In academic medicine, for example, research suggests that

junior women faculty report greater susceptibility to stereotype threat than their male counterparts. Uncertainty about belonging can undermine performance and well-being and pose significant challenges to career development and advancement.

Developing connections to colleagues and similar others not only provides an important source of professional support but also serves as a buffer against the effects that a low sense of belonging can have on actual performance. Networks provide many positive effects, such as mentoring, access to information and opportunities, and professional and personal support. Specific to unconscious bias, connecting with others can also increase your sense of belonging, thereby protecting against feelings of isolation that may accompany stereotype threat. Experimental research shows that interventions, such as learning that others have faced similar adversities, can increase one's sense of belonging and thereby elevate one's well-being and performance. Building one's networks allows for exchange and sharing of experiences, which can alleviate the doubt and uncertainty that stereotypes can create.

Professional Development

Being proactive in one's career advancement process can be critical to overcoming unconscious bias. Below are some specific strategies that faculty members can consider using:

1. *Communicate with supervisors.* It is easy to assume that your unit head or other evaluators already know everything there is to know about you. However, studies on hiring and promotion show that evaluators tend to fall back on stereotypes when they have missing, incomplete, or ambiguous information. It is important to make sure that your evaluators are fully aware of your background and qualifications. For example, when requesting a letter of recommendation, provide your recommender with detailed information about your background and qualifications.
2. *Critically examine the resources allocated to you.* Unconscious bias often manifests itself

in the amount of resources allocated to members of one group versus another. Do you feel you have the resources you need to accomplish your research and other work activities? If your resources seem scant, especially compared to your colleagues, actively seek out ways to get more of what you need. Differences in resources might seem small on the surface, but over time they can significantly affect how successful you are in the long run.

3. *Do not be afraid to self-nominate*. When the NIH Pioneer Awards began to allow for self-nominations, the number of women nominees and recipients increased dramatically. People may unintentionally overlook certain people for awards because of unconscious bias. Therefore, you should not be afraid of nominating yourself for awards and other opportunities.

Institutional Strategies

Although we have outlined a number of recommendations in this chapter that individuals can act upon, a long-term, sustainable strategy for combatting the effects of unconscious bias on faculty careers must include institutional commitment. Actions taken at the institutional level can go a long way in reducing the impact of unconscious bias on hiring and promotion.

Promote Awareness Across the Workplace

At the institutional level, there is growing evidence that the widespread education of faculty members about unconscious bias may help remove barriers that prevent underrepresented groups from succeeding. In a study at Stanford Medicine, faculty members who participated in workshops on unconscious bias were significantly more likely to show reduced gender bias regardless of age or gender. The University of Wisconsin developed several hiring workshops for faculty that included information on unconscious bias and how it affects decision making. Those departments where faculty members par-

ticipated in the workshops showed significantly higher odds of increasing their percentages of women faculty than departments where no one participated. However, research also suggests that mandatory trainings can have a negative effect on biases, particularly when focusing on legal repercussions. This suggests that attendance at institution-sponsored educational programs should be voluntary and should focus primarily on the benefits of a diverse workforce and ways to involve attendees in devising best practices.

There is also evidence that teaching people about the cause and consequences of stereotype threat can help them avoid its detrimental influence. One study found that teaching women about stereotype threat and its potential effects on math performance caused their scores on a math test to increase. The implication of this finding, as the title of that study suggests, is that "knowing is half the battle." If other department members are open to it, the academic physician may want to lead a discussion on unconscious bias. If one does bring up unconscious bias with one's colleagues, one would do well to emphasize that the potential effects apply to everyone. It is not a matter of just some people holding prejudices—we all are vulnerable to letting our biases influence our judgments; however, this is not to say that biases are impossible to avoid. By knowing about our biases, we can work toward avoiding them in our decision-making processes.

Develop Effective Structures for Recruitment Processes

In addition to educating organizational leaders on unconscious bias, institutions can create ground rules for hiring and promotion to ensure equity in the employment process. For example, it is important to assign someone or appoint a committee with the role of overseeing hiring practices. Such oversight may include paying attention to the language in job postings and flyers and encouraging the active recruitment of candidates from underrepresented groups. Another important strategy for institutions is to require sufficient diversity among search com-

mittees. A study on law firms revealed that the odds of a female hire increases when women are included in the evaluative and decision-making process (e.g., as a hiring partner). In addition, setting criteria before evaluating candidates can ensure that criteria do not shift to fit the favored candidate. Creating a key set of questions for the interview can ensure that discussions about the candidates focus on job-related factors.

Reflect Inclusion in the Institutional Environment

Programs can assist in creating a more inclusive institutional environment when they increase the visibility of underrepresented individuals. For example, a program targeted to residents doubled underrepresented interviewees using a strategy that included an externship program, a funded second look event, and increased involvement of underrepresented faculty in the recruitment process. Increasing sense of belonging and exposure to role models within academic medicine are key program elements that support the recruitment and retention of underrepresented individuals.

This aligns with studies that show the working environment can greatly influence feelings of belonging and inclusion. An often cited example is the changing of portraits in public spaces to reflect the diversity of the institution (e.g., portraits of male and female scientists of diverse cultural backgrounds), which can foster a greater sense of belonging among women and minority physicians.

Words to the Wise

- Mental shortcuts become a problem when they lead to stereotyping.
- By becoming more aware of unconscious biases, we may be able to self-correct for their influence on our behavior.
- Networks provide many positive effects, such as mentoring, access to information and opportunities, and professional and personal support.

Ask Your Mentor or Colleagues

- How aware are people at this institution about unconscious bias and the potential role it plays in faculty careers?
- Does the institution have any programs, initiatives, or guidelines that may help in combatting unconscious bias? If no, what might be a way to develop some?
- Are there other faculty, with backgrounds similar to my own, to whom you could introduce me?
- Are there career development, mentoring, or professional networking programs at this institution in which you would recommend that I participate?

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How to Intervene with Unethical and Unprofessional Colleagues

Jerald Belitz

All academic health disciplines have an obligation to delineate their scope of practice, ethical and professional principles, and responsibilities to their patients and communities. Each discipline strives to ensure that professionals apply safe and effective interventions to patients, ethically conduct research, and respectfully interact with colleagues and students. As part of this obligation, each profession is expected to develop mechanisms to monitor and regulate the performance of its members.

Accompanying the privilege of self-governance is the responsibility to assertively intercede when an associate evidences unsafe, incompetent, unethical, unprofessional, or illegal behaviors. This ethical responsibility is codified by the American Medical Association (AMA) [1] and the American Psychological Association (APA) [2]. Interventions with unethical peers can range from an informal discussion to a formal report to the state licensing board. Interventions protect existing and future patients and maintain the integrity of the profession and affiliated institutions. Further, interventions adhere to the ethical keystones of beneficence, nonmaleficence, integrity, and respect for other's rights and dignity. Several

studies [3–7] have conclusively demonstrated that physicians and psychologists, both in training and independent practice, recognize when a colleague violates ethical and professional standards. Yet, the same research reveals a hesitancy or unwillingness to interpose when that colleague displays unacceptable practices.

This chapter will clarify the gradients of unethical and unprofessional behaviors, the aversion of professionals to intercede with errant colleagues, proposed interventions, and recommendations for the prevention of ethical misconduct.

The Spectrum of Ethical Infractions

AMA [1, 8] identifies three substrates for ethical and professional violations: impairment, incompetence, and unethical conduct. All three reflect ethical and professional infractions.

Impairment

Physician impairment is defined as the inability to practice medicine due to physical or mental illness, including deterioration through the aging process, the loss of motor skills, or the excessive use or abuse of drugs, including alcohol. AMA typically focuses on the risk to patients; however, risk readily extends to the domains of education and research. Extreme fatigue and emotional

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stress are subsumed under the rubric of impairment. APA's Code of Ethics [2] defines emotional stress or distress as an experience of intense stress that affects well-being and functioning or disruption of thinking, mood, and other health problems that interfere with professional functioning. In 2006, the APA Board of Professional Affairs Advisory Committee on Colleague Assistance [9] provided additional clarification by demarcating an impaired psychologist as one who has a condition that may result in ineffective interventions or may cause harm to the patient or others. And, improper behavior is described as acts that violate ethical standards and reflect professional transgressions. From this stage forward, the term *impairment* will incorporate the construct of distress.

Stress can easily lead to improper behavior. A useful mechanism for understanding this phenomenon is to conceptualize a stress-distress-impairment-improper behavior continuum [10]. Health-care workers, akin to all other persons, experience stress in response to their personal and work environments. Each individual is disposed to experience and evidence physiological, cognitive, emotional, and behavioral responses to a single event or a constellation of events. These events can be either external or internal. Distress is the emotional state that ensues when one fails to adapt to or manage stressors. Distress can be viewed as a negative affective state that occurs as a response to an external trigger. Health-care professionals who employ inappropriate or ineffective strategies to cope with their distress are apt to abuse substances and experience burnout, depression, or suicidality. It is quite probable that these professionals lack insight about their impaired level of functioning and engage in unsafe, unprofessional, and unethical practices. Negative patient care includes major medical and medication errors, suboptimal treatment, negative outcomes, and decreased patient satisfaction with their health care [11].

Extreme stress is inherent to health-care work and has been identified as the primary cause of provider distress and impairment. Health-care professionals can experience stress as the result of managing their own emotional response to

their recurring exposure to patients with enduring medical, physical, and emotional difficulties [9, 12]. Other stressors include negotiating the competing demands from patients, hospitals and medical institutions, and personal and academic responsibilities. The increased time and mental demands of clerical tasks, electronic environments, regulatory prerequisites requirements and insurance carrier prerequisites are associated with distress among providers [13, 14]. Though medical errors are recognized as a consequence of provider impairment, medical errors frequently create distress in many who have effectively tolerated the other stressors in their work lives [11, 15]. Compounding this distress are the ensuing legal ramifications that many professionals confront after rendering a clinical miscalculation [16]. Personal stressors, such as relationship, family, or financial problems, amplify the distress professionals are already experiencing [9]. Essentially, providers experience a loss of autonomy.

Levels of impairment among health-care professionals are comparable to or larger than the rates in the general populace. Impairment is evidenced by substance abuse, depression, suicidality, or burnout. Congruent with population statistics, approximately 15% of health-care professionals will experience problems with alcohol and/or substance abuse at some point in their career [17–19]. Ominously, physicians abuse prescription drugs, particularly benzodiazepines and opiates, at rates up to five times higher than the general population [19, 20]. Physicians have ready access to prescription medications, and some physicians are inclined to use these drugs as a means of managing their stress. Alcohol abuse is related with depression, suicidality, lower career satisfaction, and lower quality of life [21].

Depression in the medical field is comparable to the general populace. The lifetime prevalence of self-reported depression in male professionals is 12.8% and the lifetime prevalence in female professionals is 19.5% [22, 23]. Longitudinal studies with internal medicine residents and surgeons reveal that depression increases the likelihood of medical errors by at least 90% [11]. The most alarming statistic is the significantly high

incidence of suicide among physicians. Suicide rates for male physicians are estimated to be 1.4 times greater than the general population, and, most disturbing, the rate for female doctors is 2.3 times greater [24]. Generally, males are more than thrice as likely to complete suicide as females; however, female physicians have a rate equal to male physicians and equal to males in the general population. Contributing to the pervasive phenomenon of suicide is the physician's experience of distress and depression, ability to secure lethal medications, and a reluctance to seek or access assistance.

Although burnout can be perceived as being on the gradient of depression, it is best conceived as a unique syndrome. Burnout is an extremely negative response to the occupational environment encompassing distinct characteristics: emotional exhaustion, loss of meaning in work, decreased sense of personal accomplishment, and depersonalization or a drift to consider others as objects rather than as humans [25, 26]. In addition to the stressors already identified, health-care providers cope with the demands of long hours, a rapidly changing practice environment, and work that involves resolving complex problems that have substantive consequences [14, 25]. Half of all physicians endure burnout and, relatedly, burnout doubles the incidence of medical errors [27].

Aging providers are more likely to develop chronic or acute health conditions that can functionally impair their ability to practice. Perhaps more relevantly, the aging process itself can produce cognitive and sensory impairments. This is not to suggest that all aging professionals have impaired or compromised performance. Indeed, many positive characteristics, such as resilience, wisdom, compassion, and tolerance for stress, often increase with age [28]. Yet, many physicians above the age of 60 (22% above the age of 75) begin to evidence some decline in cognitive, manual dexterity, and/or visuospatial abilities [29]. More specifically, increased age is associated with decreased knowledge, less fidelity to evidence-based standards related to diagnosis and treatment, and worse patient outcomes [29].

Incompetence

Incompetence refers to the provision of substandard levels of patient care due to inadequate knowledge, skills, or judgment [1, 8]. Again, this can translate to include deficiencies in the areas of education and research. Incompetent care is often difficult to discern because one customarily needs to observe a pattern of errors or poor outcomes before concluding the colleague is practicing at a substandard level. Caution needs to be exercised before equating adverse treatment outcomes with incompetent care. Poor outcomes may also result from natural factors beyond human control or unexpected effects despite a well-justified intervention [30].

Though impaired and incompetent providers evidence unethical activities, AMA [1, 8] characterizes unethical conduct as an array of infractions that involves exploitation of patients, colleagues, or students, boundary violations, fraud, dishonesty, greed, and violations of professional guidelines. Academic medical institutions also require principled behavior and adherence to ethical and legal guidelines among their professionals. As an illustration, the University of New Mexico [31] has a policy that identifies additional examples of misconduct including discrimination, sexual harassment, willful failure to perform duties, unauthorized release of confidential information, falsification of documents or reports, and any retaliation against an employee who reports misconduct. Essentially, through their behavior, these professionals place their own needs above those of others. In some situations, practitioners may be unaware of specific codes of ethics. In other cases, clinicians disregard ethical and professional standards in a manipulative and deliberate effort to gratify their own interests.

Culture of Silence

It is well established that mental health professionals are aware of professional ethics and possess the acumen to identify unethical practices; however, a significant number of clinicians remain uncomfortable and reluctant to report or

intervene with their unprincipled colleagues. A recent study [5] revealed that more than one-third of physicians did not fully endorse the ethical tenet that impaired or incompetent colleagues should be reported to a licensing or credentialing board. Historically, this refusal has been classified as a "code of silence" or "culture of silence" or "conspiracy of silence" [18, 32–34]. Multiple personal, interpersonal, and contextual factors account for this silence.

After discovering that a colleague has been unethical, several clinicians struggle with the dilemma of either protecting the privacy and confidentiality of their colleague or securing the safety and well-being of the patient, student, research subject, or public [5, 6, 9, 18, 35]. Many avoid intervening because they are apprehensive that a report will stigmatize a colleague as an alcoholic, drug addict, mentally ill, deviant, or any other iteration of being unfit. They are apprehensive that their peers will be unfairly punished or disallowed from practicing their chosen profession. A report will likely engender financial difficulties, legal problems, marital and family problems, humiliation, depression, and further emotional deterioration for their coworker. Some use rationalization, believing their colleague will "work it out" or expecting the problem to disappear. The distress that comes with confronting a colleague prevents others from intervening. Many identify with their errant colleague, contending with the possibility that they too could have a lapse of moral reasoning and desiring an opportunity to remedy their mistakes and reaffirm their positions as ethical professionals. It can be concluded that those who honor their societal obligations over the individual rights of the offending colleague are more likely to report the unethical behavior [6].

A fear of retribution from the reported party, peers, supervisors, or the medical institution itself inhibits professionals from acting ethically. Despite the specific language and protection from codes of ethics and university policies, the reporting provider may worry about a subsequent lawsuit for slander, libel, or discrimination [30]. The reporting provider may be identified as a whistle-blower [30] and subsequently endure a loss of status from peers, supervisors, or administrators. Negative consequences could include a sense of isolation among peers, an inability to advance one's career through promotions or new professional opportunities, or a decline in referrals and a loss of income. Not surprisingly, power differentials often preclude trainees and professionals from reporting or intervening when they observe unethical or incompetent behavior by a section chief, chair, or any other person in a position of sanctioned authority.

Reasons to Intervene

Simply stated, there are three fundamental reasons for intervening with an impaired, incompetent, or unethical colleague: prevention of harm to patients or others, prevention of harm to one's profession, and assistance to compromised peers.

Ethical interventions protect existing and future patients. Beneficence and nonmaleficence, the duty to act for the benefit of the patient and, in the least, to do no harm, are the core principles of the Hippocratic Oath. Subsequent to the Hippocratic Oath, health professions have cultivated ethics codes that guide conduct in the spheres of patient care, self-care, education, research, hospital relations, interprofessional relations, and social policy. Professionals are commanded to both monitor their own behaviors and to intercede on behalf of patients or others when a colleague violates professional standards.

The health-care professions are granted the autonomy to define and regulate themselves through the process of selecting whom to train, developing the training curriculum, defining practice standards, licensing practitioners, and disciplining members [36, 37]. Academic institutions, via the accreditation methodology, coordinate with these professional associations to ensure that trainees are prepared to competently and ethically practice in their specific fields. It is presumed that only these professionals have the unique knowledge and expertise to execute

self-regulation in the endeavor to promote and protect the welfare of the community. Failure to self-govern generates mistrust in the professions and their affiliated associations and institutions. Inadequate interventions with unethical or incompetent colleagues will inexorably lead to increased control by external government and regulatory entities, resulting in the diminishment of professional autonomy. These intrusions may adversely affect the patient–provider relationship, the educator–learner relationship, and other academic pursuits.

Interventions

All academic institutions and Health Sciences Centers have policies delineating unprofessional, unethical, and illegal behaviors and procedures for intervening with or reporting errant colleagues. UNM will again serve as a representative example. UNM's policy manuals [31, 38] encompass measures for patient care and safety, sexual harassment, discrimination, research fraud, conflicts of interest, misconduct, and protections for whistle-blowers. Reporting procedures include communication with supervisors and relevant university compliance offices such as the Division of Human Resources, Office of Equal Opportunity, Research Compliance Services, and Offices of Clinical Affairs or Academic Affairs. UNM also has a dispute resolution service that provides consultation and mediation services to faculty and administrators for workplace conflicts or for grievances regarding violations of UNM policies and practices. Faculty members are educated about these policies during their initial orientation and are required to pass annual online competencies to ensure their ongoing knowledge and adherence.

Professional associations have codes of ethics and guidelines for professionalism. AMA [1, 8] has procedures for confronting colleagues who evidence any of the three forms of unethical behavior: impairment, incompetence, and unethical conduct. A nonpunitive approach is endorsed for all interventions with substandard colleagues.

Impaired Colleagues

Health-care professionals are compelled to interpose when they observe an impaired colleague, optimally before a medical or practice error materializes. A perceptive professional can detect apparent impairment and provide early or, even, preventative assistance. In an effort to provide peer support, the concerned professional encourages or motivates the distressed practitioner to access emotional, spiritual, or medical assistance. This self-care can be achieved through many channels. Spiritual self-care may entail formal engagement with religious practices or engagement in more personal and nonformal pursuits. Essentially, this involves creating an understanding and appreciation for the purpose and meaning of life [9]. Professional self-care embraces the support of trusted colleagues in the forms of consultation, mentoring, and supervision. Emotional support includes psychotherapeutic and/or psychopharmacological interventions from a community clinician or an approved colleague assistance program. Participation in wellness programs that utilize an integrated approach to lifestyle modifications can enhance overall well-being.

Medical and neuropsychological assessments and requisite treatments are advised for those providers observed to be experiencing age-related deficits [28, 29, 39]. Aging providers who evince diminishing abilities may elect to retire or transition to a nonclinical position that corresponds with their existing capabilities.

When impaired colleagues evidence unsafe or unethical actions, the concerned professional is obliged to communicate with them in an effort to have those colleagues discontinue practice and enroll in a sanctioned health provider assistance program. Medical associations in all 50 states have initiated impaired physician programs [8]. Likewise, other professional societies and state licensing boards have colleague assistance programs. This nonpunitive approach to treatment and rehabilitation has proven to be effective in reinstating impaired professionals to safe practices. Physician recovery rates from substance abuse are higher than in the general population [18] and are

estimated to be 78% [40]. The evidence indicates that interventions that provide structure and strict monitoring are the most effective [41]. These programs allow patients to have access to a greater number of providers; protect society's investment in training highly skilled providers, scientists, and educators; and demonstrate the profession's commitment to monitoring its members. Clearly, intervention and referral must be shared with that individual's department chair and the institution's oversight committees. A report to the state licensing board is mandated if the colleague continues to practice or resumes practice without authorization from the assistance program.

Incompetent Colleagues

Incompetent physicians are initially reported to the appropriate service chief or administrator who has the authority to assess the potential impact on the patients' welfare and to facilitate remedial action for the errant provider. This authorized individual is obliged to notify the hospital peer review entity and ensure that the identified deficiencies are remedied. When the incompetence represents immediate threat to the patient, that patient must be immediately protected, and a report must be made directly to the state licensing board. If the incompetent physician fails to access or benefit from remediation, a report is also made to the licensing board.

Other unethical behaviors are reported to the appropriate service supervisor. If the unethical behavior continues, further reports are made to individuals or offices with increasing amounts of authority to evaluate and discipline the offending physician. Reports are always sent to the state licensing board and/or law enforcement agencies when the misconduct violates licensing standards or criminal laws.

An ethics primer prepared by one medical specialty society [37] proposes a four-step ethical decision-making process to help determine the best course of action with unethical colleagues:

1. Be aware of state reporting requirements as specified by legal statutes and licensing boards (and university and hospital policies). Become knowledgeable about local resources available to assist impaired or naive peers.
2. Evaluate the source of information, confirm the information, and determine the nature of the violations with regard to ethical and professional standards. Attend to any personal values or emotions that are triggered by the information.
3. Identify potential interventions and possible competing interests in each option. Identify personal reactions to the various options.
4. Select the most appropriate option, knowing other options are available. Other options may be used as needed. Preserve the goal of protecting patients and maintaining the highest professional standards.

Implicit in these suggestions and in all other ethical guidelines is the reminder to consult with a peer who is aware of ethical and legal practices and is willing to provide honest, unadorned, and meaningful feedback.

The Ethical Principles of Psychologists and Code of Conduct [2] demarcates formal and informal actions that are available to professionals who observe colleague misconduct. This approach is a useful model for other health professions as well. Although a referral to a colleague assistance program is endorsed, it is not required by the ethics code or accepted as a substitute for a formal or informal action. For ethical violations that have not caused substantial harm to a patient or others, psychologists are encouraged to informally resolve the concern via a discussion with the errant colleague. Substantial harm is not specifically defined, compelling the practitioner to determine if an informal intervention is indicated. Examples of observed breaches that may prompt an informal approach include recurrent lateness for patient appointments, leaving medical records unconcealed overnight, or a discussion among colleagues about patients in an inappropriate environment even if it appears nobody can eavesdrop. Of course nonclinical violations, such as argumentative and rude interactions with colleagues, can also be addressed with an informal intervention.

Optimally, this procedure is conducted in a nonadversarial, constructive, and educational manner. This process can be uncomfortable and even perceived as a confrontation. Several important ethicists [42–45] have outlined guidelines for an interpersonal intervention with an unethical colleague. A synthesis of their work allows for the following recommendations. These recommendations are appropriate whenever a professional challenges a colleague's ability to perform his or her responsibilities safely and ethically.

1. Collect information about the offending behavior, and determine the strength and veracity of the evidence. Evaluate it within the context of the relevant sections of the Code of Ethics and Conduct.
2. Explore one's motivation to engage in or avoid this process. The primary motivation needs to be the welfare of the injured party.
3. Consult with a trusted colleague who has experience and knowledge of professionalism and ethics. This colleague is trusted to evaluate the information in an unbiased and informed manner, irrespective of one's personal relationship with the consultant.
4. Determine who will talk to the errant colleague. This is likely to be the individual who observed the misconduct. If an imbalance of power exists, it may be judicious to have a professional of equal power employ this role. The imbalance of power can encompass differentials in assigned roles and authority, gender, or ethnicity.
5. Maintain an educational and emotionally neutral demeanor without reacting to any negative affect by the refractory colleague. Listen to the colleague's perspective and reasoning for the inappropriate behavior; ask for additional information and clarification.
6. Structure the intervention with the aim of jointly identifying goals and objectives, useful resources, an action plan, and a follow-up plan.

APA cautions that the confidentiality of an injured patient must not be compromised in this process.

APA requires a more aggressive endeavor if the unethical behavior causes or is liable to cause substantial harm or if an informal action has not produced an adequate resolution. This involves protecting patients or others from imminent harm. A formal report is submitted to a state or national ethics committee, licensing board, and/or institutional oversight committee.

Recommendations

Historically, professionalism and ethics were learned indirectly through lectures or observing supervisors [46, 47]. Medical students and residents encountered poor role modeling and witnessed ethical dilemmas being ignored or unresolved. Further, these trainees were not taught the importance of self-care. Instead, they learned to not seek assistance for health problems for fear of academic reprisals [48]. Consequently, professionals' attitudes and practices concerning ethics are frequently the ones they encountered in their training. In a significant effort to remedy this state of affairs, the Accreditation Council for Graduate Medical Education [49] directed medical schools to include professionalism as a core competency. There is evidence that this effort is yielding positive results; physicians in practice less than 10 years are more likely to report a refractory colleague than physicians with more than 10 years of practice [5]. More recently, ACGME [50] reiterated the importance of professionalism and required an emphasis on the well-being and development of competent, caring, and resilient physicians. It can be expected that future providers will be better equipped to perform their ethical responsibilities and negotiate the internal and external conflicts associated with inappropriate colleagues.

Graduate programs in medicine and other health-care professions are in a unique position to prepare providers for meaningful, gratifying, and sustainable careers. This entails the advancement of skills to manage stress and foster resilience. Mindfulness-based stress reduction (MBSR) trainings have, thus far, proven to be the most effective intervention for reducing stress, emo-

tional exhaustion, and depression and increasing self-awareness, empathy, and self-care [51–54]. Other helpful interventions include peer support and small group discussions, communication skills training, and a culture of collaboration [55].

Wellness programs seem to be the most effective in building resiliency. Vanderbilt School of Medicine [56] has developed a model program. This program incorporates a Student Wellness Committee with student leadership and mentoring to achieve the goal of preparing healthy physicians. Emphasis is placed on caring for the mind and body and on social and community relationships. Additionally, faculty model self-care as a component of patient care.

MBSR trainings, peer support, and wellness programs also work for health-care professionals. However, system-based programs combined with individual interventions seem to be more effective in preventing impairment and developing adaptive and engaged providers [26, 57]. System interventions that augment providers input and autonomy within their practices promote wellness and engagement [57]. More specifically, effective programs enable professionals to spend at least 20% of their time on endeavors they identify as most meaningful and participate in the process by which important changes are determined and implemented.

Additional education is essential for providers that are more senior. Professional societies, licensing boards, and credentialing committees are in excellent positions to mandate and offer professionalism and ethics in-service training as a requisite for certification or licensing. Credentialing committees can also institute peer review processes that assess ethical functioning. As the professions move toward a treatment, resiliency, and educational model, intercessions reduce the stigma and risk for both the reporting and imprudent practitioners.

Both the AMA and the APA have ethical guidelines charging providers to obtain suitable help if they experience a personal, medical, psychological, or stress-related condition. It is crucial for professionals to maintain a state of wellness and health so that they can proficiently perform their responsibilities without yielding to the strain of managing the multiple roles and tasks associated with a medical academic career. Providers are expected to engage in self-care, ongoing professional development, and consultation with trusted colleague. A well-lived and balanced life is still the best antidote to stress and carelessness.

Reasons to Intervene

- Safety and well-being of patients and society
- Integrity and autonomy of one's profession
- Assistance for impaired peers

Words to the Wise

- Reasons to intervene include safety and well-being of patients and society; integrity and autonomy of one's profession; and assistance for impaired peers.
- Collect information and evaluate it within the context of legal and ethics standards.
- Explore one's motivation. The primary motivation is the welfare of the injured party.
- Consult with a colleague who has experience and knowledge of professionalism and ethics.
- Determine who will talk to the errant colleague.
- Maintain an educational and emotionally neutral demeanor.
- Identify goals and objectives, useful resources, an action plan, and a follow-up plan.

Ask Your Mentor or Colleagues

- How can I determine if a colleague is impaired?
- What should I do if I observe my supervisor engaging in incompetent behavior?
- Am I obligated to intervene when I see a respected colleague evidence unethical behavior?
- Under what circumstances am I obligated to report errant behavior to a licensing or credentialing board?
- What can I do to ensure that I maintain ethical and competent practices?

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Part IV

Writing and Evaluating Manuscripts

How to Write Socially

Laura B. Dunn, Nahla Mahgoub,
and Sallie G. De Golia

When it comes to academic writing today, it's rather like Freud's analysis of sex in nineteenth-century Vienna–everybody does it, but nobody talks about it. –Wendy Laura Belcher [https://wendybelcher.com/writing-advice/]

Why Make Writing a Social Activity?

Manuscripts, grants, and other forms of writing are important avenues for disseminating one's ideas and work. Writing is crucial to building a national reputation and for attaining career goals such as promotion (see chapter "How to Build a National Reputation for Academic Promotion"). Writing is therefore a fundamental skill and habit for academic physicians. While trainees and junior faculty are continually reminded of the importance of writing, too often the generic advice to write a lot can seem intimidating to trainees and junior faculty, particularly when this advice given, say, by a senior faculty member with over 300 publications to their name. Furthermore, women have historically lagged behind men in producing publications [1], possibly a result of greater household responsibilities or child-rearing responsibilities, differential preferences for clinical work, and/or differences in work-life integration.

For many academics, writing does not feel like a natural, easy, or fun activity. Many people have developed psychological barriers or resistance to writing, rendering each attempt to write a seemingly epic struggle. Procrastination ensues. The kitchen gets cleaned, the dog gets walked, but the draft doesn't get written. A vicious cycle of guilt, procrastination, more guilt, and further procrastination follows. This cycle, in turn, may even contribute to feelings of depression and anxiety, and can lead to premature abandonment of academic pursuits.

If this sounds like something that you struggle with, there's some good news. You're not alone. Harnessing this common experience of struggling with writing can actually become part of the solution to the struggle.

Making writing more palatable—enjoyable, even—is therefore an essential ingredient for fostering academic fulfillment and career advancement. One of the best ways to make writing more enjoyable is to make it social.

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How can you make writing a social activity? What follows are some straightforward ideas, from less formal methods (e.g., writing "dates" and lunchtime writing sessions) to more formal approaches, including structured writing groups, seminars, or workshops. The references and resources at the end of this chapter provide much more detail about these topics.

Set Up Writing Dates

A very easy way to make writing social is to simply set up "writing dates" with a colleague or friend. This friend or colleague does not need to be in the same department, same school, or even in the medical field at all. Maybe you have a friend who could use some time to focus on work and would be willing to meet you at regular times so that you could both do this.

One of the best writing partners that one of us (LD) ever had was one of my best friends; she happened to be an Assistant Professor in the Department of Economics. As Assistant Professors, we both needed to write manuscripts, and we also wanted to see each other. Meeting for writing dates was a great way to accomplish both of these goals.

Meet at a café where you can bring your laptop and headphones. Depending on your schedules, this could be during work hours if you can carve out some time, or it could be a brief meeting before or after work, or on a weekend. It doesn't have to be a lengthy writing date. It could be an hour. You will still get more writing done than if you had not met at all.

Sit together or apart (or mix it up) but make sure that you can see your colleague. Seeing that they are working away is a subtle form of peer pressure, and it helps push us to keep working (and perhaps the reason that going to libraries used to be a "thing.") If you are having a half-day or full-day writing date, take short breaks together to talk, walk, or have lunch.

Setting limits on chatting during writing dates is important so that you can actually be productive, but you don't need to be excessively rigid about this. Sometimes new ideas for one's writ-ing, a crucial question, or simply encouragement to keep going can make a big difference. Fun fact: with my friend from the Economics department, having writing dates (and inevitably, spending some of this time chatting) eventually led us to conceptualize, write, and submit a manuscript together that was eventually accepted by *JAMA* [2].

Use Your "Lunch Hour" to Hold Regular Writing Sessions with Colleagues

Do you sit at your desk and eat lunch by yourself? Do you have an hour (or even 45 minutes or less) to spare, once a week, that could be converted into a writing session?

This is similar to a writing date but is a way to squeeze in some writing time even during busy clinical schedules. It is also a "commitment device" of sorts: by getting together with colleagues with the explicit goal of writing for a set amount of time, you will feel more compelled to write during that time (rather than check Facebook or tweet cute puppy pictures).

An easy way to get started is simply to invite one or two (or more) colleagues who, like you, would like to write more, to help set up a regular meeting at a regular time and place. Bring your laptops or even just a pad of paper (you really don't need a computer to get writing; more on that later). Set a timer. Write for that amount of time. Simple, palatable, social.

We started a writing session like this at Stanford, with three or four colleagues meeting regularly. It became the impetus to develop and launch our formal 12-week writing workshop, which is discussed further below.

Starting a Writing Group: Practical Advice

Starting a writing group is not difficult; it simply takes a sustained commitment to meet regularly and a little organization. Furthermore, similar groups have been demonstrated to be effective

in increasing publication productivity—particularly among women [3]. Below are two examples of writing groups run at different institutions, Stanford and Weill Cornell.

Example 1: Structured 12-Week Writing Workshop

Based on the work of Wendy Laura Belcher (who runs a fabulously helpful website, which includes links to similarly fabulously helpful advice about writing, including how to run a writing group), we invited any interested clinician-educator faculty to join a new faculty writing workshop (see Box 1 for the text of the email we sent out).

The focus on clinician-educators was intentional, as we wanted to reach out to individuals who might (1) feel pressed for time due to clinical needs; (2) know that they need to publish but were struggling with where to start or how to continue; (3) feel somewhat isolated from other faculty, due to either location of their clinical work or other factors; and (4) benefit from peer mentorship and support around writing and scholarship.

The invitation was emailed to all clinician-educators in the department and included the rationale for the group, information about purchasing Belcher's workbook, and a clear statement that the group was intended for anyone—regardless of the stage of their writing.

Box 1: Sample Email Invitation to Join a New Writing Group
Dear Faculty:

Writing: a social activity...What??

Yes, writing is a social activity, and participating in a writing group can help you get your great ideas out of your head and onto paper.

IF this sparks your interest, come hear more on [Date/Time/Location].

Orientation Meeting for New Writing Group for Faculty

This new group, as part of the department mentorship program, will provide a structured forum—complete with weekly reading, worksheets, and deadlines—for *clinician educator* faculty who need (or have wanted!) to write up an article for publication. We will use the book, "Writing Your Journal Article in 12 Weeks: A Guide to Academic Publishing Success," by Wendy Laura Belcher as our guide.

[Link to book so that faculty could go online and purchase it.]

Whether you have the kernel of an idea but don't know what to do next, or you have a nearly completed draft of an article that has gotten stalled, or maybe you have slogged through a manuscript or two but would like a better framework...this writing group is for you!

We look forward to seeing you all there!
Best,
Sallie DeGolia and Laura Dunn

We received an excellent response (approximately 15 people who stated they could attend, as well as others who wanted to follow along in the book but would be unable to attend in person due to clinical duties). For the first meeting, we asked people to read the Introduction and first chapter of Belcher's workbook. This helped everyone get on the same page for the first meeting, fostering a shared culture around the purpose and expectations for the writing group. After each week's session, we sent a summary of notes from the meeting, reminders about "assignments" for the following week, and any logistical notes (see Box 2 for the notes that were sent after the first meeting.)

Box 2: Notes from the Introductory Meeting of Faculty Writing Workshop
Summary:

We reviewed the impetus for the writing group (to serve as part of the faculty men-

toring program). Some members talked about how the book has already been helpful to them. We talked about our own personal barriers to writing—psychological hurdles as well as time pressures. We also discussed the places and times we like to write and the idea of having writing dates or gatherings to facilitate making time for writing.

We agreed that Monday, March 26, 2018, would be "Week 1, Day 1."

We also agree that we would each choose a manuscript that we would like to write or revise over the following 12 weeks, with the goal of having a manuscript ready to submit by Week 12 (June 11–17).

We went around the table and we each brainstormed about what manuscript we would like to draft or revise. It is important to note that these ideas and drafts are in many different stages of writing—from an idea percolating in one's head, to having data already analyzed and some draft material already written, to previously presented posters that could be transformed into manuscripts.

One key thing that we talked about regarding selecting a manuscript to work on, is that it should be something that we are excited to write about, or a topic we are passionate about.

The writing workshop ran for the predetermined 12 weeks, with specific assignments for each week, as outlined in the workbook. Having a time-limited group and using a structured workbook was another intentional aspect of the writing group. Having assignments and deadlines can be extremely motivating, as can the peer pressure of having to share specific parts of your manuscript at certain timepoints. The 12-week writing group can be adapted to different timelines, and you can even request syllabi for these courses (to help you structure it) on Belcher's website, https://wendybelcher.com/writing-advice/teach-journal-article-writing-class/.

This is just one example of a method for starting and running a writing group. Other useful resources include Peter Elbow's book, *Writing Without Teachers* [4], which provides in-depth guidance for running a "teacherless writing class." Sharing one's writing, as well as learning to give and receive feedback, are, in Elbow's view, essential to improving one's writing. Writing for and by oneself is not sufficient, he says.

> But writing is also a transaction with other people. Writing is not just getting things down on paper, it is getting things inside someone else's head. If you wish to improve your writing you must also learn to do more business with other people. That is the goal of the teacherless writing class. [4] (p. 76)

Example 2: Writing Seminar: Bringing Clinicians and Researchers Together

At Weill Cornell, one of us (NM) helped develop a novel writing seminar, which has shown substantial results in terms of publications [5]. The seminar's purpose was to promote clinical observation—e.g., through case reports—as a method of generating testable hypotheses.

An important premise of the seminar was the idea that case reports serve as a platform to circulate new knowledge gained in clinical practice. From Freud's case report of Anna O illustrating the concept of hysteria in 1895 [6], to McBride's case report of congenital abnormalities associated with thalidomide in 1961 [7], to today's medical literature, case reports have helped describe new syndromes, highlight clinical complexities, and bring new clinical observations to attention.

Writing an informative case report requires practicing, querying others who published, pairing clinicians with academicians, socializing in a scholarly environment, and creating a forum for a functional dialogue between physicians and researchers [5].

Thus, the goal of the seminar was to enhance clinical observation with the goal of helping clinicians formulate conceptual hypotheses, with the intent of translating clinical experience into publishable material that would benefit the clinical field.

Similar to the 12-week faculty writing workshop described in Example 1, participants in the

Weill Cornell seminar are clinically oriented academic psychiatrists without research training. Their enthusiasm about clinical scholarship has attracted senior investigators to join the seminar and serve as mentors. The seminar is held twice per month and attended by 18–20 faculty members. Each seminar meeting starts with a presentation by a participant. The role of senior faculty is to identify a clear conceptual focus and to offer direct suggestions for formulating a clinical hypothesis. The group discussion and participants' feedback increase motivation, generate topics, and provide a forum for brainstorming new and creative ideas.

The seminar evolved through several stages. In its early stage, it encouraged the preparation and presentation of publishable case reports, with publishability based on novelty and educational value.

In addition, all participants completed the Stanford online course "Writing in the Sciences" to strengthen their writing skills (see Resources section below). As the seminar developed, participants were guided to describe a noteworthy clinical observation and illustrate their critical reasoning through accurate, précised, and intelligible well-constructed text. Senior faculty members helped guide participants to develop a structured draft and to shorten the time from presentation to submission. The seminar paired clinical faculty with research-trained faculty based on common interests. Subsequently, most publications generated from the seminar have been authored by a clinician and co-authored by an investigator.

Furthermore, the seminar has served as an important educational venue for training junior faculty, medical students, residents, and fellows in critical thinking and scientific writing. To some participants, the seminar is the first experience with scholarly writing and manuscript preparation. We have found that the seminar enhances critical reasoning skills of the participants through formulating a clinical question, identifying and appraising the relevant evidence base, and applying the evidence to the patient. The seminar has also provided guidance in how to collect data from various resources, perform a literature review, structure a manuscript, obtain consent from the patient, and how to submit and revise the manuscript.

The seminar has generated numerous scientific publications in peer-reviewed journals. A satisfaction questionnaire (10 items, scored from 1 = "Strongly disagree" to 5 = "Strongly agree") completed by 20 participants indicated overall strong endorsement of the seminar. Three items of the questionnaire, all strongly endorsed by participants, merit special attention, i.e., "The seminar sharpens the participants' observation power"; "The seminar encourages innovative approaches to clinical problems"; and "The seminar helps participants to use their expertise in forming medical hypotheses."

As with the 12-week faculty writing workshop described in Example 1, this seminar can be implemented by other programs. The main requirement for its application is the availability of clinicians interested in advancing clinical sciences—as well as their own and their colleagues' academic careers—and at least a few more senior investigators willing to engage in this endeavor.

Moreover, the "writing seminar" evolved into the "Clinical Scholar Institute" as a continuum model. The institute is intended to promote faculty academic development and career progression through mentoring and setting professional goals.

The institute is held once a month and attended by the same 18–20 faculty members. The scholars are divided into four groups, and each group is mentored by 1–2 senior faculty. During institute meetings, the mentors review the professional progress of each scholar including publications, promotion, networking, and career goals. Scholars are encouraged to meet individually with their mentors to discuss skills necessary to advance their career.

Words to the Wise

- Get into the habit of writing for short blocks of time (even 15 minutes a day can enhance productivity greatly).
- Separate writing from revising (see Peter Elbow's books for more on this).
- Find a writing buddy.
- Start a writing group.

- For a writing group (with three or more participants), try using a structured, time-limited approach (see, e.g., Wendy Laura Belcher's workbook, *Writing Your Journal Article in 12 Weeks*, and her website listed above in the Resources section).
- Seek feedback on your writing (and don't be defensive); this is the best way to improve your writing.
- Don't let the perfect be the enemy of the good (submit that manuscript!).
- Read and review other people's manuscripts.

Ask Your Mentor or Colleagues

- What advice would you give me about writing?
- Would you join a writing group if I started one? Why or why not?
- What would you want to get out of a writing group?
- What are your best experiences related to writing?
- What helps you enjoy the writing process? What hinders your enjoyment of the writing process?
- Do you have any suggestions for ways to improve my writing?
- Would you be willing to provide me with constructive feedback on my manuscript?
- Do you have any suggestions for me to help me learn how to be a better reviewer of other people's manuscripts?

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Resources

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Other writing books: A wonderful list of other books on writing can be found here: https://www.literaryladiesguide.com/writing-advice-from-classic-authors/resources-for-writers-and-readers/.

How to Write and Publish an Empirical Report

Alan K. Louie and Laura Weiss Roberts

Introduction

The old adage in academia has always been "publish or perish." This remains true, despite the increasing demand on academic physicians to provide patient care, teaching, community outreach, and other university services. For any professorial ladder in academic medicine that emphasizes scholarly activity, the number of first-authored or senior (last)-authored empirical articles in refereed journals is the metric relied upon most by promotion committees.

So, why is publishing about data so important in academic medicine? First, the life of an academician is filled with ideas and discoveries, but these are of little impact unless they are shared with colleagues who can evaluate and translate these findings into scientific, clinical, and educational meaning. Disseminating one's scholarly work through publication is a method of sharing in the profession of medicine. Second, the creation and analysis of data, primarily in the context of hypothesis-driven studies, help advance understanding in an area in a manner that can be tested, replicated, and, potentially, refuted. A certain "objectivity" to this process is highly valued in biomedical sciences. Third, writing for an audience of "critical friends" is an excellent (though for many also arduous) way to hone one's understanding of a subject. Moreover, the opportunity to obtain guidance and feedback from expert colleagues via peer review allows for further refinement and clarification of one's work. Writing for publications is part of the craft of academicians, and in each field, one needs to learn the different traditions, conventions, and ethics of the craft.

In this chapter, we assume that a research question was previously established, a study designed, and data collected. Now the investigator faces the stepwise progression through thought processes and concrete tasks involved in writing an empirical report. One certainly need not follow the order of steps outlined below, but we hope an intrinsic logic to the sequence presented will become apparent and be instructive. We start with the core of the empirical report, that is, the data, and end with the nitty-gritty of writing mechanics. The chapter ends with a discussion of strategy—how to get one's report published, manage the peer-review process, and plan the next publications.

Data-Centered Writing

The core of an empirical report is its data. With sound data, the report will have a solid foundation. Without sound data, the report will run into

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contradictions, gaps in logic, and likely rejection by peer reviewers. (With weak data, the wise faculty member will delay writing and consider obtaining additional data.) For these reasons, the author early on must take a critical eye to the data. The major obstacle to this is the author's lack of objectivity, because the author is deeply invested in the data yielding positive findings and being published. Having a mentor critically look at the data may enhance one's objectivity. Consultation from a statistical expert may be critical to ensure that the right statistic is being used and to consider additional analysis of the data (e.g., power analysis). The author might solicit useful critiques at research talks, give a grand rounds presentation on the work, or seek feedback at scientific poster presentations.

In presenting scholarly work, the author needs to determine the core findings that are objectively supported by the study design, data, and statistical tests. Data that are really inconclusive and do not relate to the final conclusions should be removed in the interest of parsimony and coherence of the argument developed in the report. For example, unexpected events in the collection of data may require the cutting out of data that became suspect (e.g., data from part of the study in which the blinding was compromised). This is different from omitting data that are valid but that are contrary to one's hypothesis—an omission under this circumstance is, of course, an ethical misstep. One should delete data that are noncontributory to the final conclusions of the study. For instance, some data will need to be left out because they are inconclusive, because they do not yield statistically significant findings due to a lack of statistical power. In this case, one cannot really say that there were no effects but rather that the trial was not sufficient to demonstrate findings in one direction. Leaving data on the proverbial "cutting room floor" may be painful for the researcher who has labored to obtain every data point. The hesitation to let go of hardwon, if weak or flawed, data may be especially difficult for early-career faculty. This may be less difficult for more senior faculty members who may have files of unpublished data that they never had time to write up or felt were too weak to publish. Early-career faculty members will learn from each empirical project they conduct. Regrettably, not all of their research results will be publishable.

After the data are defined and analyzed, authors sometimes despair that their hypotheses were unsupported or found to be untrue. When this occurs, the investigators should go back through their design, methods, and analyses to ensure that they have conducted their work properly. Then, if this test has been met, investigators should allow themselves to consider creatively what their findings mean. Open-minded researchers often discover that the unexpected findings tell them something that is much more interesting and that has far different implications than what was anticipated at the outset. This is the point of discovery—and it can be the delight of doing empirical studies.

Target Audience

Before starting to write a manuscript, it is helpful to decide upon the journal to which to submit the paper. The selection of a target journal helps improve efficiency in the process, in part because journals differ significantly with regard to preferences, length, and style of their published papers. Certainly the authors may later change direction, but choosing a journal up front helps structure and focus the process of writing so that a manuscript is created along lines that are consistent with the journal's requirements.

So, how does one pick a target journal? Having taken a careful and critical eye to the data, the authors reflect on the intended reader. The authors should ask, "Who will want to know about these findings?" A Medline search may provide some hints to the author on potential journals for consideration. Looking through the references that one plans on citing may also yield appropriate journals that have published on related topics. More senior authors may have suggestions, particularly for journals in which they have already published.

Having drawn up a list of appropriate journals, the authors will want to pick the one that will showcase and disseminate their study the best, and this may require some background work. We suggest that it may be worthwhile to peruse recent issues of candidate journals to see what types of empirical reports are given top billing (e.g., quantitative or qualitative research, survey studies, or measures of biomarkers). One may want a journal with a larger number of readers (quoted in the annual business report published in each journal) and the appropriate type of reader (e.g., basic scientists, clinical researchers, or clinicians in practice). In addition, a key metric of academic importance is the impact factor of each journal, which is calculated by a complicated equation and may be found by searching the ISI Web of Knowledge Journal Citation Reports. The impact factor may also be found on the journal's website. Conceptually, the impact factor signifies how frequently articles in a journal are cited on average in the literature at large. In other words, it illustrates the impact of a journal's articles on the field—the higher the score, the higher the impact based on citations. Also of interest is a journal's typical length of time from acceptance of a manuscript to its coming out in print. Sometimes, investigators need a report to be published soon because it is the foundation for their next publication or grant. In estimating the typical time to publication, one might look for a footnote to each article in a journal with the dates of submission and acceptance.

It is one thing to "choose" and another thing to be "chosen"! In selecting a target journal, the author's assessment of a journal's value is counterbalanced by the fact that the journal will be assessing the value of the author's manuscript. Some authors will initially submit to the most prestigious journal possible with the understanding that the journal accepts a low percentage of submitted manuscripts. If the manuscript is rejected, the authors will revise on the basis of the reviews received and resubmit the manuscript to a less prestigious journal that is more likely to accept the manuscript. Although this may be a defensible strategy, it may considerably delay potential publication, necessitate reformatting the manuscript for the second journal, and constitute inappropriate use of the peer-review process.

An author should not waste time submitting a manuscript if it does not fall within a journal's scope or meet a journal's other requirements (e.g., some journals require at least a 50% response rate for questionnaire studies to be published). Such information may be found in the "Instructions to the Authors" maintained on a journal's website or included in an issue of the journal (usually the first or last issue of the year). Be aware that journals may welcome articles on different themes from time to time. This may be announced by a "call for papers" on a certain topic, which will often be published in an issue of the journal. Alternatively, some editors are receptive to potential authors contacting them and discussing whether their journal might be interested in the specific topic of a manuscript.

Authorship

Authorship is both a matter of professional integrity and a reflection of effort. To be an author, an individual should have contributed substantively to the development or execution of a project or to its analysis and interpretation—ideally, every author will have contributed in each of these components of the scholarship (Figs. 1 and 2). Some journals now list the types of contributions made by each author. Ethical guidelines for authors are well established and can be found, for example, at the website of the International Committee of Medical Journal Editors (http://www.icmje.org/). All authors should approve the final version of the manuscript prior to submission to a journal.

Before starting to write, authors are well advised to discuss who will be an author as well as the likely order of authorship. This really should have been discussed as the research project was taking shape, with a preliminary plan for each participant's roles (e.g., planning the study design, collecting data, analyzing data, writing the manuscript). Early discussion about

Fig. 1 Decision tree for determining whether a contributor to a collaborative project qualifies for authorship, based on the International Committee of Medical Journal Editors (ICMJE) authorship criteria. (Copyright 2016 by Laura Weiss Roberts. Reprinted with permission)

Fig. 2 A heuristic approach for ethical prospective authorship planning that balances the work effort and professional responsibility of individual contributors in deter- mining eligibility for authorship. (Copyright 2016 by Laura Weiss Roberts. Reprinted with permission)

authorship is particularly important if collaborating with authors at other institutions. Having an initial understanding, which then is modified on the basis of actual contributions, averts later disagreements over the order of authorship. Generally, the first author is the one who writes the majority of the report. If there is an author who made the research possible by establishing and supporting the research group and generally overseeing the work, he or she is listed as the last author, also known as the senior author. Ethics would dictate that no author be listed gratuitously and without a true contribution to the study (e.g., as a favor or to increase the publishability of the manuscript).

Writing Your Manuscript

Once an author knows what he or she wants to say and to whom, the manuscript is ready to be written. Everyone has a favorite way to get thoughts out into writing, some doing it more fluidly than others.

Gernsbacher [1], in an exceptional recent article, outlined how best to write an empirical paper, emphasizing the importance of transparency, reproducibility, clarity, and memorability. She recommended that investigators preregister their trials, state their hypotheses, show their "warts" to enhance transparency, document methods and results very explicitly, and cite sources responsibly to enhance reproducibility. Gernsbacher suggested that using short paragraphs made up of short sentences helps with clarity and that the use of narrative and beginning each paper with a "hook" or compelling idea helps with memorability.

We endorse each of these ideas, and below we present our stepwise approach to composing the manuscript for an empirical report, but each author has to find his or her way (Table 1). For both of us, the first "writing" work is the construction of the tables or figures that will serve to highlight the most salient findings. Starting with the tables or figures helps us to focus the data-driven message of the study before we start on the text. We then begin with the Methods section because it is the most straightforward and

Table 1 Parts of an empirical report in scientific journals

Abstract
Keep it structured, pithy, and easy to read
Make it noteworthy, because many decide whether to read the article on the basis of the abstract
Introduction
Catch the readers' attention by opening with the clinical problem or gap in knowledge that one is addressing
Provide evidence and references in the literature supporting the importance or controversy relating to this problem or gap
Indicate how one's study addresses the problem or gap
Methods
Provide enough details for others to critique one's study design and statistics and even to duplicate it
Address issues of institutional review board approval, informed consent, confidentiality, and copyrights
Results
Put the most important data into graphs
Avoid listing excessive amounts of data in tables that do not enhance the conclusions
Save discussion or explication of results for the discussion section
Discussion
Be sure the conclusions are adequately supported by the results
State limitations and generalizability of the data
Point to future avenues of research suggested by the results
References
Format citations in the style used by the journal
Check the accuracy of citations and that each reference clearly backs up the text to which it is associated
In general
Avoid using informal language
Be concise and omit details that do not relate to the conclusions
Match the style and format to typical articles in the journal

least interpretive. Writing the Methods section first (rather than, say, starting with the paper's introduction) helps to "get the ball rolling" when authors are struggling with those first few (awkward) words.

Methods

The goal of the Methods section is to describe one's empirical study with enough detail to permit others to duplicate and rigorously evaluate the work.

At first blush, this is the simplest section to write; one need only give an incremental description of how the study was actually conducted. Care should be taken to make this section concise and relevant to only the findings that one previously decided to include in the report. The description should facilitate the reader's evaluation of the experimental design with regard to various standards, such as whether research participants were randomized, comparison groups had similar treatment, evaluations and/or medications were administered under blinded conditions, and all participants were followed and accounted for by the end of the study. Whether the methods are qualitative, quantitative, or a mixture of these, the statistic(s) used in one's analysis should be explained. Additionally, some readers may want to know applicable statistical details, like the type of intent-to-treat analysis that was performed or the correction method used to avoid a type I statistical error. Since space is usually limited in a journal, the editors may not want authors to reproduce complete questionnaires or other written instruments used in the empirical study; in this case, authors should reference where these may be found or offer to provide a copy if contacted by interested readers, if this will not constitute a copyright violation.

Other details relating to the responsible conduct of research may be noted here like the granting of an approval or a waiver from an Institutional Research Board (IRB) with the name of the IRB, provision of informed consent, protection of confidentiality of participants, and compliance with copyrights. Increasingly, disclosure of these aspects of the method of the study is becoming an imperative to ensure the professional integrity of the work. Guidelines for writing the Methods appear in the Consolidated Standards of Reporting Trials (CONSORT) statement [2, 3].

Results

The Results section is key to the quality of an empirical report simply because it presents the findings of the study. Findings should be written about in an organized, objective, and observa-

tional style. Discussion, interpretation, or explication of the data does not belong in the Results section and should be moved to the Discussion. Although presenting the data may sound uncomplicated, the authors need to decide on a logical order for reviewing the data and the best way to display them.

Graphs capture the readers' attention, are visually accessible, and are often more readily interpretable. One's most important data should be put into graphs. Data may be displayed in different ways; some ways are much more effective than others, and some prompt new ways to think about the data. Tables may also be useful but have less impact than graphs and may be overwhelming for the reader if they exhibit excessive amounts of data that are not essential to the conclusions. Often the key information in a table may be more simply summarized in the text. Be meticulous in reporting the results—numbers should add up— and do not repeat data (e.g., reporting the same data in a table/figure and in the text).

Ethical issues arise in the reporting of results. Authors are expected to not omit or be vague about data that were contrary to their hypothesis. Which measures were primary and which were secondary or ad hoc should be clear. Additionally, results should not be reported in a way that glosses over a probable type I or type II statistical error, includes data that may have been compromised by violation of blinding or randomization protocols, or deemphasizes the existence of participants lost to follow-up. The information in the Results should be sufficient for the reader to critique the statistical handling of the data.

Discussion and Conclusions

The Discussion section generally starts with a brief summary of the importance of the question addressed (picking up where the Introduction left off) and the value of the basic findings of the work. This is followed by discussion of the findings and contextualizing current findings in terms of prior findings in the literature—noting similarities, differences, and how the current findings advance the literature. The authors should propose conclu-

sions and implications of their findings that will be of great interest to the readers. The authors, however, should exercise caution and not draw conclusions that go beyond what their data objectively support. The tradition in scientific writing is to err on the side of being conservative about the implications of the data. Since the significance of most findings is based on probability and statistical significance does not always equal clinical significance, one must reflect healthy skepticism in one's language. Scientific authors are expected to specifically articulate limitations of their study and discuss possible flaws in the study design. Having enumerated likely criticisms that others might raise, authors may reasonably add preemptive arguments to dismiss these criticisms. The Discussion section is frequently ended by noting what future research would constitute the next step after the current study.

Introduction and Abstract

Some authors like to save the Introduction and the Abstract as the last writing tasks because they are highly dependent on the other sections. These sections are also very important in "hooking" editors, reviewers, and readers and should be written when one thoroughly understands the data—an epiphany that often occurs in the middle of writing a paper, rather than beforehand! Finishing the other sections first will ensure that their contents have been settled upon and carefully focused. The Introduction is meant to set the stage for these other sections and to entice the reader to read further. The Introduction typically begins with a statement about a problem or knowledge gap in the field. Supporting evidence and statistics generally follow to propound the need to address the situation at this time. The authors then present their research question and relevant hypothesis. The author is ethically obliged to provide balanced references to the literature, including studies that are supportive or contrary to his or her hypotheses. This having been said, the authors should greatly limit coverage of the literature and background material that would be more appropriate for a review article. The Introduction ends

with an outline of the authors' study, how it tests the hypothesis of the manuscript, and how it will help solve the problem or fill the knowledge gap.

Abstracts should be pithy and structured. Many journals now require structured abstracts and indicate headings to be used, for example, objectives, methods/design, results, and conclusions. Being "lean" in one's language may be a challenge. Given a word limit, one must decide what to put in the abstract and what to omit. For instance, the author needs to choose which few results to highlight in the abstract, leaving the rest to be described in the Results section. The chosen results should be described concisely yet with scientific accuracy, which may be difficult since conciseness so often requires the omission of various conditions and qualifications that usually accompany any claim of an empirical finding.

References

One of the final tasks is the listing of references that have been cited throughout the manuscript. Software is available to assist in this process and is handy for long articles and for managing the literature one routinely cites across many publications. Many journals limit the number of references allowed. This parsimony, however, may make it hard to give credit where credit is due to other investigators, so fairness in this regard needs to be assessed. Authors should be responsible in making sure the citations are accurate (e.g., correct year of publication, volume, and page numbers) and that references clearly relate to the text they are associated with and support. Readers do not appreciate careless references that do not provide backing for the statements to which they are attached or citations that are written incorrectly. (Expert reviewers invited to assess your manuscript, too, would like to be cited correctly!)

Mechanics

After writing a rough draft of the sections described in the previous text, the authors may edit the format, language, length, and style, so

they will match that of the journal targeted for submission. As described above, journals usually have "Instructions to the Authors." These instructions are specific with details like the section headings to be used, the word count of the manuscript, structure and length of the abstract, appearance of figures and tables, the format for references and footnoting, and more. A generic rule for most journals is to be concise; space is limited, so writing should be direct and not verbose.

With regard to language and style, some conventions are generally observed in scientific journal writing; for example, informal language is not used. Some fields have developed typical diction (e.g., "The patient presented with…"). Authors might do well to look through recent issues of the targeted journal to find studies with similar structure to their own, providing examples of the specific language and style appearing in the journal. Authors are wise to ask a mentor or colleague, especially those not involved in the study, for a critical reading of the manuscript. Careful proofreading and feedback to improve the manuscript at this stage are prudent. A standard writing guide to mechanics and style and a thesaurus come in handy.

Lastly, mechanics also include completing the writing in a timely fashion. Even experienced writers sometimes have difficulty with getting stymied while writing a manuscript. Many practical solutions are a matter of common sense, like protecting regular time and space for writing, breaking the writing tasks into manageable segments, and providing self-reinforcement for completing sections of writing. One of us (AKL) reinforces the completion of a writing section by minimizing the document, so that rotating family photos become visible on the computer desk-

top. Some external help might be sought from a writing partner or by attending writing workshops sponsored by a medical school. Keeping a constructive attitude toward oneself as an author may be most important. One must believe that one's results are worth sharing and that one is capable of expressing them in writing. Early authors may find themselves procrastinating the writing-up of their work or getting lost in being too perfectionistic. Success at getting the first few studies published goes a long way in boosting self-esteem as an author, but nevertheless, writing is not uncommonly a mix of pain and pleasure for most academic faculty members, since successful reports usually are rewritten and revised several times. Writing skills in general improve over many years with intentional practice; one needs to have faith and keep writing.

The Peer-Review and Editorial Processes

One of the great advantages, and headaches, of scientific publishing is the peer-review process (Fig. 3). This is an imperfect process, but it is the guardian of scientific quality (For more details, see Chap. 32, How to Review a Manuscript). When a manuscript is initially submitted, it is screened to be sure the topic is within the scope of the journal. Manuscripts appropriate for the journal are then sent out to two or more reviewers. Many journals provide double-blinded reviews in which the reviewers do not know who the authors are (i.e., with the names of the authors redacted before transmission to the reviewers), and conversely, the authors are not given the names of the reviewers. The hope is that the double-blind review process will lead to less bias, greater

Fig. 3 Peer-review and editorial processes

fairness, and honest commentary. Occasionally, the editors may also seek review by a statistical consultant.

The reviewers write reviews [4] that then enter the editorial process. The editors use the reviewers as advisors so they may come to some consensus about an editorial decision. This decisional process is not always easy—especially if the independent reviews are not in agreement or even contradict each other. The editors' job is to adjudicate in this situation and formulate a decision. An editorial decision concerns the publishability of the manuscript—does it meet the quality standards of the journal in question, will the readership of the journal find the manuscript valuable, and if the manuscript is found wanting, how may it be revised to make it publishable. Early-career authors should realize that reviewers usually feel it is their job to come up with some advice for the authors. Manuscripts are rarely accepted without revisions or with only minor revisions. Moreover, empirical studies of the behavior of reviewers have revealed that even well-liked papers receive far more negative comments than praise [5].

After an editorial decision is made, the authors will receive a letter about the decision and copies of the reviews. It is hoped that a manuscript will be returned to authors with an editorial decision that the manuscript requires significant or major revisions. This is actually good news, because it means the article was not outright rejected. Rejection indicates that the editors are not interested in the manuscript, even if revised, and the authors' choices are to either abandon getting published or submit to another journal. Absent a rejection, the editors are saying they are still interested in possible publication, with revisions. Usually, unless the revisions are minor, the editors will indicate that a revised manuscript is welcomed, but publication will still not be guaranteed. When a manuscript is resubmitted with revisions, the editors may send it out to the initial reviewers for rereview or to new reviewers. This process may potentially go through a couple of cycles before the editors make a final decision to accept or reject.

The expressed intents of the peer-review and editorial processes are to improve manuscripts and to maintain the quality of scholarship in journals. This having been said, a normal reaction of authors to reviewer criticisms and requested revisions is to take umbrage. Generally, an author feels sensitive to critique of his or her writing, especially from anonymous reviewers. Worse is when the author believes that the reviewer, being human, has made a mistake, been inaccurate, or been unfair. Negative reactions, however, are counterproductive to the process of getting published. An author is best advised to work on developing tolerance to criticisms. Consultation with a mentor about a review or examination of one's reactions with a therapist may be helpful. In the psychology of writing, as an organic process, a constructive attitude of the author toward his or her writing, and in scientific writing, toward reviewers, is crucial for success.

Remember that a central goal of research is to disseminate an author's findings in hopes of advancing the field. To do this, the author will need to find a way to get published, to reach an audience of peers, and to do so as often and widely as possible while maintaining quality. The peer-review process should be viewed as potential assistance in achieving this goal. The reviewers will provide criticisms with the intent of improving the quality of the article, some of which one will deem useful and some not. Reviewers will also give an author a prediction of how the readers will receive the manuscript and how the author may make the manuscript clearer and more persuasive to the audience. Rather than seeing the reviews as obstacles to getting published, one might think of them as consultations at no cost on how well one is expressing and selling one's findings and ideas.

After receiving reviews, authors may break reviewers' comments down into discrete suggestions. The authors need to determine whether a suggestion relates to the research (methods, study design, and data analysis) or to the way the report is written, because the remedy for each is quite different. In the former case, reviewers may suggest that more data be collected and, in the latter, that the described con-

clusions of the study be rewritten. The key is to remember that one does not have to agree with or follow a reviewer's suggestion. One must, however, *respond* to the suggestions—indicating how one has followed them or why one diplomatically disagrees with doing so. Each suggestion should be enumerated and followed by a response in a cover letter accompanying one's revised manuscript. This letter is addressed to the editors, who want to see that the authors responded to, but not necessarily followed, each of the reviewers' suggestions. It is extremely important to bear in mind that the editors do not necessarily agree with the reviewers, who serve as consultants to the editors, and the editors are the ones to make the final decision on the publishability of the manuscript.

This having been said, if the review process is working as intended, many of the reviewers' suggestions will be worth the authors' careful consideration, and the editors may agree with what reviewers suggest. At this juncture, the authors have the choice of making revisions and resubmitting, submitting to another journal that is less competitive, or abandoning the plan to publish. Submitting to another journal represents a second chance and perhaps a fresh start, but it requires reformatting the manuscript and will delay the final date of publication. New reviews may or may not be less critical or helpful; sometimes a reviewer for the first journal may be a reviewer for the second journal and may get one's manuscript again!

If the journal editors like a manuscript but do not want to accept it as an empirical report, they may be willing to accept a downsized version. Because space is precious, editors may feel that one's manuscript does not merit the space for a 3000-word article; however, a brief report (about 1750 words) or a letter to the editor (about 1000 words) may be acceptable. These formats are worth considering if they are peer-reviewed in that journal, thus counting as a peer-reviewed publication on one's curriculum vitae. Brief reports are often studies in which the science is less strong or that present data that are less conclusive, but still deserve space, albeit less space, because they are the first studies in a new area of research, provide the foundation for other studies, use innovative methods, or are particularly timely in the field. In other words, these factors enhance the contribution that the brief report will make to the literature, even though the design of the study may not be the strongest or the data are somewhat preliminary. A letter to the editor that is peer-reviewed will not garner as much attention as an empirical report or a brief report, but it may be better than not publishing the manuscript.

Publication Record

The publication record is found at the end of most curriculum vitae. It may include sections for articles that are peer-reviewed (also called "refereed"), invited but not peer-reviewed, and non-peer-reviewed. These may be followed by sections for review articles, book chapters, editorials, commentaries, annotated bibliographies, book reviews, enduring teaching materials, and other scholarly works. As mentioned in the beginning of the chapter, peer-reviewed empirical reports will be given the most weight by promotion committees. Nevertheless, non-peer-reviewed works are also important and often provide the foundation for one's empirical studies. For example, an oral presentation of data may lead to a poster presentation at a national meeting and then eventually to a publication.

Promotions are based on one's total publication record. Except for the rare publication that is eventually hailed as a breakthrough, one's publications are judged in aggregate with attention to both scientific strength and productivity. When viewed together, one's publications ideally develop a trajectory of research, beginning with pilot data in letters to the editor, preliminary data in brief reports, and finally empirical reports and studies that replicate these reports. Beyond recognition for meaningful and rigorous work, writing is intrinsically worthwhile in that one may share potentially valuable ideas and findings. Variety in publications is commonly desirable. For instance, publication in a range of journals, perhaps in diverse disciplines, adds some breadth to the audiences one has reached.

The early-career author should not get bogged down in focusing on only one manuscript. The outcome of the peer-review process and how widely the article will eventually be cited are too unpredictable to put all bets on one manuscript. Some more experienced authors prefer to have several articles in various stages of preparation, staying fresh as they switch from one to the other. This "multitask" approach should be the goal of every early-career faculty member on an academic track in which scholarship is expected.

Academic physicians should have a 5-year plan. This includes trajectories for scholarly activities, teaching, community outreach, and clinical work. With regard to scholarly activities, one might set goals in terms of numbers of posters or oral presentations at national meetings and of manuscripts submitted. The more experienced faculty member will want to have some manuscripts targeted for the more prestigious journals with high impact factors. They will want to track how many times their articles are cited by others by periodically searching through the Web of Knowledge (https://apps.webofknowledge.com/). More experienced authors may wish to become reviewers and later apply for editorial positions on a journal's editorial board. As one gets to know colleagues at other institutions through national meetings and networking, collaborating in research and coauthoring manuscripts is a wonderful way to deepen one's collegiality and reputation.

Words to the Wise

- Set up a regular schedule for writing and personal incentives.
- Establish deadlines or work with colleagues who will hold one another to deadlines.
- Writing and publishing are part of one's professional craft; do not take setbacks on a personal level but, rather, expect them.

- Realize that not all manuscripts (nor data) will result in a publication.
- Writing skills mature over years and with intentional practice; do not give up on writing.

Ask Your Mentor or Colleagues

- Are my data analyses and the design of my study sound?
- Is my empirical report written clearly and in the style of the journal to which I will submit the report?
- How would you respond to the peer reviewers' criticisms?
- How should I balance and strengthen my publication record?
- At my stage of development as an academic, what should be in my 5-year plan with regard to publishing?

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Suggested Reading

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How to Write a Case Report

Richard Balon and Eugene V. Beresin

As Borus [1] pointed out, writing for publication has been an "essential component of a successful career in academic medicine." This has been reinforced by the Accreditation Council for Graduate Medical Education (ACGME) requirements of scholarly activity for residents and faculty members. Writing and publishing a case report may be, and frequently is, a starting point of writing for publication. Putting together case reports, as Schnur and colleagues [2] noted, has also considerable educational value. As they wrote, "Such projects teach research literacy and evidence-based practice, nurture writing skills, and can introduce trainees to peer review process. Most importantly perhaps, they afford opportunities for close collaboration between faculty and residents on interesting projects that inspire creativity and highlights the centrality of scholarship to the program's educational mission" [2].

On the other hand, as Martyn [3] mentions, case reports are at the bottom of scientific writing and at the bottom of what counts as reliable evidence for clinical decision-making. Thus, one may ask, Why start writing with a case report? There are further various valid reasons. Most beginning faculty members are not involved in conducting studies and writing up their results. Case reports may offer a better and quicker start in writing than an original observation or a review. Writing a case report could be a very good starting point of the process of learning how to write for publication for young faculty members. Last, but not least, case reports provide interesting clinical and educational information to the field of medicine. Case reports may communicate discovery of new disease, possible disease mechanisms, and new therapeutic approaches, alert to adverse effects or a new beneficial effect of medications on the market, or generate new hypotheses [4]. For instance, Rison [5] mentions a couple of case reports—the description of "shaking palsy" by James Parkinson and the extensively disseminated Kaposi's sarcoma in a young homosexual man—that alerted other physicians to start further investigations of far-reaching significance. Furthermore, as Roselli and Otero noted, "The case report is far from dead," as in 2001 MEDLINE crossed the barrier of 1000,000 case reports, and 40,000 new cases enter MEDLINE each year [6]. Interestingly, during the last decade or so, the number of jour-

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nals publishing case reports has rapidly risen to at least 160 journals (mostly open-access) (4), probably due to the increased pressure on faculty and residents to publish and expansion of the number of writers for various countries (e.g., China). Thus, there seem to be enough reasons and audience to write an interesting, solid case report.

Over the last years, several new articles providing guidance to writing case report appeared in various journals (e.g., [5]). A group of authors [7, 8] actually developed CARE (CAse REport) guidelines for case report. The initial report [7] was published in several open-access journals.

This chapter provides a guide on how to write a case report for publication on the basis of available articles and our own experience.

Types of Case Reports

There are various categories or types of case reports (these may include a single case report, two cases report, or case series). The two main types are the regular, clinically oriented case report, published in a full case report format (see below) or as a letter to the editor, and the educational case report, which includes a broader description, discussion by an expert or multiple experts, and also possibly continuing medical education material (e.g., questions). Some journals use case reports as a medium for continuing medical education [9].

Green and Johnson [9] outlined three types of case reports that tend to be published: (1) diagnostic or assessment reports, (2) treatment or management reports, and (3) educational reports. According to Iles and Piepho [10], most of the case reports fall into one of the following categories: "(1) an unexpected association between two relatively uncommon diseases or symptoms, (2) an unexpected event or outcome in the course of observing or treating a patient, (3) findings that shed new light on the possible pathogenesis of a disease or an adverse drug effect, (4) unique or rare features of a disease, or (5) unique therapeutic approaches." Similarly, Wright and Kouroukis [11] distinguish four kinds of case reports: "(a) the unique case that appears to represent a newly

described syndrome or disease, (b) the case with an unexpected association of 2 diseases that may represent a causal relation, (c) the "outlier" case representing a variation from the expected pattern, and (d) the case with a surprising evolution that suggests a therapeutic or adverse drug effect." Both Iles and Piepho [10] and Wright and Kouroukis [11] draw from Huth's book on writing and publishing in medicine (see the suggested reading list at the end of this chapter).

How to Decide Whether, When, and Why to Write a Case Report

Writing just for the sake of writing should not be the reason for writing anything. The decision to write a case report should be based on the fact that this case report is going to provide new and useful knowledge to the field, unless the author is asked to prepare an educational case report. Thus, prospective authors "should resist the urge to report a case that announces a finding that, although new, makes no difference in understanding a disease or improving therapy" [10]. Green and Johnson [9] summarized the literature on reasons for submitting a case report for publication: (1) to present an unusual or unknown disorder; (2) to present unusual etiology for a case; (3) to present a challenging differential diagnosis; (4) to describe mistakes in health care, their causes and consequences; (5) to describe an unusual setting for care; (6) to present information that cannot be reproduced due to ethical reasons; (7) to illustrate a clinical hypothesis; (8) to prompt a new hypothesis; (9) to disconfirm a hypothesis; (10) to support a hypothesis; (11) to stimulate further research; (12) to make an original contribution to the literature; (13) to offer new insight into the pathogenesis of disease; (14) to describe unusual or puzzling clinical features; (15) to describe improved or unique technical procedures; (16) to describe the historical development of a field or movement; (17) to report unusual drug–drug, drug–food, or drug–nutrient interactions; (18) to describe rare or novel adverse reactions to care; and (19) to study the mechanism of a disease. While this list seems exhaustive, it is

not (further reasons include, e.g., a novel treatment approach), yet it certainly provides enough guidance.

A case report is expected to be original and novel. Interestingly, BioMed Central Research Notes (BMCRN) will consider medical case reports that describe any clinical case (5); these do not have to be novel, but authentic with "some educational value along with representing at least an incremental advance in the field. BMCRN will not consider case reports describing preventive or therapeutic interventions because these generally require stronger evidence" ([5] p 3).

A clinically oriented educational case report should follow the specific requirements of each particular journal (e.g., the *New England Journal of Medicine*, the *American Journal of Psychiatry*) and its editorial leadership. A purely educational case report usually describes a new teaching method or approach or ethical issues in teaching. It may be published in the format of a special column (e.g., Educational Resource Column in *Academic Psychiatry*).

What to Do Before Starting to Write a Case Report

Having an interesting, challenging, or unusual case does not necessarily mean that one will be successful in publishing it. Writing a case report, like any other writing for publication, requires a considerable amount of preparation and thinking it through. Rison [5] suggests that upon encountering an interesting case, one should discuss with colleagues from one's own specialty and other specialties whether they have encountered a similar case and then "hit the keyboards" to check whether any information in this area is available on the Internet and other resources (e.g., PubMed, Google Scholar, Cases Database). Wright and Kouroukis [11] provide more concrete advice on what to do prior to writing a case report to improve the chances that it will be published. They start with the well-known adage, "read, read, and read some more." One has to be familiar with the literature to know whether one's case is really as unique, interest-

ing, or useful as one thinks. In the beginning, the author has to conduct a *solid literature review* (PubMed, MEDLINE, Google Scholar, or other search systems) to see whether similar or related cases have been published in the past. Wright and Kouroukis [11] suggest that one does a search beyond just the disease/condition/medication and adds a search that includes the word "case report" across a large database. The literature search will confirm or disconfirm whether one's case report is unique or interesting. However, a previously published case report of a disease, symptom, or side effect does not necessarily mean that one's case is not publishable. The case report at hand needs to be assessed for unique aspects in comparison to previously published ones. Our general knowledge may also benefit from the addition of a rare or unique case to a previously published case report. Such a case may suggest that the presumably rare or extremely rare condition, situation, or event is not as rare as previously thought and should be studied further. Careful reading of previously published case reports and literature about the disease or treatment in general may also help in preparation of one's manuscript.

When considering one's case report for publication, one should also be aware of the fact that some case reports or case series may have far-reaching and not always positive implications. Procopio [12] warns us that "the publication of a one-off case report of an adverse effect can profoundly influence clinical practice on the basis of a freak event," while "the cases of the hundreds of thousands of people who have been safely and successfully treated with these medications are not published because no one wants to state the obvious." This statement outlines the scope of responsibility one has when deciding whether or not to publish a singular finding. Hence, there is a professional duty tied to the publication of a case report.

In addition to a lot of preparatory reading, Wright and Kouroukis [11] recommend that one order the appropriate tests to confirm the diagnosis; obtain informed consent (also for additional tests; for further discussion, see below); maintain patient confidentiality (examples include deleting patient's initials, avoiding identifying

details unless essential, and masking crucial parts of the patient's photograph); involve consultants early; request an autopsy if indicated; save blood samples if indicated; and discuss the case report with the editorial staff of the journal to which one intends to submit the case report. These suggestions apply to both retrospective (a description of something that already happened, e.g., symptom, diagnosis, side effect) and prospective case reports (e.g., planned attempt to treat a condition with an approved medication that has not been used in this indication but may intuitively make sense or patient reports that an accidental use of a medication helped him or her and the clinician wants to verify it).

The preparation of a prospective case report may slightly differ from the usual descriptive, retrospective case report. One may consider using various measures, such as rating scales or serial laboratory testing. Again, reading about the condition and/or treatment beforehand applies. Prospective case reports or case series may require approval of the ethics committee or institutional review board (IRB) prior to starting any intervention (observational cases may be exempt from IRB approval—one should always inquire at one's local institution).

Choice of a Journal and Journal Rules/Requirements

We discuss the choice of the journal where one would like to submit a case report as it may be a crucial decision with regard to getting the manuscript published. There are journals that, as a matter of editorial policy, do not publish case reports, either because they do not consider their scientific value to be significant or because of space considerations. Some journals that do publish case reports related to psychiatry include the *American Journal of Psychiatry* (as a letter to the editor or invited educational case), *American Journal of Psychotherapy*, *Annals of Clinical Psychiatry*, *British Journal of Psychiatry* (mostly as a letter to the editor), *Canadian Journal of Psychiatry*, *Current Psychiatry*, *Case Reports in Psychiatry*, *General Hospital Psychiatry* (full-fledged cases),

Journal of Clinical Psychiatry (both as a full-fledged case report and as a letter to the editor), *JAMA* (as a letter to the editor), *Journal of Clinical Psychopharmacology*, *Psychopathology* (full-fledged cases), *Psychosomatics*, *Psychotherapy and Psychosomatics* (as a letter to the editor), *New England Journal of Medicine* (Clinical Cases), and *Harvard Review of Psychiatry* (Clinical Challenges). Residents may also consider publishing case reports in the *American Journal of Psychiatry – Resident Journal*, which is run by residents under the oversight of the Editor of the *American Journal of Psychiatry* and published electronically.

One also needs to make sure that the case report reaches the proper audience [13] and thus needs to select an appropriate journal (e.g., a psychotherapy journal does not provide the most appropriate audience for a case report describing a side effect of a new medication) and tailor the manuscript to a specific audience. Reviewing the contents of the journal during the past year or two may be helpful to see whether the case report would appeal to the editor and the readership of the selected journal.

The authors should also consult the Information for Authors of the selected journal to make sure that their manuscript conforms to the policies of the journal as to the format, scope, number of words, illustrations, number and format of references, and the method of submission. At the present time, almost all journals accept manuscripts via the Internet and electronic manuscript processing systems (e.g., Manuscript Central). The journal instructions inform mostly on style (i.e., word limitation, pages, figures or illustrations, tables, references, need for an abstract, key words, and consent form) [14]. Journals usually do not provide much information on the contents of case reports. According to one study [13], 60% of journals publishing case reports provided information on whether the case had to be unusual, 55% whether an instructive or teaching point was required, 26% whether the case should be original and innovative, and 6% of journals considered hypothesis generation a reason for reporting the case. Only a small portion of journals requiring informed consent

actually provided a consent form. The amount of advice for authors is usually fairly limited. It might be informative to read recent cases in the journal to appreciate the style, format, or other details and to review the clinical material for preparation with a senior academic psychiatrist and/or the hospital's general counsel regarding the necessity for informed consent. In addition, many editors are happy to answer specific questions an author might have regarding preparation of a manuscript.

Special attention should be paid to the word number limitations or the expected length of a case report. The manuscript may be rejected merely on the basis of violating this requirement. Many journals, especially those publishing case reports as a letter to the editor only, allow no more than 500 words. According to the study by Sorinola et al. [14], the recommended length of case reports in various journals varied from 500 to 2000 words with a median of 1000 words. Educational case reports of some major journals and case reports in some psychoanalytical journals allow for a larger number of words. In any case, authors may check with the editorial office of the particular journal if they feel that the case report cannot be summarized within the word limit specified by the journal.

As mentioned before, the number of journals publishing case reports has skyrocketed [4] to around 160 journals by 78 publishers by mid-2015 (interestingly, only one of the long list of these journals [4, 15], *Case Reports in Psychiatry*, seems focused strictly on psychiatric case reports; its manuscript processing fee is $550). Most case report journal are open-access (94%) [4, 15], and only approximately 40% are indexed in PubMed [15]. The journals publishing only case reports usually publish a wide range of case reports, unlike the traditional mainstream major journals. Their acceptance rate (20–70%) is consequently much higher than the acceptance rate for case reports in mainstream journals (about 5%) [4]. Most of these journals are also open-access, their articles being available online for anyone without subscription. As Akers write [4], "As such, they usually require authors to pay an article processing fee upon acceptance, typically between $300

and $1200." A much smaller number of case report journals are subscription based, with some providing an open-access option for a fee. *BMJ Case Reports* employs a unique funding model; in exchange for a $297 (as of 2016—ours) annual fellowship fee, individuals can access the content of the journal and submit an unlimited number of case reports in a 12-month period. Some university library systems have become institutional members of *BMJ Case Reports*, which waives residents' and faculty members' submission fee. It is also important to note that many open-access journals are "predatory" (up to 50% of publishers of case report journals are involved in this practice)—they collect the processing fees without providing much value in return, e.g., without solid peer review, professional editing and typesetting, preservation of journal contents, or indexing in major databases [4]. They may even publish a bogus impact factor or falsely claim to be indexed in PubMed [4]. Jeffrey Beall has warned of these practices and provided some guidance regarding predatory practices in several publications (e.g., [16, 17]). Selecting a journal thus becomes more complicated, and one has to ask many questions, such as, "Do you or your colleagues know the journal?", "Can you easily identify and conduct the publisher?", "Is the journal clear about the type of peer review it uses?", "Do you recognize the editorial board?", and "Is the publisher a member of a recognized industry initiative?" [15].

Informed Consent and Confidentiality/Patient Privacy

Patient privacy has to be preserved. The patient cannot be identified from the case description or any other fact published in the case report. To address the issues of confidentiality and privacy, the International Committee of Medical Journal Editors (mostly major medical journals and the National Library of Medicine) published a statement in 1995 regarding patients' rights to privacy in published case reports [18]. According to this statement, "Patients have rights to privacy that should not be infringed without informed

consent. Identifying information should not be published in written descriptions, photographs, or pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives written informed consent for publication. Informed consent for this purpose requires that the patient be shown the manuscript to be published. Identifying details should be omitted if they are not essential, but patient data should never be altered or falsified in an attempt to attain anonymity. Complete anonymity is difficult to achieve, and informed consent should be obtained if there is any doubt. For example, masking of the eye region in photographs is inadequate protection" [18]. Singer [19] described some exceptions to this guideline, such as when the patient is long deceased and has no living relatives, the interaction with the patient was long ago (approximately 15 years), all extraneous information that might help identification is excluded, and even if the patient were to identify himself or herself, the described events are unlikely to cause offense. (Singer's article [19] includes the British Medical Journal's detailed policy on consent to the publication of patient information.) The circumstances of obtaining an informed consent in psychiatry and especially the area of psychotherapy could be a bit more complicated, as Levine and Stagno [20] pointed out. They suggested that in some situations, requesting informed consent may be unethical, can harm patients, and may erode the use of case reports as a valuable teaching method in psychiatry and psychotherapy. When in doubt, it is always useful to consult a senior academic psychiatrist with expertise in psychotherapy.

The identifying information should clearly be omitted, and using actual patient names or initials is prohibited (e.g., one can write either "A 35-year-old male" or "Mr. A. was a 35-year-old male" instead). Most of the journals have not historically required the patient's consent to publish the case in well-anonymized case reports. However, as Green and Johnson [9] pointed out, "Case reports tend to report on unusual situations and patient identity may be compromised because of the unique qualities of the case." Thus, more recently, some journals started to require that the

author(s) submit a specific consent form signed by the patient. This specific form may be obtained from the particular journal, and author(s) should check with the editorial office whether a written patient consent is required and under what conditions it could be omitted. The copy of the informed consent should not routinely be sent with the submission but may be required by the editorial office at any time [5].

Whether or not to get an informed consent from a patient is not a clear-cut issue. Nevertheless, we believe that in properly anonymized retrospective cases, informed consent for publication is not needed. Prospective cases or case series may not only require an informed consent but also an approval from the local institutional review board (the prospective author should always check his or her institutional policies).

Authorship

The situation of a single-author case report or any article is simple. Anything involving more than one author could become complicated. As a general rule, only persons involved in preparing and/or writing the manuscript should be included as authors of the manuscript. The extent of involvement may vary but generally should include the acquisition, analysis, and discussion of the data (here of the case report), reviewing the literature, drafting and/or reviewing/revising the manuscript, and approving the final form of the manuscript prior to submission for publication (see chapter "How to Write and Publish an Empirical Report" for more on authorship). The person who has done the most work should be the first author, and the order of the rest of the authors should be determined by the amount of contribution. In many published studies, the last author is usually the senior author, leader of the research group, or chair (in all cases, hopefully, involved in preparation and/or editing of the manuscript). Case reports are frequently generated by early-career faculty members or residents/fellows who may not be the attending physicians of the patient described in the case report. In those cases, the attending physician could/should become the

senior, last author, again, only if his or her contribution to the case report was substantial, as outlined before. We recommend that the order of authorship is discussed and agreed upon prior to starting the work on the manuscript. The person who has done the most work does not want to be in a situation in which he or she is told by a senior colleague after all the work is done, "Since this was my patient, I will be the first author."

Many publications include a long list of authors. This may, especially for a short, concise, simple case report, raise questions about the involvement of all authors. As Har-El [21] aptly asked, "Does it take a village to write a case report?" Clearly not. Some authors may obviously be what is called "honorary authors" who are bequeathed by "gift authorship." Many of these honorary authors are chairs or senior researchers. Early-career authors could understandably feel obliged to include their mentors. Nevertheless, the practice of "gift authorship" raises ethical concerns and should be abandoned. It may be up to the senior authors to reject authorship. An important rule of thumb to consider is whether an individual made any significant contribution to the finished product. Many academic institutions now have guidelines that offer authors the opportunity to specify their role in development and production of manuscripts. Those who may have contributed to the case report preparation to a lesser extent than that of an author (e.g., providing technical help, or writing assistance, mentorship, or general support [5]) may be acknowledged or thanked in the Acknowledgments section of the case report.

Organization/Components of the Case Report

A case report, like any other manuscript, should have a certain structure. The lower the number of words allowed, the simpler the case report structure. Shorter case reports should include the following elements: Title/Title page; Introduction; Case description; Discussion/Conclusion; References; Acknowledgments; and, if required by the journal, a statement about possible con-

flict of interest. Some case reports may not even need an introduction and may go directly to the case description followed by a brief discussion. Some journals [5] may include a section called Patient Perspective, which, written by the patient, describing his or her perspective.

Longer or more complicated case reports may consist of a Title/Title page; Abstract; Introduction; Case report—Methods and Results (especially in prospective cases testing a hypothesis or new management approach); Discussion; Conclusion; Acknowledgments; References; and, if required, a statement about possible conflict of interest (and again, Patient Perspective).

Both shorter and more complex case reports may include tables and figures. Some journals may also require identification of key words that will be used for searches after the case report is published (e.g., schizophrenia, antipsychotics). To select keywords, use general terms from Index Medicus and other databases and also include words unique to the specific case. Tables and figures should not duplicate the text [13] but, rather, should help to summarize and shorten it.

Title/Title Page

The title should be as brief and succinct as possible [9] and should inform the reader about the topic of the case report. When "clever or artistic" titles are used, a subtitle should be added so that the reader could more easily determine the focus of the case report [9]. Some authors [8] recommend that the words "case report" or "case study" should be in the title along with the phenomenon of greatest interest (e.g., symptom, diagnosis, test, intervention).

The title page should include, in addition to the title, a listing of the authors, possibly the authors' titles, the authors' affiliations (the primary affiliation is usually sufficient), the name of the corresponding author (usually the first author, unless he or she left the institution or is not involved with managing the case report anymore), and the corresponding author's contact information (address, phone, fax number, e-mail address). Some journals may not require a title page, and

then the author(s)' names and affiliation(s) may be placed at the end of the case report.

Abstract

An abstract is not always a component of the case report. However, if allowed/required, it is a very important part that summarizes the case and the message of the case. The abstract together with the title are entered into computer databases and indexing systems and thus will help those searching through these systems decide whether they would like to retrieve a particular case report [9, 22]. The abstracts are either structured or unstructured, and most journals have a word limit for the abstract. The abstract of a case report would most likely not be structured but narrative. Abstract should not include references. The abstract should be concise and capture the case. As Rison [5] emphasizes, this ".. is often all people will read" and determine their level of interest in the case report.

Key Words

Some journals may require 3–10 key words representing the main content of the article [5]. Key words help with the indexing of manuscripts.

Introduction

The introduction should state the purpose, subject, value, pertinence, and worthiness of the report [9, 13]. It should include pertinent references—for instance, previously published similar cases or review articles focused on this topic. The writer should remember that the introduction is just that and not an extensive overview of the literature. Thus, like the rest of the manuscript, it should be brief, concise, and straight to the point. The introduction should end with a link connecting it to the case description and discussion to follow [13]. For instance, one may say, "Our case describes more severe consequences of the sud-den withdrawal of medication X than those previously published."

Case Description

The case description should start with a brief patient description, including pertinent demographic data (age, sex, possibly, if salient to the case, ethnicity, marital status, and occupation), followed by a brief history of the illness/disorder/symptoms and pertinent elements of patient history (e.g., developmental issues related to the presented psychopathology; previous response to or tolerability of similar medications; family history of similar symptomatology); abbreviated mental status examination or important present illness symptomatology; and, depending on the specific case, the results of physical examination, diagnostic tests, and laboratory tests (include the specific lab's normal values); imaging results; and, finally, in treatment/side effect description cases, outcome of the intervention or natural course. As Green and Johnson [9] suggest, the case description should thus "present the most salient parts of the case presentation; focus on the primary aspects of the patient's condition and the main outcome measures used to track patient progress prior to delivering care; briefly describe methods used to care for the patient and/or assess the patient's status; and briefly summarize outcomes of care, including changes in the primary outcome measures."

DeBakey and DeBakey [13] suggest that one should follow the ABCs in writing a case description and the rest of the case report: Keep it *a*ccurate, *b*rief, and *c*lear. One should avoid the liturgy of daily symptomatology or results and select only the pertinent facts.

Discussion

The discussion is the most important part of the case report [22]. It should put the case into a broader perspective, pointing out the uniqueness,

its relationship to other published cases (similarities, differences), and summarizing how the case contributes to the literature [9] using relevant references. The discussion should present a justification for publishing this case report. The author should also anticipate and discuss any alternative explanations [8] and be aware that the patient has possibly withheld some important explanation that may provide an alternative explanation [8]. The limitations of the case and its explanation should also be included. The discussion should end with a conclusion/summary—"the take-home message." The reader should learn a piece of pertinent clinical information. The conclusion may also include some recommendations—either for further study or for modification of clinical care based on the outcome of this case. However, one should avoid sweeping generalizations, unwarranted speculations [13], and vague recommendations. Writing just that "more research is needed" is inadequate [9].

Squires [23] provides examples of questions authors should contemplate when writing the discussion/comments: Is the evidence to support the diagnosis presented adequately? Is the evidence to present the author's recommendation presented adequately? Are other plausible explanations considered and refuted? Are the implications and relevance of the case discussed? Do the authors indicate directions for future investigations or management of similar cases?

Acknowledgments

A note at the end of the report should acknowledge colleagues who assisted with the work yet did not fulfill the authorship criteria [9] and support staff who helped with writing, editing, and proofreading the manuscript. Broad gratitude to numerous senior people or family members for their support should be avoided. Acknowledgment should also include source of funding for each author and for manuscript preparation and the role of funding body [5]. Authors have to obtain permission for acknowledgment from all mentioned here [5].

Conflict of Interest

Authors should disclose any existing competing interests, namely, financial ones. If there is no conflict of interest, a statement such as "There is no conflict of interest" should be included.

References

Most journals that publish case reports specify the number of references allowed (usually 10–15, but more references may be allowed if pertinent to the case). The references used should be from peer-reviewed journals, unless it is absolutely necessary to use other sources. The references should be relevant, pertinent to the case; the author should not be over-inclusive to demonstrate his or her scholarship. A single reference may be enough [9]. Most journals specify the format of references, and thus the author should carefully check the instructions for the authors for this specification.

One caveat: As DeBakey and DeBakey [13] caution, one should never transfer a reference cited in another article without reading the reference critically. One should be cautious about citing anything from the abstract, as abstracts frequently do not match the contents exactly, or are too vague.

Tables, Figures, and Illustrations

Tables, figures, and illustrations can be very useful and can make a case report more interesting and easier to understand. Their inclusion may depend on the journal's rules and specifications. As noted earlier, tables and figures should not duplicate the information provided in the text and vice versa.

We are not discussing here the structure of educational case reports or clinical discussions published in some journals, such as the *New England Journal of Medicine* or the *American Journal of Psychiatry*, because these case reports

are usually invited by the editor or editorial staff and specifications and requirements are provided. Also, several articles (e.g., refs. [9, 22, 24, 25]) include tables and checklists for a detailed case report structure.

Patient Perspective

As mentioned before, some journals may ask for this section. It provides the opportunity for the patient to describe his or her case from his or her own perspective [5].

Cover Letter

Each submission should include a cover letter addressed to the editor in chief (some journals include requirement of this letter on their website). The letter should succinctly explain author(s)' reasons for submitting this case report (e.g., uniqueness) and statement that this manuscript has not been submitted/published elsewhere.

Writing Style

As mentioned, case reports should be accurate, brief, and concise [13], and the language should be vivid. An excellent article by DeBakey and DeBakey [26] exhaustively addresses the issues of style and form. They suggest that the manuscript draft be read and reviewed several times with a focus on accuracy, validity, coherency, grammatical integrity, conciseness and clarity, stylistic grace, rhythm and cadence, and finally for general readability [26]. One should avoid jargon, slang, vogue and vague words, clichés, redundancy, and circumlocution [26]. (The details on language provided by DeBakey and DeBakey [26] are beyond the scope of this chapter, but the interested reader may benefit from this article.) The writing style could also benefit

from some suggestions by Resnick and Soliman [27] in their chapter on draftsmanship of forensic reports, such as the following: Multisyllabic words reduce readability and comprehension. Sentences of 20–25 words have the greatest readability. One should use common words (e.g., "after" rather than "subsequent to"). Acronyms should be avoided unless widely known. Needless words should not be used. Pregnant negatives (such as what symptoms are not present) should be avoided. One should be cautious about using haughty, pompous, and absolute ("never," "always") or hedge ("apparently," "supposedly") words.

DeBakey and DeBakey [26] recommend that after the first draft of a case report is done, it is best laid aside for several weeks before beginning a critical revision of the text (before submission). Resnick and Soliman [27] suggest that proofreading out loud or backwards may allow for some overlooked errors to be discovered. Others [24] suggest asking oneself, "Would I have taken the trouble to read this case report if I came across it in a journal? What lessons can be learned?"

Post-submission (Review Process and Galley Proofs)

Once the case report is submitted (via the Internet in most cases), the period of waiting for the decision starts. After the initial screening, most journals send the manuscript for a peer review by experts in the field (those may be selected from the authors cited in the references). Some journals still ask the authors to specify preferred reviewers and reviewers that should preferably not be used. However, this practice is being gradually phased out due to some fraudulent recommendations of reviewers.

It may take from several weeks to several months to receive a response from the journal. One should avoid contacting the journal and urging to get a response "as soon as possible." Most journals try to respond in a timely fash-

ion. The authors should also realize that while an outright rejection is possible, an outright acceptance, without revision, is rare. When the journal asks authors to revise and resubmit the manuscript, the editor attaches the comments by the reviewers and, at times, some editorial comments. The comments are usually quite helpful, asking for clarifications, pointing out discrepancies, and bringing to the authors' attention other references/sources of information. The authors should answer all reviewers' comments in a positive, constructive, and informative manner. In case of comments or recommendations that could not be answered (e.g., if information is not available), it should be stated that one cannot address this suggestion, and the reasons should be explained. The response should be accompanied by a letter to the editor describing all the changes that were made, those suggested by the reviewers, and also those the authors may have implemented on their own while rereading the manuscript.

Once the manuscript is accepted, the editorial office informs the authors and forwards the final version of the manuscript to the publisher. The authors are also asked to complete a copyright form transferring the publishing rights/ownership to the journal/publisher. The last pieces of correspondence before publication are the so-called proofs or galley proofs. This is the typeset version of the manuscript, usually looking exactly like it is going to look in the journal. The author(s) are asked to proof the final version for accuracy, language, and so on. As many journals implement editorial changes in the language, we strongly urge authors to review the proofs very carefully. The editorial changes may, at times, change the meaning of the sentences, and, in all fairness, the editorial staff may not be aware of all the case report intricacies, terminology, and meaning. One should return the proofs within the specified deadline (usually 24–48 hours) to the publisher.

Key Concepts

- Case reports are a decent low-resource scholarly project option.
- Writing case reports is a very good introduction to medical writing.
- Case reports provide interesting and important clinical and educational information to the field of medicine.
- It is important to properly mask the case to maintain confidentiality.
- Selecting proper journal for publishing a case report could be complicated and must be done carefully.

Conclusion

Case reports, an important part of the medical literature, are far from obsolete [6] and are here to stay. There has been actually renewed interest in publishing case reports. They usually provide important and useful clinical information. They have an educational value. They frequently serve as a stepping stone or writing exercise for beginning writers. As noted [4], putting together a case report is a relatively quick and easy way to engage in scholarship. Writing a good, publishable case report is a skill and requires following certain rules and guidelines outlined in this chapter. The main rule of writing a good case report that has been vetted as interesting and possibly unique and contributing to the literature is to be accurate, brief, concise, and readable.

Purpose of the Case Report

- Case reports should provide original, innovative observations that are clinical or educational.
- They may include unusual clinical presentations, etiology, adverse reactions to treatment, novel clinical methods, unexpected outcomes,

unusual pathological findings, or any new features of an illness or its treatment.

- The case report clearly presents something to add to the literature based on a thorough review of clinical reports and research.

Words to the Wise

- Be sure your report reaches the proper audience. Selecting the appropriate journal is crucial.
- Determine whether anonymity is achieved. When in doubt, obtain informed consent and consult your hospital legal counsel, IRB, or ethics committee, particularly for psychiatry and psychotherapy case reports.
- Establish the order of authorship and its rationale before preparation of the case report.
- Maintain the "ABCs" of the case report: Keep it *a*ccurate, *b*rief, and *c*lear. Remember that the discussion is the most important part of the report, justifying its importance, considering its contribution to the field, and also providing limitations and possible alternative explanations.
- Never transfer a reference from another paper without reading all the references thoroughly and critically.
- Set aside the paper before a careful revision, and, after thoroughly revising it, ask, "Would I read, understand, and learn from this case report if I came across it in a journal?"

Ask Your Mentor or Colleagues

- Before preparation of the manuscript, ask about the criteria for and order of authorship. It is always valuable to have an outside senior mentor or trusted colleague provide such advice.
- Before submission of the report to a journal, show the report to your mentor and ask: "Is my completed case report unique, valuable, a contribution to knowledge, and relevant to current and future practice? What might I be missing or neglecting in the manuscript?"

- Unless you know the journal yourself, ask your mentor and/or your colleagues whether they are familiar with the journal you plan to submit your manuscript to. You may also ask whether they know anyone on the journal's editorial board.
- Have a senior author in academic medicine who is not a coauthor of the paper critically review your writing style. Ask, "Is my writing accurate, valid, coherent, concise, clear, and readable? Would you please provide me specific, detailed feedback as if you were a reviewer for a journal?"
- When you receive a case report for revision and respond to the reviewers' comments, show your revision to a mentor or colleague and ask, "Did I faithfully, respectfully, and effectively address the comments of the reviewers? Please comment if you see areas of persistent weakness."

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Suggested Reading

Huth FJ. Writing and publishing in medicine. 3rd ed. Baltimore: Williams & Wilkins; 1999.. (previously published as *How to write and publish papers in medical sciences*)

How to Prepare a Compelling Book Proposal

Laura Weiss Roberts

Introduction

Books are shaped by a moment, clarifying what is known and what is not yet known in a field at a given time, and books are shaped by individuals and crafted by authors, editors, and publishers who contribute to their development. Books help to define what is perceived as important or what is seen as mattering. Books help to document what has been achieved, or neglected, in the past and what may become important priorities in a given field in the years to come. Books may serve to galvanize a domain of academic inquiry or to refocus or accelerate scholarship. Books are not simply collections of interesting papers; done well, books are built in an intentional way to inform and influence. For these reasons, faculty members may wish to write or edit a book as a uniquely valuable approach to contributing to the advancement of academic medicine.

In academic medicine, books contain and communicate knowledge of importance in science, education, clinical care, and related domains, such as health services, systems, policy, ethics, technology, and leadership. Many different publishers have portfolios of books relevant to academic medicine, and individuals or teams who wish to author or edit a book will benefit from learning how to put together a compelling book proposal. The purpose of this chapter is to proffer general guidance for strategizing and preparing a book proposal.

Getting Started: Questions

Before undertaking a book project, the authors or editors should consider and be prepared to answer many questions, including the following:

- Why is a book needed? What other books exist, and why are they insufficient – are they too old, too incomplete, too diffuse, too narrow? What is the gap that would be filled by the book? What is the scope of the proposed book? Who would read the book, and who would benefit from the creation of a new book in the proposed area?
- Who would buy the book and why? Is there a perceived need in the field? Is there some event or milestone such as board examinations or new scientific developments or new regulations and policy that could create a market for the book?
- Would the field benefit from a book written with a single voice, as in a sole-authored text, or does the subject require broad representation of expertise from many different perspectives,

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making an edited text a better contribution? What expertise is needed to prepare such a text?

- What structure should the book follow? What illustrations would make the material come to life for readers and also fit within the culture of the field? An approach that includes case illustration, "bullet points," and questions-and-answers sections may be ideal for medical students preparing for an examination, while a denser and more evidence-heavy approach may be ideal for the presentation of advanced scientific work in a narrow specialty field.
- What is the best format for the book – a textbook, a handbook, a study guide, or a pocket guide, for example? Should the book be short or long? What supplemental materials would help ensure the effectiveness of the book? For instance, a book on interviewing might be especially well-suited to companion video materials hosted on the publisher's website.
- Finally, which publishers might be interested in a book of this nature?

Separate from the specifics of the book, an academic faculty member approaching a book project must think about his or her time and how the decision to take on a book might affect other responsibilities. Author(s) and/or editor(s) must seek to clarify how assuming responsibility for a book represents a "trade-off" with other kinds of academic activities. This decision should be considered in the context of one's full academic life and professional/career trajectory. Once authors or editors are able to think through and articulate rigorous and careful responses to the above questions, they will be ready to tackle an initial draft of a book proposal and approach a potential publisher.

The Plan: Basic Elements of a Book Proposal

A book proposal is a valuable document that captures the central idea and structure of a book to be presented to a publisher. The proposal allows the publisher to perform an initial assessment of the idea to determine whether the book project is worthy of the resources required. The process of developing the proposal helps crystallize the thinking of the author or editor, but the primary audience of the proposal is the publisher and his or her team. Though it is best to use the book proposal as a resource to support an exploratory conversation with a publisher, the document should be able to stand on its own. The proposal should be crafted rigorously with sufficient detail to be persuasive (Table 1).

Different publishers will use different forms or formats for book proposals, but the essential elements are consistent and helpful in making "the pitch." The basic elements of a book proposal include the following:

- Proposed title
- Author(s) or editor(s) and academic affiliations
- A synopsis of the proposed book
- Rationale for the proposed book, including its significance and how it will address a perceived need in the field
- Proposed table of contents
- Intended readership or audience for the book, potential "market"
- List of similar titles or competitive books, plus how they differ from the proposed book
- Manuscript length and format, including relevant supplemental materials
- Timeline for writing/editing the book and completion date
- Curriculum vitae of the author(s) or editor(s)

Table 1 Examples of aspects of a compelling book

Identifies a gap in the existing literature
Is "significant" – focuses on a topic that matters
Has a well-defined scope to address a need
Is well-structured to fulfill the aim of the book
Is authored and edited by individuals with the correct expertise
Is up to date and state of the art
Is pitched at the right level for its audience
Has elements (e.g., case examples) that make the text interesting and accessible
Has or creates a market of potential readers

In addition to these elements, optional components of a book proposal may include a sample chapter or other writing sample, examples of supplemental materials, such as videos or audiotaped segments, and illustrations of past work and their impact, such as past books, articles, and/or book reviews.

The book proposal should have a cover letter that outlines the idea, the potential value of the idea to the publisher's portfolio, the expertise of the author(s) or editor(s), and an explanation of why the book would be an important contribution and successful in the marketplace.

Moving Forward: Conversation with a Publisher and Next Steps

The cover letter, the book proposal, and the appended materials can be sent directly to a publisher. Selecting an appropriate publisher can either be very straightforward or more roundabout. Author(s) or editors should look for publishers that have developed a significant presence in the field related to the topic of the book. These publishers have signaled their commitment to the domain and the relevance of the topic to their portfolio of academic medical books.

Submitting a proposal and appended materials without prior contact is professionally accepted, but, under most circumstances, it is ideal for the author(s) or editor(s) to reach out to the publisher's office in advance. Even a little forewarning can be helpful to the publisher as he or she prepares for a more formal conversation about the book.

Typically, a publisher of scholarship relevant to academic medicine will take a look at the cover letter and proposal, will try to get a sense of the value of the idea, and will follow up with either a rejection of the idea or an invitation for a phone call or videoconference.

Direct interaction with a publisher can be somewhat anxiety-provoking. The author(s) or editor(s) will be asked to explain the idea underlying the book, to justify the importance of the book at this particular moment in time, and to affirm the commitment to complete the project quickly, accurately, and collaboratively with the publisher. The author(s) or editor(s) should be prepared to present the material conferred in the proposal and to answer questions regarding choices made in the scope, structure, and composition of the book. The proposed timeline will be discussed, and questions regarding a wide range of issues may arise. The title of the book, potential chapter authors, book length, treatment of controversial issues, adequacy of expertise, and other considerations may be explored in phone calls, videoconferences, or correspondence. The publisher may ask how the author(s) or editor(s) could help to promote the book or about the possibility of "celebrity" authors for chapters, the foreword, or reviews. The author(s) or editor(s) should be prepared for such questions as well as a discussion of the ways in which to gain maximum visibility among potentially interested readers.

Next: Contracts and the Publication Process

Academic book contracts do not tend to be wildly lucrative, but it is valuable to understand your legal rights and privileges when entering into an agreement with a publisher related to the development, publication, distribution, and marketing of a book project. A contract will address issues such as the initial fee "advance," copyright, manuscript length, numbers of figures, legal liability for manuscript content, numbers of author copies, discounts, rights related to translation to other languages, and other topics (Table 2). Publishers will send author(s) or editor(s) a contract, which should be reviewed carefully. Outside expertise may be helpful. Mentors can be extraordinarily helpful at this stage of the process. Outside consultative resources such as attorneys and experts from professional societies, e.g., The *Society of Authors* (www.societyofauthors.org) or the *International Association of Scientific, Technical, and Medical Publishers* (www.stm-assoc. org), may have additional relevant information. Publishers vary in terms of the level of support provided to authors and editors. Some may pro-

Table 2 Elements of a publishing agreement

Parties involved: author or editor and publisher
Statement of the scholarly work and title
Rights granted, e.g., to distribute and sell the scholarly work
Terms of delivery and acceptance of the scholarly work
Publication and production of the scholarly work
Approval for publishing
Complimentary copies, editor's discount, electronic access
Royalty
Competing works
New editions
General provisions
Miscellaneous
Signatures

vide administrative, copy editing, and technical expertise, while others may provide none of this.

Once a contract has been signed, the author should sit down to write – or the editor(s) should begin connecting with the potential chapter authors, if they have not done so previously. Chapters, guidelines, and deadlines should be laid out in a very clear manner. The editor(s) are responsible for establishing the structure of the book, inviting authors, often revising in consultation with the publisher, and driving forward toward the book's deadline for submission – at times working on a number of chapter drafts and revisions at once. The editor(s) are also responsible for ensuring relative symmetry of chapter format and minimal overlap in content across chapters. Chapter authors for an edited book or an authored book will not only be responsible for generating original material for the book; they will be responsible for securing all permissions (e.g., for figures), for ensuring that referencing is accurate and up to date, and for working with the publisher to ensure that the chapters will be copy edited correctly.

After the author(s) and/or editors have submitted chapter drafts, the publisher's team will work to help with the book's production. Author(s) and editor(s) will be asked to review page and galley proofs very carefully, as errors may be introduced at several steps along the way to development. The publisher is also likely to provide marketing support, and author(s) or editor(s) will be required to complete a marketing questionnaire, which will help the publisher with marketing strategy. Because the impact of the book and, importantly, sales of the book are riding on thoughtful responses to the queries, it is vital to think through the issues raised in the questionnaire. Such diligent efforts will help ensure that the work reaches the broadest audience and has the greatest value to the field.

Impact: Why Books Matter

Books are meant to document what is important and to drive change in a field. Helping to ensure that a book has impact involves helping to ensure that it has visibility and value to those who might be able to use it. In academic medicine, readers could be scientists, students, clinicians, lay people, or policy makers. The beneficiaries of such scholarly work could be individual patients or entire populations throughout the world, now and in the future. Author(s) and editor(s) ideally will work to bring greater visibility to their scholarship, which will help the work to have greater use and potential impact. A compelling book proposal serves as the initial impetus for such impact in academic medicine.

Words to the Wise

- As your scholarship matures in academic medicine, consider whether writing or editing a book may make a significant difference in your field.
- What kind of book is needed? What is its scope and rationale, and what kind of expertise should be represented in a new book?
- Working carefully through the process of developing a rigorous and compelling book proposal is excellent groundwork for the creation of a new book in academic medicine.
- Spend time looking at the kinds of books published by various publishers and reach out to publishers to clarify their level of interest in a particular topic.

- Consider the optimal format for the book and how one might best meet the needs of the intended audience.
- When you speak with a publisher, have a carefully crafted proposal ready to help support the discussion. Be prepared to explain the importance of the topic and the need for the book.
- Assemble your writing or editing team with sufficient expertise to be persuasive to the publisher that you are prepared to take on the task of delivering an excellent manuscript.

Ask Your Mentor or Colleague

- Am I ready to take on the task of leading a book project – if yes, why? If not, what additional skills do I need to be ready?

- What topic or topics would be helpful to the field of academic medicine? What formats would be most suitable to the audience and to the nature of the scholarship?
- What trade-offs should I consider when taking on a book project? What other forms of academic contribution will I no longer have time for, and how should I evaluate this decision?

Suggested Reading

Hales RE, McDuffie JJ, Gabbard GO, Phillips K, Oldham J, Stewart DE. Practical strategies for becoming a successful medical book author. Acad Psychiatry. 2008;32(3):183–7.

Rao C, Athanasiou T. How to write a book proposal. In: Athanasiou T, Debas H, Darzi A, editors. Key topics in surgical research and methodology. Berlin/Heidelberg: Springer; 2010. p. 611–4.

How to Review a Manuscript

Thomas W. Heinrich

The peer review process is the current standard for assessing a manuscript's worthiness for publication in the scientific literature, and it is based on the idealism, professionalism, and collegiality of the peer reviewer. Reviewers serve a critical role in ensuring the dissemination and fidelity of knowledge throughout the medical profession. Peer reviewers provide fair, constructive, and knowledgeable feedback on a manuscript that improves the quality of the manuscript and aids journal editors in determining an appropriate disposition of the manuscript. Accepting an invitation to review demonstrates a willingness to contribute to the profession of medicine and the advancement of knowledge.

The peer review process is fundamental to the propagation of quality medical information. It accomplishes this through the process' impact on helping ensure the publication of superior manuscripts that we rely on to inform our clinical practice, educational mission, scientific research, and practice administration. Peer reviewers play an important role in the determination of which information is appropriate for publication as well as ensuring scientific integrity and ethical verac-ity of the published products. Reviewers should seek to improve the manuscripts under review and educate the author(s) in how to implement the recommended improvements in the submission. Furthermore, they must accomplish this feat in an ethical, collegial, prompt, and consistent manner.

The peer review process is not new. It has existed in various forms since the eighteenth century when The Royal Society of London assigned peers to serve on the "Committee on Papers" [1]. This historical precedence was followed by a relatively informal process in which some editors of journals would seek reviews of manuscripts on a case-by-case basis. It was not until the twentieth century that editors began to formalize the process in which journals used peer reviewers to help determine the appropriateness of the science, significance of the message, and overall quality of the submitted manuscripts. As a result, editors began to become more reliant on peer reviewers' expert advice on helping to determine which manuscripts should be accepted for publication. Today the peer review process has become institutionalized in medical science. It is considered one of the best methods that journals have in selecting appropriate manuscripts for publication and dissemination [2].

Unfortunately, the procedure of how one reviews a manuscript is rarely taught during medical school, residency, or fellowship training. Reviewing is all too often a skill developed in relative isolation early in a physician's aca-

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demic career with little in the way of feedback or quality assurance. Early-career faculty may find it a challenge to develop a sense of competency and may, therefore, feel unworthy of reviewing manuscripts authored by more senior physicians and scientists. Peer reviewers early in their career may also discover it difficult to provide critical feedback or recommend rejection of a manuscript given their personal experience in receiving such negative responses themselves. And if critical feedback is required, reviewers may find it a challenge to frame these often-difficult comments in a collegial and educational manner. Fortunate are the earlier career faculty who have a mentor who is willing to guide them through their first couple peer review assignments. Peer-reviewing manuscripts demonstrates your commitment to academics and represents a clear recognition of expertise by your peers. Your service as an ad hoc reviewer for a journal should, therefore, be represented in your promotion materials [3].

Publication Process

The submission of a manuscript to a journal is the start of a long process in which the work is judged on its clinical and scientific merits whether it is suitable for publication. It is important for the earlier career peer reviewer to realize that they are but one part of a larger editorial process. When a manuscript is first submitted, it is reviewed by the editor or an associate editor to ensure that the author(s) followed the journal's editorial and authorship instructions, as well as whether the paper is appropriate in scope and science for the journal's readership. If these criteria are satisfied, the editorial office then focuses on identifying the appropriate individuals for peer review of the submitted product.

A reviewer may be identified for any number of reasons. Reviewers are often considered experts in the subject matter of the manuscript. In addition, reviewers with a history of providing timely, quality reviews are often chosen by editorial offices for their proven insight. To help identify peer referees, most journals maintain a database of individuals who have previously published with the journal and/or are considered experts in various fields of study, as well individuals who have previously provided quality reviews for the journal. It is from this list that the editorial office attempts to select the most qualified peer reviewers for the manuscript in question. Editors may identify reviewers with differing scientific and clinical strengths to review a single submission. This is done to expand the scope of expertise studying the manuscript and ensure that all pertinent aspects of inquiry are represented in the review process. For example, one reviewer may be selected who specializes in the clinical care of the population discussed in a manuscript, while another reviewer may be knowledgeable in the unique scientific method or statistics used in the study. It is in the journal editors' best interest to identify careful, thorough, timely, and fair reviewers to help judge and improve submitted manuscripts. Editors rarely invite reviewers who are not appropriate or up to the requested task. Journals vary in the time allotted to reviewers and also have differing standards on the number of peer reviewers required to review each manuscript. Journal editors have attempted over the years to develop a manuscript review process that is fair for the author and peer reviewer.

After reviewers are selected by the editors, they receive an e-mail inviting them to review the manuscript. The e-mail often contains the editor's invitation to review, the manuscript's title and abstract, the author list (unless a blind process is used), and an approximate review due date. In the e-mail, the potential reviewer will be given the options to accept or decline the invitation to review. If the invitation is accepted, the reviewer will be directed to the journal's manuscript site for an electronic copy of the manuscript to be reviewed along with the required review forms. Once the editorial office has received all the reviews, the editor assesses the feedback and recommendations provided by the reviewers. The editor will then make a decision on the disposition of the manuscript and draft a letter to the

authors, outlining this decision along with the reviewers' comments to the authors.

Questions to Ask Oneself When Asked to Review a Manuscript

There are several questions that prospective peer reviewers may want to pose to themselves before embarking on the requested review (Table 1) [4]. First, does the reviewer have some conflict of interest with the manuscript in question that may interfere with the ability to provide an unbiased opinion to the journal's editors? It is the reviewer's obligation to avoid any potential conflicts of interest that may contaminate the peer review process. If the solicited peer reviewer feels that there is a conflict of interest and cannot provide a balanced and fair view of the manuscript, the reviewer should respectfully decline the review offer. If a potential reviewer has any questions about a potential conflict of interest, it is best to query the editorial office with the particulars of the perceived conflict.

The second question prospective reviewers should ask themselves is whether the manuscript's content (topic, methods, statistics, etc.) falls outside the reviewer's area of expertise. A poor understanding of the article's topic may fundamentally hamper the ability of the reviewer to adequately evaluate the manuscript. Lovejoy et al. [5] recommend that reviewers, early in their academic career, choose no more than three areas of expertise in which they will review manuscripts. These areas should include topics in which they have authored peer-reviewed manuscripts and/or conducted research. By narrowing

Table 1 Questions the potential reviewer should ask when invited to review [9]

1. Do I have any potential conflicts of interest that may bias my perception of this manuscript?
2. Do I have enough expertise in the content of this manuscript to provide a fair and competent review?
3. Do I have sufficient time to perform a meaningful review of the manuscript within the requested time frame?

the scope of expertise early, one is able to focus on providing quality reviews and building a reputation as a skilled reviewer. Additional areas of expertise may be established in future years.

Last, but not least in the minds of early career academic faculty, is whether or not they have the time to complete the requested review. The prospective reviewer needs to be certain that he or she can perform a quality review, in addition to all their other academic and clinical obligations, before agreeing to the editor's offer to review a manuscript. If invited reviewers are uncertain to whether they can produce a useful review within the allotted time frame, it is best to decline the review request.

Whatever the reason for the denial, the editorial office should be notified of the refusal as promptly as possible to avoid unnecessary delays in the editorial process. This prompt denial will allow the editorial office to identify another prospective peer to review the manuscript. Editors usually await the reviews from all peer referees before notifying the authors of the manuscript's status; it is therefore important to be respectful of the provided deadline for returning the peer review. This timeliness is imperative to maintain a smooth publication process and to avoid antagonizing anxious authors awaiting word on the fate of their submitted manuscripts.

What Makes a Good Reviewer?

It is important to note that there are no clear predictors of which peer reviewers produce the best quality manuscript reviews [6]. In a study by Black et al. [7], the characteristics of reviewers had little relationship with the quality of the reviews produced. Goldbeck-Wood et al. [8] felt that professional idealism, intellectual curiosity, and punctuality were important qualities for successful peer reviewers. Taking part in the peer review process allows one a special, albeit confidential, insight into new knowledge and technological breakthroughs. In addition, by reviewing the manuscripts of others, one may improve

one's own academic work. Reviewers must have intellectual curiosity and a desire to educate others toward the betterment of science to produce meaningful reviews.

How to Review a Scientific Manuscript

Preparation

Once the invitation to review has been accepted, the process of serving as a peer reviewer truly begins. Time management is an important part of the review process. The time required depends on the reviewer and the manuscript under review and, therefore, varies considerably. One survey revealed that the mean time reviewers spent on a review was 3 hours [9]. Although the reviewer often has expertise in the subject manner of the manuscript, it may be helpful to perform a literature search on the topic under discussion to update and help frame the paper's subject manner.

Quick Read

The brief literature review is followed by a quick read through of the manuscript to appreciate the overall quality and character of the work. In extreme cases this initial read may provide enough insight into the significant flaws of the manuscript to lead the reviewer to recommend rejection. However, in a vast majority of cases, this early read allows reviewers to familiarize themselves with the goals and scope of the paper. Have the authors succeeded in clearly stating and justifying the purpose for writing the manuscript? The reviewer also starts to form an opinion about the manuscript's appropriateness for the journal for which it is being considered for publication. Many journals have mission statements; if so it may be helpful to review the statement when determining the suitability of a submitted manuscript [10]. The initial read of the manuscript allows the reviewer to think about which category the article belongs; is it a clinical study, basic science study, a clinical review, or a case report? It is important to know whether the journal publishes the type of manuscript you have identified. This information can usually be found in the journal's instructions to potential authors.

Hard/Critical Read

If the reviewer thinks the manuscript has merit, it is time for the more thorough and critical reads of the manuscript. The purpose of these subsequent reads is to comment on all aspects of the paper and provide the editor and author with specific feedback on how to improve the manuscript. The goal of this feedback is to improve the quality of the manuscript and ideally to make it worthy of eventual publication.

At this point of the process, the reviewer focuses on the significance of the question posed by the authors, along with the originality and rationale of the approach used to answer that question. It is also at this time that the data are carefully reviewed, along with the quality and significance of results garnered from that data. These subsequent critical reads allow the reviewer to fulfill his or her responsibility to carefully evaluate all components of the manuscript, provide specific feedback on these elements, and convey his or her objective, general impression of the worthiness of the manuscript for publication. The specifics of this review will be discussed in the following sections.

Introduction

In the introduction of an article, the authors need to convey the importance of the topic of the manuscript. There needs to be a clear statement of the clinical problem or research question that the manuscript is going to address [11]. The authors need to show that the article is both relevant and important to the journal's readership. This is often best accomplished through a brief literature review, which summarizes the current state of the science. The literature chosen should be focused, but objective and fair, as it attempts to help justify the conduct of the

study or stress the importance of the clinical topic undergoing review.

Methods/Statistics

The methods section should be evaluated for the completeness and clarity of the methodological processes utilized in the study or literature review. The methods section needs to show the reviewers that the study was done in a manner that maximizes its validity. In research manuscripts this is accomplished by a clear description of the study design, procedures, ethical safeguards, and means of data analyses. The research design should be sufficiently described and detailed to allow the study to be replicated [12]. The authors' methods and data analysis must be sound and appropriate for the research question. If there are flaws in the methods, the validity and generalizability of a study suffer.

The rationale for the statistical analysis in the manuscript, along with the analysis itself, needs to be comprehensible to the journal's readership. Unless there are flagrant errors, reviewers should assume that common statistical techniques were done appropriately and that the data provided are valid [13]. Journal editors do not expect that all reviewers are experts in statistical analysis. They do, however, expect that reviewers are familiar with some basic knowledge of statistics [9]. If the reviewer is unclear on the statistical techniques employed in the study or questions the analysis itself, it is appropriate to request that the editor identifies a statistical consultant or another peer reviewer more familiar with the statistical analysis to review these aspects of the submission. If this help is required, it is useful to notify the editorial office early in the review to avoid unnecessarily delaying the process.

Results

The results section of the paper should be complete and well organized. Some information conveyed in the text may be better displayed in the form of a table or figure. If data are presented in a figure or table, they should not be repeated in their entirety within the text. The results need to be presented in a manner that clearly displays their relationship to the research problem. It is also imperative that the reported results are consistent in all sections of the paper.

Conclusion/Discussion

The review of the discussion section should focus on the authors' ability to adequately contextualize and interpret the findings of the study. In doing so the authors should carefully frame the main findings of the work in the context of the research question. The paper's results should be compared and contrasted to the current state of the relevant science. The reviewer needs to determine if the author's conclusions are adequately supported by the manuscript's findings.

Reviewers should determine if the authors have adequately identified and discussed the strengths and limitations of the research. If alternative explanations of the paper's findings are possible, these alternatives should be objectively explored and discussed by the authors. The theoretical implications of the study's results should be discussed in this section, along with a comment on any potential future research questions that may be informed by the results of the present study [12].

Abstract/Title

A well-written abstract and an appropriate title are imperative to a well-read and well-referenced article. If the title is not appropriately catchy and descriptive or the abstract poorly communicates the paper's important content, it is quite possible that the manuscript will be bypassed by the journal's readership. This fact is all the more true in the age of electronic literature searches in which the title and abstract are quickly accessed and reviewed, but access to the full article may require additional steps. The potential reader may avoid the article if not interested in the article's content by its descriptive title and informative abstract.

By saving the review of the paper's abstract and title until now, the reviewer has established a better appreciation of the contents and inherent significance of the manuscript. This understanding helps ensure that the relevant information is summarized, represented, and highlighted in the title and abstract.

Some journals have a specific abstract format that authors are required to use to ensure that all the relevant parts of the abstract are included in the submission. In addition, there should be no inconsistencies between the information included in the abstract and the data discussed in the text.

Illustrations

Many different types of illustrations are found in medical literature. The most common include tables, graphs, and algorithms, but authors may also include imaging studies, drawings, and pictures. Illustrations, whatever the format, should always enhance the message of the text, not simply repeat information already provided elsewhere in the manuscript. Tables and graphs often accomplish this by allowing for improved organization and comparison of data. Algorithms may be helpful in elucidating the research protocol, describing a proposed treatment protocol, or outlining an administrative structure. If information is presented in tables, figures, or algorithms, it should not be repeated in the text. Rather, the text should be used to describe and highlight the key elements in the data detailed in the figure [14].

Illustrations are often best used to convey information that is optimally communicated visually rather than in text format. This often allows for improved understanding as well as limiting word count. For example, artist representations or pictures are often used as an effective means of communicating medical or surgical techniques. Information provided in the illustration, whatever the format, must agree with the data in the manuscript's text. The illustrations should also be of sufficient technical quality to allow for reader interpretation. And finally, the legends must match the illustrations and be adequately descriptive of the illustration's content.

References

The references are usually the last part of a manuscript reviewed. The reviewer, given his or her relative expertise in the subject of the manuscript, should have an appreciation of the state of the literature. This should help the reviewer appreciate if the references are current, balanced, and relevant. The reviewer should also make sure no important and pertinent references have been omitted by the authors. If a reference is cited, it should be accurately represented in the text. The references in the manuscript should be used to give credit appropriately to ideas and findings discussed in the text. A majority of references should be from peer-reviewed primary sources as opposed to secondary sources (e.g., textbooks) [15].

Readability

It is not the reviewer's responsibility to correct grammar or spelling. The journal's staff will address most of the common grammatical errors found in submission once the manuscript is accepted for publication. The peer reviewer, however, needs to ensure that the manuscript flows logically and reads easily. If the writing is so poor as to interfere with the reader's basic understanding and appreciation of the article, it is appropriate to return the manuscript to the editor and confidentially suggest that it be rewritten before further consideration for publication [9].

Conflict of Interests/IRB/Plagiarism Concerns

All manuscript authors are required to disclose potential conflicts of interest. The reviewer should notify the editorial office if he or she identifies any non-declared conflicts of interest that could adversely affect the credibility of the manuscript under review. If appropriate to the type of study, an explicit statement of approval by a suitable institutional review board (IRB) should be included in the manuscript. Lastly, if the reviewer

identifies a concern for plagiarism or any other lapse in scholarly integrity, he or she should promptly and confidentially notify the editor.

Reviewer Responsibilities

The peer reviewer has multiple important obligations. Reviewers help to ensure the smooth functioning of the publication process as well as the maintenance of high standards of scientific conduct. Confidentiality, managing potential conflicts of interest, and preserving a collegial academic approach are all integral to the success of the peer review process. The manuscript under review needs to be treated as a confidential, privileged communication between the journal and the reviewer. The existence and contents of the manuscript should not be disclosed as they are the intellectual property of the authors [16]. The reviewer should never contact the author of a manuscript under review; all communication should take place through the journal's editorial office. As mentioned earlier, if the reviewer believes that there is the potential for a conflict of interest related to his or her involvement in the review process, he or she should refuse the opportunity to review the manuscript. Possible conflicts of interest may include personal, professional, or financial interests with a variety of individuals, corporations, or institutions related to the publication. If there is no reviewer conflict of interest, this should be documented in the comments to the editor.

One of the foremost responsibilities of the peer reviewer is to educate in a professional and collegial manner. The goal of the review process is to improve the science, the manuscript, and the profession. These noble goals are best accomplished by the reviewer when he or she provides comments to the author and editor in as constructive and empathetic manner as possible. A majority of reviewers have authored papers and can therefore relate to how easy it is to become defensive when one receives feedback which is critical of their work. A careful, consistent, and considerate approach to criticism by the reviewer is therefore appropriate when reviewing others'

hard work. It is imperative that the peer reviewer, after agreeing to review the manuscript, completes the assigned task in the allotted time. This allows the editorial process to function effectively, while at the same time is considerate of the author. If reviewers do not feel that they will be able to meet the deadline, they should update the editorial office to this fact. These responsibilities of the peer reviewer are important and affect the author, editor, and journal.

Review Forms

Most journals employ a web-based manuscript submission and review system. Although there is no universal peer review form, most are fairly similar in the structure and the information requested from the peer reviewer. The editors want to know if the manuscript is appropriate for the journal, if any conflicts of interests have been identified, or if the scientific question is worthy of publication. These common structured questions are usually answered with a simple point-and-click, yes-no response. Most peer review systems also request that the reviewer provides specific feedback to the editor (in confidence) and to the manuscript's authors. The written feedback provided to the editor and to the authors should, as mentioned previously, be collegial, constructive, and consistent in function and format.

Comments to the Editor

The reviewer's comments to the editor are entered into a specific section of the review form. These comments are a confidential communication between the reviewer and editor. They are not shared with the author. This is the place to comment on the strengths and weaknesses of the paper, request statistical consultation, and/or raise issues with the paper that may not be appropriate to communicate with the authors (e.g., concern of plagiarism). Most journals will also request that the reviewer makes a recommendation about whether the paper should be published as submit-

ted. The reviewer's educated recommendation is part of the decision process, but the editor will make the final determination on the status of the manuscript. Reviewers, therefore, should not be offended if the editor's decision differs from their recommendation.

The reviewer's comments to the editor usually begin with a brief synopsis of the manuscript. This summary usually runs a couple of sentences and identifies the topic, research approach, significant findings, and conclusions [5]. This is followed by detailed descriptions of the article's strengths and weaknesses. The editor should be made aware of the importance and timelessness of the manuscript, the relevance of the article to the journal's readership, and the appropriateness of the study design. The reviewer should also provide the editor with comments on how the authors may improve the manuscript. If deficits are identified in the study design and methods, improper data analysis techniques were used, or faulty conclusions were drawn from the results, these need to be clearly detailed in the communication to the editor. In addition, if the reviewer finds poor grammar, inappropriately vague language, bias, or improper interpretation of the existing literature, these also need to be communicated to the editor. The reviewer, however, should not get bogged down in minor grammatical errors but, rather, focus on mistakes that decrease the general readability of the manuscript. For each of the weaknesses identified, it is helpful for the reviewer to acknowledge what the authors may be able to do to correct the deficiency. If the reviewer has previously received permission from the editor to share the reviewer duties with others, that is acknowledged in this section as well [17].

The reviewer then has the opportunity to make a recommendation regarding the disposition of the manuscript. The reviewer is often given a choice of recommendations regarding the publication readiness of the manuscript: reject, accept pending revision (major or minor), or accept (Table 2). When the reviewer provides this recommendation, he or she is weighing the paper's strengths and weaknesses and differentiating minor concerns from fatal

Table 2 Recommendations for manuscript disposition

Accept the manuscript

The recommendation to accept a manuscript implies that the paper is ready for publication but may require some minor editorial work

> It is appropriate for the journal's readership
>
> It adds something of value to the current literature
>
> It contains no scientific flaws
>
> The conclusion is appropriate
>
> It is without ethical concerns
>
> It is well written
>
> Its references are appropriate

Revise the manuscript

The recommendation that an author revises a manuscript implies that it has value and is important to publish but requires some work by the author to improve identified areas of deficiency

> It is appropriate for the journal's readership
>
> It adds something of value to the current literature
>
> It contains no significant scientific flaws which cannot be addressed upon reanalysis or revision
>
> The conclusion, while valid, may require some mild reinterpretation or clarification
>
> It is without ethical concerns
>
> It may require some editing to improve flow and/or clarity
>
> Its references may require strengthening

Reject the manuscript

The recommendation to reject a manuscript communicates to the author(s) that the manuscript is inappropriate for the journal in which it has been submitted for publication. Depending on the flaw, any one of the following may be sufficient for the recommendation of outright rejection of a manuscript

> It is not appropriate for the journal's readership
>
> It does not add something of value to the current literature
>
> It contains significant scientific flaws
>
> The conclusion is not valid
>
> It contains ethical concerns
>
> It is poorly written
>
> Its references are not appropriate

flaws. Whatever the suggestion, it needs to be consistent with the comments provided to the editor and author. All decisions about final acceptance or rejection of the manuscript rest with the editor. These editorial decisions are based upon criteria of significance and quality. The editor determines these criteria based on his or her personal opinion of the manuscript as well as the comments and recommendations received from all the reviewers.

Comments to the Author

In contrast to the comments to the editor, the comments provided to the author are meant to be shared with both the journal's editor and the manuscript's author(s). Most journals mask the reviewer's identity to the authors receiving the feedback. These anonymous comments to authors are the most valuable part of the review. It is here that the reviewer provides the authors with the honest feedback necessary to improve the manuscript with the goal of advancing the science and educational merit of the publication. It is also in this section that the information to substantiate the confidential recommendation to the editor to reject, revise, or accept should be provided to the author. The facts included in this section must correlate well with the information provided to the editors to avoid unnecessary confusion between editor and author [18]. The reviewer needs to maintain a collegial and professional tone in this section. The goal is to educate and improve the manuscript, not to disparage and denigrate the authors and their work.

Similar to the comments in the editor section, the comments in the author section should ideally be composed of an introductory paragraph followed by specific comments about the paper's value, strengths, weaknesses, and a concluding paragraph. The reviewer's opinion on acceptance or rejection of the manuscript should not be included in the comments to the authors. It is often helpful for the reviewer to organize his or her constructive comments on the strengths and weaknesses of the paper by following the paper's structure (e.g., introduction, methods, results, conclusion). It may also be useful to number each suggestion, which may allow a more effective author response and review of the manuscript's revision [19].

The brief introduction paragraph, which summarizes the paper's objective, methodology, findings, and conclusions, demonstrates to the authors that you have read the paper and understand its content and premise. This is often copied directly from the comments to the editor. This paragraph is ideally followed by a section-by-section, detailed description of the paper's strengths and weaknesses, for example, comments on the clarity and brevity of the abstract or the generalizability of the results. Be specific and give examples. The more precise the comments, the more likely the authors are to incorporate them into the revision of the manuscript. Each weakness should be clearly elucidated and never left as a general, unsupported, and qualitative statement. In addition, suggestions on various ways the authors may address the identified weakness should be included when possible. The goal is for the authors to use the information provided in these reviewer comments to better understand the editor's publication decision and eventually improve the manuscript.

Types of Manuscripts

Many types of manuscripts are submitted for publication, and each is meant to provide the reader with a different type of information. They are each written with a different purpose in mind and therefore require a slightly different method of peer review. Ideally the journal has already declined inappropriate manuscript types, but the reviewer should be aware if the journal accepts only specific types of manuscripts as some manuscripts are inappropriately characterized by the author. Journals may also provide detailed formatting instructions for various types of manuscripts. It is therefore important for the reviewer to be familiar with these instructions to authors, which are most often located on the journal's website.

Case Reports

Case reports may be suitable for publication if they provide important new information that offers a unique understanding of a specific illness [8]. The report should include information detailed enough to allow the reader to diagnose or treat the patient in question. Case reports should be considered for publication if there is something truly unique about the case and/or treatment. The report should also add to the lit-

erature, educate the reader, and have the potential to improve patient care. The structure, clarity, and flow of a case report are very important and should be commented on by the reviewer (see chapter "How to Write a Case Report").

Clinical Research

Regardless of the type of research study performed, the evaluation of the manuscript starts with the validity of the research question. Once the validity of the question is assessed, the reviewer must turn his or her attention to the means in which the authors sought to answer this question. The researchers need to be clear about what type of study is being reported and provide a description of their research population and sampling procedures. If applicable, the methods section should also include a clear confirmation that the study was approved by an IRB and the steps taken to protect the study population clearly delineated. The data gathered needs to be assessed, which may require the use of a statistical consultant assigned through the editorial office of the journal. The conclusion of the paper needs to align with the results. There should also be a careful and focused discussion about how the results of the present study fit within current scientific knowledge or clinical practice.

Reviews

In assessing a clinical review article, it is important to understand how its publication would benefit the journal's readership. A review article might, for example, summarize the development of a new treatment for an old clinical problem. A review article could also import relevant knowledge available in other literature to the journal readers who are not usually exposed to that information (e.g., geriatric medicine's literature on delirium prevention reviewed for an orthopedic surgery journal). Whereas the author's expertise and knowledge about the manuscript's topic should be clear when reviewing a review article, there should be no evidence of authorship bias. A review article must present a balanced, inclusive, and objective look at the current state of the literature. This requires the reviewer to check the references for potential important omissions and the use of primary sources.

Reviewing a Revision

If the journal's editors request that the authors revise and resubmit the manuscript, the revision will occasionally be forwarded to the original reviewer for reassessment. The authors should include a cover letter outlining all the changes made to the manuscript. Ideally these changes will be referenced to the suggestions provided by the peer reviewers and editors during the initial review process. The reviewer needs to determine if the authors have adequately addressed the concerns raised on the previous review. It is not appropriate at this stage for the reviewer to raise new concerns. At the conclusion of this rereview, the reviewer will again be asked for his or her opinion on a disposition of the manuscript.

Key Concepts

- Be polite and respectful.
- Be prompt in responses and deliver reviews on time.
- Be consistent in comments and recommendations.
- Be ethical and unbiased.
- Be knowledgeable in what you review.

Conclusion

The peer review process is the current standard for assessing a manuscript's worthiness for publication in the scientific literature. Reviewers, therefore, serve a critical role in ensuring the dissemination of knowledge throughout the medical profession. The entire peer review process is based on the idealism, professionalism, and collegiality of the peer reviewer (Table 3). Peer

Table 3 Professionalism in peer review [3]

Reviewers must:
1. Manage manuscripts that they are reviewing as a privileged and confidential document
2. Review only manuscripts that fall within their scope of expertise
3. Maintain a collegial and helpful tone when providing feedback
4. Uphold high ethical standards (i.e., disclose potential conflicts of interest, avoid bias)

reviewers provide fair, constructive, and knowledgeable feedback on a manuscript that improves the quality of the manuscript and aids the editor in determining an appropriate disposition of the manuscript. Accepting an invitation to review demonstrates a willingness to contribute to the profession of medicine and the advancement of knowledge.

Words to the Wise

- Request feedback from editors on the quality of your submitted reviews.
- Ask the editorial office if they would be willing to share the comments from the other reviewers involved in the review of the manuscript.
- With the permission of the editor, seek permission to review a manuscript with a more senior faculty mentor.
- Treat the authors of the manuscript you are reviewing as you, as a fellow author, would like to be treated by the reviewers of your manuscripts.
- Include your work as a peer reviewer in your promotional material/curriculum vitae.

Ask Your Mentor or Colleagues

- How does an early-career faculty member get invited to review manuscripts?
- When I get the opportunity to review along with permission from the journal's editorial office, could you please provide feedback on the quality of my review?

- How does a peer reviewer provide critical comments to the manuscript's author(s) in a constructive and respectful manner?
- How many reviews should I do a year?

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How to Evaluate Biomedical Research Publications Rigorously

Teddy D. Warner

Evaluating the quality of published studies and their outcomes is more complex than is typically imagined. Lack of uniformity of appropriate standards makes it difficult for readers to properly assess the validity of empirical findings in the biomedical literature. Many different published professional guidelines have been developed to help researchers in reporting study findings and understanding the adequacy of the study design, conduct, analysis, and interpretation. Dedicated efforts to apply these guidelines will improve the quality of reporting of biomedical studies and thus also bring benefit to individual health and society at large.

Evaluating the quality of published studies and their outcomes is more complex than is typically imagined. Biomedical science has been slow to develop rigorous *uniform standards* for designing, conducting, analyzing, and reporting studies [1–8]. This makes it difficult or even sometimes impossible for readers to properly assess the validity of empirical findings in the biomedical literature. For example, randomized controlled trials (RCTs) designed to evaluate interventions are often quite inadequate [6]. Beyond the fact that the studies may have been poorly conducted, the results may also be poorly reported. For example, the inadequate reporting of specific randomization processes in studies is associated with highly biased estimates of treatment effects [9]. Thus, without complete and clear study reports, readers, reviewers, and editors cannot judge the validity and usefulness of health research outcomes [6].

Because published research and its reported outcomes may be flawed in various ways [10–15], scientists, practitioners, and other readers should not rely on published findings as credible and valid *simply because they are published*, even in high-level journals. Currently, there is very little empirical evidence to support the value of editorial peer review in ensuring the validity of published studies or of the outcomes they report [18]. Most biomedical reviewers and editors are not formally trained in how to critique and analyze studies, manuscripts, and articles, and thus they often fail to detect serious study flaws. Even if flaws are identified, it is often very difficult for individuals to determine the extent that the flaws erode the credibility of the research data and their interpretation—certainly, there is no algorithm for translating specific study flaws into degrees of validity and credibility. Thus, to some real degree, each consumer of a published study is responsible for carefully assessing each study.

Errors in statistical and methodological procedures, both simple and complex, compromise the value and interpretation of results [10, 13–23].

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Some of the most common and harmful of these errors include the following:

1. Focusing on reporting simple statistical significance without an emphasis on the size of observed effects or their practical importance
2. Using inappropriate statistical models and/or failing to check the assumptions of the models used and failing to report such checking was done
3. Analyzing clustered data with models that do not account for the clustering effect, thus overestimating the size and significance of effects of the primary variables in the model
4. Conducting exploratory data analyses (i.e., not hypothesis-driven) not clearly described as such
5. Inappropriate handling of missing data
6. Inferences of causation from nonexperimental data without properly framing the limitations of such inferences
7. Conducting *atheoretical* stepwise regression models that capitalize on small chance relationships among predictors and outcomes and thus tend to produce non-replicable (i.e., unreliable) results
8. Categorizing continuous data or variables without justification, thus greatly reducing measurement precision and statistical power
9. Using analysis of covariance to statistically adjust for baseline differences in groups—as if that equates the groups at study outset—and failing to check ANCOVA assumptions, the violation of which may invalidate the meaning of the analysis
10. Interpreting studies showing non-significance in statistical tests (i.e., $p > 0.05$), especially with relatively small or biased or unrepresentative samples, *as "negative" results* (i.e., concluding that no effect actually exists), when such results are properly interpreted only as "inconclusive"
11. Not reporting study results in practical or clinically meaningful units (e.g., total cohort mortality rate, effort to yield, number needed to treat, minimum clinically important difference)

Most biomedical researchers are not trained to understand or deal with these (and many more) important statistical and design issues, despite their immense good intentions and strong abilities. To avoid some of the most common errors in reporting of research, numerous guidelines have been developed, and these represent valuable resources for academic faculty [1–7].

Guidelines for Reporting Empirical Studies

Because of the recognized problems in reporting biomedical research, in 1979 the International Committee of Medical Journal Editors (ICMJE) first published reporting guidelines for authors (Table 1). These initial guidelines were limited only to formatting issues, but over time the ICMJE has provided broader reporting guidelines (*Uniform Requirements for Manuscripts Submitted to Biomedical Journals*; see http://www.icmje.org). It is important to note that most ICMJE recommendations do not focus on actual standards for the proper design, conduct, analysis, and interpretation of health-related research, but only the reporting of the methods that are used. Thus, they are not directly useful in helping to assess the validity of study outcomes that do fully and clearly report, although conscientious application of the ICMJE guidelines definitely helps to reduce the confound between poor reporting and ability to assess study validity.

Many other types of guidelines have also been published in recent years by various organizations, which contribute to readers' ability to properly evaluate how a study was designed, conducted, analyzed, and reported. The prime example is the *CONSORT* (*Consolidated Standards of Reporting Trials*) *Statement*, which was originated for readers, researchers, reviewers, and editors in 1996. CONSORT efforts include a range of initiatives developed to alleviate the problems arising from the inadequate reporting of randomized controlled trials (RCTs). The *CONSORT 2010 Statement* includes a 25-item checklist focused on reporting how the trial was designed, analyzed, and interpreted, plus a flow diagram that shows the movement of all participants

Table 1 Major resources for evaluating and reporting studies and study outcomes

Uniform Requirements for Manuscripts Submitted to Biomedical Journals (http://www.icmje.org)

These requirements were developed and first published in 1979 by a small group of medical journal editors, which expanded and evolved into the International Committee of Medical Journal Editors (ICMJE), which now meets annually. The ICMJE has gradually broadened its concerns to include ethical principles related to publication in biomedical journals, and it has produced multiple editions of the Uniform Requirements. Issues have also arisen that go beyond manuscript preparation, resulting in development of a number of Separate Statements on editorial policy. The entire Uniform Requirements document was revised in 1997, and sections were updated in 1999, 2000, 2001, and 2010. In 2003, the committee revised and reorganized the entire document and incorporated the Separate Statements. The ICMJE prepared the current revision in 2018. The over 600 journals that agree to use the Uniform Requirements are encouraged to state in their Instructions to Authors that their requirements are in accordance with the Uniform Requirements and to cite the 2010 version. The ICMJE is a small working group of editors of general medical journals and is not an open-membership organization. Open-membership organizations for editors and others in biomedical publication include the World Association of Medical Editors (www.WAME.org), the Council of Science Editors (www.councilscienceeditors.org/), and the European Association of Science Editors (www.ease.org.uk)

Cochrane Collaboration (http://www.cochrane.org/)

The Cochrane Collaboration is an international network of more than 28,000 dedicated people from over 100 countries established in 1993. It works to help healthcare providers, policy-makers, patients, patient advocates, and caregivers make well-informed decisions about healthcare, based on the best available research evidence, by preparing, updating, and promoting the accessibility of *Cochrane Reviews*—over 4,600 published so far online in *The Cochrane Library*. The Cochrane Collaboration vision is that healthcare decision-making worldwide should be informed by high-quality, timely research evidence. Its work is internationally recognized as the benchmark for high-quality information about the effectiveness of healthcare. As such its reviews and standards for conducting systematic reviews are essential resources for healthcare providers, consumers, and researchers

Cochrane Handbook for Systematic Reviews of Interventions is the official document that describes in detail the process of preparing and maintaining Cochrane systematic reviews on the effects of healthcare interventions. It is available in various formats from the Cochrane website, which has links to many resources related to evaluation of health studies. The Handbook is a detailed resource that also provides considerable information about evaluating clinical studies

CONSORT (Consolidated Standards of Reporting Trials) *Statement* (http://www.consort-statement.org/)

The CONSORT Statement and associated documents strive to alleviate the problems that arise from inadequate reporting of randomized controlled trials (RCTs). The CONSORT Statement is an evidence-based set of recommendations for reporting RCTs. It provides a standard way to prepare reports of trial findings, facilitating their complete and transparent reporting and aiding their critical appraisal and interpretation by practitioners, policy-makers, consumers, and researchers. The CONSORT Statement includes a 25-item checklist and a flow diagram along with some brief descriptive text. The checklist items focus on reporting how the trial was designed, analyzed, and interpreted, and the flow diagram displays the progress of all participants through the trial

The EQUATOR endeavor provides reporting guidelines as an important method for helping to improve the quality of health-related research overall. EQUATOR now provides links to reporting guidelines for 11 main types of studies:

(1) randomized trials (CONSORT); (2) observational studies (STROBE); (3) systematic reviews (PRISMA); (4) study protocols (SPIRIT); (5) diagnostic/prognostic studies (STARD); (6) case reports (CARE); (7) clinical practice guidelines (AGREE); (8) qualitative research (SRQR); (9) animal pre-clinical studies (ARRIVE); (10) quality improvement studies (SQUIRE); and (11) economic evaluations (CHEERS).

through the trial. The CONSORT Statement is an evidence-based, minimum set of recommendations for reporting RCTs to serve as a standard way for researchers to prepare reports of trial outcomes with complete and transparent reporting, enabling readers to assess study validity. The CONSORT Statement evolves with periodic changes as new evidence emerges regarding design, conduct, analysis, and reporting of studies. The CONSORT website

(http://www.consort-statement.org/) contains the current version of the CONSORT 2010 Statement and information on various extensions and explanations of the statement.

Overall, 407 reporting guidelines have been developed and are linked from the EQUATOR website. However, the profusion of such a large number of specific guidelines itself is likely a problem because researchers could not possibly

familiarize themselves with such an extensive set of guidelines. Clearly, some overarching guideline or some small set of guidelines would prove useful to the field. Researchers are encouraged to at least use one of the broad 11 guidelines listed in Table 1 when reporting their studies. Sponsors and researchers such as those engaged in the EQUATOR endeavor see the use of reporting guidelines as an important method for helping to improve the quality of health-related research overall.

The CONSORT Statement is now endorsed by over 580 biomedical journals and many leading editorial organizations. CONSORT is part of a broader effort to improve the reporting of health research and to improve the quality of research used in decision-making in healthcare. No practitioner, researcher, reviewer, editor, or professional consumer of the medical literature should attempt to evaluate research outcomes without thorough knowledge of the CONSORT Statement and its related documents. Researchers who follow these guidelines maximize the ability of readers, reviewers, and editors to evaluate the validity of study findings. Evidence suggests that use of the CONSORT Statement checklist improves the quality of reporting [25]. If all researchers followed CONSORT and the other published guidelines, the quality of reporting of studies would likely increase substantially, which in turn would enhance scientific progress.

Additional Research Reporting Guidelines

During the last couple of decades or so, over 400 reporting guidelines have been developed, covering a broad range of specific study designs and data. Most guidelines were created idiosyncratically because little literature informs guideline developers about how to develop them, and thus these guidelines themselves may be flawed or incomplete.

To help improve the quality of reporting (and thus evaluating) of health research and its outcomes, the *Enhancing the QUAlity and*

Transparency Of health Research (EQUATOR) Network was established in 2008 (see: http://www.equator-network.org/). EQUATOR is intended to improve the quality of scientific publications by promoting transparent and accurate reporting through achievement of five major goals:

1. To build a comprehensive *web-based resource center* to develop and maintain up-to-date information, tools, and other materials related to reporting health research, including online resources for editors and peer reviewers related to teaching scientific writing and reporting.
2. To set up a *network of reporting guideline developers* and to maintain mutual collaboration among them, including providing developers scientific support for guideline development and information about how to best develop reporting guidelines.
3. To *promote reporting guidelines* and their use by developing online training courses for editors, peer reviewers, and researchers in their use and to promote activities to raise the awareness of the importance of using reporting guidelines.
4. To conduct regular *assessment of how journals implement reporting guidelines*—recent data indicate substantial need for improvement in reporting and using of reporting guidelines.
5. To conduct an *annual audit of reporting quality* across the health literature because most journals do not have an objective means for judging the quality of their published health research, thus providing data on the influence of reporting guidelines on published literature (adapted from http://www.equator-network.org/).

Not all studies can be evaluated with the same set of standards (hence, the dozens of reporting guidelines developed or being developed). There are many ways to classify and categorize empirical research, and biomedical studies can be categorized into one of four very broad types: (1) experimental and quasi-experimental studies; (2) observational studies (i.e., nonexperimental studies, of which there are many subtypes); (3)

qualitative studies (of which there are also many subtypes); and (4) literature reviews, which can further be categorized as narrative reviews, systematic reviews, or meta-analyses. Each of these has many subtypes, as exemplified by the great many reporting guidelines listed by EQUATOR.

Some general methodological principles apply to all research types (e.g., clear and complete description of the study design, objectives, hypothesis (if any), and main procedures; reliable measurement of outcome variables; minimization or control of confounding variables), but many issues are unique to a particular type or subtype of research (e.g., randomization for experiments). We briefly list many of the general questions a research study evaluator should ask in the "words to the wise" section at the end of the chapter. Different types of research may require many additional specific questions to enable the full evaluation of a research report.

Key Concepts

- *Outcomes* are the dependent variables or the effects on the dependent variable in a research study or the results from a study. This is the simple sense in which this term is used in this chapter. However, many definitions of outcomes can be found, and "outcomes research" has evolved to be an area of research itself, which applies to research that is concerned with the effectiveness of public health interventions and health services, that is, the outcomes of these services. Outcomes research may also refer to effectiveness of healthcare delivery, with measures such as cost-effectiveness, health status, and disease burden.
- *Internal validity* refers to the degree to which results of a study can be properly attributed to the variation in the independent or predictor variables rather than to flaws in the research design. In other words, internal validity is the extent to which one can properly draw conclusions about the causal effects of one variable on another variable or in nonexperimental research on the relationship between two or

more variables. Internal validity refers to the absence of the effects of confounding or extraneous variables on the relationship between two other variables.

- *External validity* is a synonym for generalizability, which refers to the degree that results or outcomes from a study can properly be applied to individuals, situations, or settings beyond those studied directly in a research project. A study can have high internal validity but low external validity, but not vice versa.
- *Narrative literature reviews* are comprehensive, critical, and relatively objective analyses of the current knowledge on a topic. They help to establish a theoretical framework and focus or context for one's research by identifying patterns and trends in the literature that in turn identify gaps or inconsistencies in a body of knowledge. Such reviews help lead researchers to a focused research question with the reviews as justification. This type of review is usually qualitative, relying on the ability of authors to integrate various studies and form appropriate conclusions about the extant literature.
- *Systematic literature reviews* collect data from primary publications, critically appraise research studies, and synthesize outcomes from the studies. They formulate research questions that are broad or narrow in scope and identify and synthesize studies that directly relate to the topic under review. They are designed to provide an exhaustive summary of current empirical evidence relevant to a research question. Such reviews are key to the practice of evidence-based medicine. An understanding of systematic reviews and how to use them in practice is strongly recommended for professionals involved in health care.
- *Meta-analysis* combines the results of multiple conceptually similar scientific studies of some focused topic. The approach combines results statistically using individual studies (instead of research subjects) as the unit of analysis. Meta-analysis is a type of review that uses statistics rather than qualitative results to produce a pooled estimate of effect size across

the multiple studies that is based on a weighted average of the effect sizes obtained in each study. In addition, individual studies included in the meta-analysis are described by various characteristics to determine if these characteristics show any relationship to the individual study sizes. Thus, information across multiple studies produces higher statistical power than in any of the individual studies in the meta-analysis. However, researchers must decide how to select studies based on a set of objective criteria. Meta-analysis may or may not be part of a systematic literature review.

It has been common to label randomized controlled trials (RCTs) as the "gold standard of research" because RCTs provide stronger direct evidence of cause–effect relationships (i.e., *efficacy* of interventions) than other types of studies. Some research areas have been more amenable to the use of RCTs (e.g., pharmacological trials) than others, and calls for greater use of RCTs have been offered in various areas of clinical research over the years (e.g., surgical treatments, non-pharmacological psychiatric treatments). However, all the other various research designs complement the evidence from RCTs and are often necessary under the many circumstances when the RCTs are ethically inappropriate or highly impractical or even impossible or when the research question is not about the efficacy of an intervention. On the other hand, in conducting RCTs, many efforts are made to maximize treatment compliance that are extraordinarily rigorous and therefore do not fit well with everyday medical practice situations. Consequently, the outcomes of RCTs are often not readily translatable into practice. Indeed, the National Institutes of Health in recent years has emphasized the importance of conducting *research* to determine the degree to which RCTs and other highly controlled studies actually show findings that produce (translate) into meaningful effects in naturally working healthcare systems [24–26].

Thus, the failure to use randomization or experimental methods in a study is not a fatal flaw or even a flaw at all—indeed, many situations and conditions require research evidence other than RCTs. For example, early in the course of studying some phenomena, basic observational or qualitative studies are often required to form some background for designing more complex studies. Later, cohort studies add to what earlier case studies or case series contributed to the knowledge base. Qualitative studies may, in fact, contribute considerably to understanding reasons behind clinician or patient actions that could not easily be revealed in a controlled quantitative study.

In general, a "good study" is one that is designed to answer a properly framed research question and that can be conducted within the limits of the situation and available resources. Recognition of the place of different types of research has important implications for research methodology, for the quality of care in clinical practice, and for research funding policy. Every type of study design has problems in particular applications if designed, conducted, or analyzed improperly, and thus all studies should be evaluated by the specifically focused criteria on the type of study that is conducted. Recognition of just how data from various study types can contribute to the evolving knowledge in an area is important. There is no true single gold standard, and each study should be judged on its strengths, weaknesses, and ability to advance understanding in a field given the current state of knowledge.

Research Evidence Hierarchies

Over the past 30 years or so, various hierarchies of evidence have been proposed and widely used to grade the quality of health research. Use of such hierarchies themselves may be overly reductionist and yield anomalous measures of research quality [27]. Perhaps the major problem with research evaluation hierarchies is that they tend to collapse multiple dimensions of study quality (e.g., design, conduct, sample size, measurement reliability and validity, blinding success, follow-up losses, analysis methods, question relevance, effect sizes detected) into a *single grade or score*. However, some study characteristics are more important for some clinical problems, for some outcomes, and for some study objectives than

others. Thus, a summary of the published main dimensions of evidence may be superior and more useful than a graded hierarchy with single overall study quality scores. Such a summary should be accompanied with an evaluation of why specific dimensions of study quality are important in the context being assessed [27]. A study could have high scores on many or most of multiple dimensions but a very low score on a single dimension, which alone may call the validity of the outcomes into question. Thus, average or summative scores should be used only with great caution, if at all, to evaluate or compare studies.

Evidence-Based Medicine

Biomedical research, evidence-based medicine, systematic reviews, and practice guidelines are part of contemporary medical science and medical practice. *Evidence-based medicine* (EBM) appears to motivate the search for answers to many questions related to the efficacy and effectiveness of healthcare as well as to costs of and access to care. Valid scientific evidence is essential in medicine for questions about quality care, healthcare policy-making, and various medical–legal issues. Thus, EBM brings together relevant trustworthy information through acquisition of systematic valid empirical data, the valid analysis and interpretation of such data, and the translation of research findings into clinical practice, health systems management, and healthcare policy. EBM, systematic reviews, meta-analysis, and practice guidelines evolve through sound research methodology that enables valid understanding of the empirical data (outcomes) that can then be effectively applied in clinical settings. EBM is defined as a conscientious, explicit, and judicious use of the current best empirical evidence in making decisions about the care of individual patients or groups of patients.

Evidence-based practice includes recognition of the patient's problem, construction of an objective clinical question, search of empirical literature to retrieve the best available evidence to answer the question, critical appraisal of all available evidence, and integration of the evidence with all aspects and contexts of the clinical circumstances. *Systematic literature reviews* provide the application of scientific strategies that limit bias by the systematic assembly, critical appraisal, and synthesis of all relevant studies on a specific topic. Systematic reviews are similar to meta-analyses but are very different from traditional narrative reviews.

Clinical practice guidelines are systematically developed statements that are intended to assist physicians and patients in making the best healthcare decisions, given the available empirical evidence. Evidence-based clinical practice guidelines are designed to improve the quality of patient care, patient access to care, treatment appropriateness, efficiency, and effectiveness with minimal cost. Well-developed clinical practice guidelines consider the available empirical evidence with multiple dimensions: validity, reliability, clinical applicability, clinical flexibility, clarity for practice, and careful means of documentation, all gathered through systematic valid empirical studies that may use various designs. Thus systematic reviews assess research outcomes, and clinical practice guidelines apply scientific outcomes to clinical care practices.

Conclusion

Over 400 guidelines have been developed to help academic faculty in reporting study findings and understanding the adequacy of the study design, conduct, analysis, and interpretation [1–8]. Dedicated efforts to apply these guidelines will improve the quality of research and its reporting and thus also bring benefit to individual health and society at large. However, the profusion of so many guidelines makes it effortful for researchers to select among them in many cases. Thus, the broader more well-known 11 main guidelines listed in Table 1 are recommended as a starting point.

Words to the Wise

As you evaluate research studies and their outcomes, answer the following questions:

- Are you familiar with the accepted standards for proper design, conduct, analysis, and reporting for the various basic types of studies (e.g., RCTs, cohort studies, other observational studies, systematic reviews, meta-analyses, qualitative studies) that should be applied to determine the validity and credibility of reported outcomes?
- Are you familiar with many of the common basic flaws in study design and statistical analysis of biomedical studies reported in the literature?
- Do you understand how various study types (e.g., experiments, quasi-experiments, cohort studies of various kinds, various direct observational studies, epidemiological studies, clinical case reports, qualitative studies) provide different types of valuable evidence?
- Can you provide a coherent critique of studies using each of the basic study types that is informative to your colleagues, journal editors, and grant review committees.

Ask Your Mentor or Colleagues

- How can my access to literature be expanded through Internet searches and various web resources?
- What journals, websites, and LISTSERVs are essential reading in my field and subfield?
- What implications do recent published empirical studies have for my practice or research?
- What are some important questions that could be answered by research that you are excited about and currently are prepared to design and conduct?
- Are you interested in collaborating with me on…?

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Suggested Reading

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Part V

Conducting Empirical Research

How to Lead a Research Team

Aimee-Noelle Swanson

Introduction

Leadership. Organizational culture. Managing dynamic teams. Providing effective feedback. Did you miss this course in your advanced training? Is *this* the class that you slept through only to show up for the final exam – or was that really just a dream? You didn't, and it was only a dream. Being an intentional leader and building the culture you want to maximize workflow and employee satisfaction is not something that is taught in graduate school. Very few institutions provide a didactic to scientists on how you build an effective organizational structure to deliver the best science possible. In academia, you are taught to think critically; to be a careful, well-reasoned scientist and clinician; and to approach problems with an objective eye, determine the root cause, and create impactful solutions. You are not taught how to be an effective leader, how to hire the right staff, how to engage teams in work during stressful periods, how to provide effective feedback to enhance performance, and how to build trust in a diverse team. However, you do have all of the tools that you need to do all of these things. You've been doing them for years and have seen them all around you. Now it's just a matter of rec-

ognizing them for what they are and connecting with them in a way that serves your goals and objectives. That is the point of this chapter. In this chapter we will cover building an intentional organizational culture, being a thoughtful leader, and managing a research team so that with some foresight and effort, you can focus on your science while engaging your staff in meaningful, high-impact work as a team.

Setting Yourself Up for Success

To best set the stage for this work and the continual learning and growing process of being a good leader, there is homework that you can do to help you in this process. First, *become self-taught*. No one actually is born a natural leader. These are skills that are learned throughout your life through a variety of interactions and situations. Seek out information, tools, materials, and knowledge on management styles and leadership strategies. There are volumes of works on "being a first time manager," "having critical conversations," "being an emotionally intelligent manager," "avoiding common pitfalls of managers," "leading dynamic and effective knowledge worker teams," "identifying your management style based on your personality type," etc. No one source will provide every answer, but there are great lessons to be gleaned from each resource that you examine. Review and analyze a broad

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range of materials to find skills and tools that you can draw on as you move forward as an independent investigator leading your own team. The more resources you have to draw on, the more places you'll have to go for counsel and guidance when you run into a tough situation. Everyone who is a leader at some point in time has to have difficult conversations with valued staff members. Everyone who is a leader at some point has to acknowledge a mistake and be responsible for that decision. Everyone who is a leader at some point has to examine the state of the team and make hard decisions about the way to move forward. How those conversations and interactions take place is what makes for a great leader and builds trust in teams. Take the time to immerse yourself in a wide range of materials so that you can have those tools at the ready when the time comes. You may only need to use a tool once or twice, but having it in the back of your mind or earmarked in a book may pay off greatly in the future. Some valuable leadership and management tools are included in the list of suggested reading at the end of the chapter.

Second, *get organized*. In order to be an effective leader and manager, you need to be organized. If you are not organized, it's incredibly difficult to organize other people – and for them to take you seriously. Nothing undermines a leader and a project more than being late to meetings, missing deadlines, or not remembering which person has been assigned what task. You don't have to have command of every detail, but you have to have a strong, well-communicated plan to get your work done so that you can inspire others and keep yourself on track. With a new faculty position, you'll have multiple competing demands – committees, teaching, research, clinical duties, mentoring, travel – and being well-organized will allow you the flexibility to think about other things rather than the details. Like all adages, "plan your work and work your plan" persists because it is true.

For every project that you manage, create a list of deliverables, a timeline, and milestones for yourself. What does the project entail? Make a list. Can items on the list be broken down into smaller parts with specific target dates? Can those items be delegated to other people? Do you

have to work with a vendor to get some part of the project done? Are there gaps in your knowledge that will require consulting with someone else to get an element completed? Will you need to travel to access samples or a subpopulation? Be as specific as you can for each project in terms of what you are doing and who you need to work with to get it done (establish a Data and Safety Monitoring Board; hire three research assistants, one postdoctoral fellow, and one database manager; two consultations with the IRB to determine risk, etc.) so that you have a realistic perspective on how much time and how much labor are going to be required to get the work done. Physically lay this out on a piece of paper or in a digital document and revisit it frequently as you move closer to the start of the project to be sure that you have all the materials and talent needed to get the work done. Add in actual dates for deliverables so that you can hold yourself and others accountable. It is inevitable that you will overlook some element that requires a technical expertise that you were not expecting or that something that you thought would take 6 weeks will instead take 3 months. Always add 40% additional time as a buffer. No one will ever be mad at you for delivering a project early, but late delivery can ruin your reputation. Having project-specific deliverables with milestones will not only help keep you and the team you assemble on track, but it will also allow you to visualize how much time you have available for other requests and opportunities.

There are a variety of tools that you can use to do this – some very old fashioned (a white board, a bulletin board, a notebook), some new (Trello, Google Tasks, etc.). Probably the most important tool is a calendar. Now this may seem very basic, but many people do not fully realize the power of a calendar. Our entire lives are measured in units of time. It makes sense to use a calendar to organize your work. If something makes it onto your calendar, it is more likely to get done. A calendar serves not only as a daily reminder of where you need to be, but it also can serve as a larger planner for project deadlines and reminders of important future events (such as annual performance review, grant deadlines, reporting requirements, etc.). If you write it in your calendar, you take it

out of your mind to try to remember and free up more space to think. It can act as a diary of how your time was spent on activities and projects. It can house daily and weekly to do lists and provide a historical record of how long something actually took. Whether it's on your phone or a paper calendar, use a calendar to the fullest extent possible. This may be the single most powerful organizational tool if you use it regularly. Without consistent use, a calendar's value is significantly reduced and can become a burden. Any tool only works if you work it.

The third thing you can do to set yourself up for success is to *become familiar with your institutional policies and resources*. It is critical that you know the rules and regulations of your institution in order to act appropriately and effectively within it. As the manager of a team and a good academic citizen, part of your job is to make sure that not only are you in compliance with standards, but also that your staff is in compliance and that you are able to recognize when standards are not being met. Make friends with your local human resources (HR) person. Read and understand institutional standards such as a Code of Conduct, disclosure policies, conflict of interest requirements, and privacy policies. Be familiar with your institution's sexual harassment and nondiscrimination policies and with your institution's implementation of the Family and Medical Leave Act (FMLA). Understand how you may have to reorganize work to accommodate a return to work after an employee has an injury. Learn who the ombudsperson is and when you might need to seek their counsel. If you are not sure about something, ask someone. While you may never need to recite your institution's personal protective equipment policy, knowing that one exists may protect your employees from a hazard while shipping specimens.

While you are scouring your institution's website for various handbooks and policies, you might find that there actually are a lot of resources available to you as you start to put your independent lab together. You typically can expect that your academic institution will provide you with guides for conducting interviews and tips for evaluating resumes and job candidates. They likely have performance review templates and helpful suggestions for documenting performance, talking to staff about performance, and creating an environment to promote a strong work ethic. You may also find tools for self-evaluation and institution-based mentoring programs to help you develop areas that you'd like to improve and share you knowledge with colleagues. In addition, many institutions have formal courses that you can take on topics such as communication skills, interviewing techniques, staff development, providing staff feedback, delegation and engagement, and a host of other professional development opportunities to enhance your toolkit of being a leader and a manager. Take advantage of these resources and consider them time well spent on being the best leader and manager that you can. The more skills you build as a leader and manager, the more your staff will trust you which will help in both times of expansion and in lean periods.

Building an Intentional Culture

Before you hire your first research assistant or even post your first job listing, spend some time thinking about the work environment that you want to create. Organizational culture is intentional – the culture that is created is a direct function of how communication happens, how study processes are documented and shared, how accomplishments are addressed and how failures are noted, how staff engage with their supervisor and subordinates, and all of the other things that go into the process of doing work. Thinking about the work environment that you want you and your staff engaged in is a valuable exercise and can act as an anchor when challenges come into the lab – which they inevitably will – and when you expand your team. Come up with a plan for creating the lab culture that you want to see implemented. Being mindful and intentional from the beginning will take you a long way toward building work structures and teams that will move your work forward. Changing culture is incredibly difficult so work done before that first employee comes on board will pay off for years to come.

Where to start? *Draw on your own experiences*. You probably think about your graduate and post-graduate experiences as primarily being focused on the educational content, but you also developed some amazing skills that you likely aren't thinking of. During this time you also developed skills in resilience, stress management, and persistence; the ability to perform in a high-stress environment and to critically evaluate information in real-time; how to operate effectively in a large, decentralized organizational structure; and much, much more. You've worked in teams to get a product out on a short timeline with limited resources. You've learned to effectively manage up to difficult people and how to communicate clearly as to your goals and expectations. All of these skills will play into not only your development as a leader, but how you want to craft the environment that you work in. Think about your experience throughout your educational process and what parts that you really liked and appreciated. Was there a journal club that was really informative? Was there a way that a particular faculty member seemed to engage research staff that was positive? Did you work with a certain investigator that was incredibly difficult? Reflect back on all of these experiences and start to think about the parts that you would like to adapt and adopt and the elements that you will do differently. What can you do better? Now that you are in charge of your own workforce, what does that mean to you? How do you want to be seen as the leader? Sketch out some ideas and thoughts. These experiences create the foundations for the culture that you will create and your notes to yourself will help keep you grounded in what you are doing.

Create a Personal Mission Statement This may not seem intuitive for an academic setting, but it is invaluable. Your lab is like any other start-up or entrepreneurial venture in the world. You have an idea/product/concept that you are trying to get to market – to the scientific community, to patients in the clinic, and to providers in healthcare organizations – and get other people excited about. What is that product? What is it that you do that is unique and inspiring? How will you position your work and vision to others? People are inspired and invested in outcomes when they feel like they are part of a team, part of a group working toward a goal. A mission statement helps to share that goal and vision in a short, concise message. The objective of the statement is to not only help define your work, but also share your vision with both internal (students, staff, other collaborators) and external constituents. It can be aspirational; include what you value in the statement. It should be written in a language that is accessible to a wide range of people. Do your best to avoid jargon and/or technical terms. Other people should be able to remember the mission and transmit it to others. Another wonderful aspect of a mission statement is that you provide yourself with inspiring words which you can use to remind yourself of your objectives if you feel like you are moving off target or getting bogged down in issues that are not part of your mission. It can act as both a lighthouse and an anchor.

Be a Thoughtful Leader Many academics do not relish the thought of having to lead a lab or manage staff, but this is part of the job and being a thoughtful leader is incredibly important. In the absence of true leadership, chaos and error fill the vacuum. This cannot be understated. To be a thoughtful leader requires you to lead by example. It's essential to model the behavior that you want to see. If you want people to be on time to work, to meetings, to meeting deadlines, you must do this each and every time. If you want people to be at their bench working during specific hours, then you too must be at your station during those hours. If you want staff to treat each other with respect, then you must display respect in all of your interactions. If you want staff to own their deliverables and be accountable for their work, then you too must deliver what you have committed to. If you cannot, then you cannot expect these values to imprint on your staff as important. Leadership comes from the top. I cannot stress enough how much damage is done when a leader is not present or does not lead. Work doesn't get done by magic or by the intrinsic individual drive to do well – and this is most

certainly true in science. As the leader, you must state your expectations of your staff. Be clear and specific so that everyone has a shared understanding and understands how their performance on a daily basis is evaluated. If you do this and if you lead by example, your staff will trust you.

A couple of additional notes on being a thoughtful leader. As an investigator, you are often obligated to travel for work. This can leave a gap in leadership. Make sure that you have at least one or two staff members that trust you and that you trust to provide continuity in your leadership while you are absent. This person should also lead by example and understand and embody the values that are important to you and your team. Be clear on what decisions they can make on their own and what decisions need to be discussed. Demonstrate your faith in their leadership by making public displays of this commitment, such as asking for their opinion on tough issues and acknowledging their contributions to successes. While you are out, other staff will understand the role these staffers play in keeping the science moving forward, and fewer errors and misunderstandings in your physical absence are likely to happen.

Note that your management style may vary depending on the nature of the work that you are doing. That is, the process of the science may dictate what style of management you engage. However, your values and mission should not change. If you are running a study protocol that requires highly-structured, timed measurements and sample collection in order for the study to be valid, you are going to have different expectations of your staff than if you are running a study protocol with larger windows for data collection. In all cases, you will have to create a scientifically-based protocol with documented work processes to be followed and you will train your staff on that protocol. You will delegate work to specific staff members and expect them to complete that work according to study protocol. Staff will own their work and will be recognized for doing so. You'll focus on the goals that you've established and will monitor progress against them. But your oversight, and hence management style, can be different for different types of studies.

For example, I used to oversee both phase I and phase II clinical trials. For the phase I trial, blood samples had to be collected at specific time points after a study drug infusion. The scientific process required the study MD, the research assistant (RA), the nursing staff, and the pharmacy to be on the same schedule. My expectation was that all data was collected and processed per study protocol. When I came to the inpatient unit – after greeting all of the staff and having some friendly chatter – the first thing I did was to review the participant chart against the samples in the freezer for parity. I also examined the samples to be sure that they were consistent with study procedures for sample processing. When things didn't match up, you could lose critical data points from a willing study volunteer who had given precious time and energy to this research endeavor. This type of study required daily check-ins with the RAs to be sure that everything was safely and correctly moving forward. My RAs tenderly called me a "benevolent dictator." In a protocol with a subject inpatient, one must be vigilant about protocol adherence. For the phase II study, my expectation was still that all data was collected and processed per study protocol, but the participants themselves drove much of what data could be collected. If an RA called the patient to remind them of their appointment three times and the participant didn't show up, the staff was following the study procedure, and missing data was just going to happen. Also given the nature of the population under study, there were going to be missed visits, incomplete visits, and visits where no actual data could be collected because the participant was having a rough day, etc. In these cases, I expected the RA to do the best they could, document what had happened per Good Clinical Practice (GCP), and continue with their work. Being a micromanager in that situation actually was detrimental to the staff owning their work product. They had to be empowered to collect the data to the best of their ability, and I had to trust that they were going to do so. (By the way, it took me a while to figure this out; it was a hard learning process.)

Managing Your Team

Hiring Staff Human capital is both the most expensive and most important resource in any organization. When it's time to hire your staff or hire into new positions, work with your local HR to determine the best job classification for the person you are looking to hire. Review the established skill sets or duties of the positions you can hire into and make sure that they fit your needs. Think about what candidate characteristics are "must haves," what are "desired" or "preferred," and what characteristics might be deal breakers for you. Do your best to provide as accurate a job description that you can. It's easier for the best candidates to apply for your job if the description is detailed and based on the nature of the job that you are hiring for. A generic job description can increase the time you will spend sorting out the applicants.

Before you start the interviewing process, check in with HR as to what policies and guidelines for interviewing and hiring need to be followed. Certain topics (age, race/ethnicity, religion, disability, family status, gender, citizenship) cannot be discussed as part of the employment process. It's worthwhile to create an interview template so that you can be sure that not only have you covered your main areas of interest with each candidate, but you can also document that you have evaluated each candidate on the same metrics ensuring fairness and transparency in your hiring process. An important dimension that can be hard to assess is fit with both your goals and vision and your team. As you get more experience hiring and managing teams, fit becomes easier to assess. Think about fit as alignment with the way that you'd like to see work done and the way it is being done. Someone who wants to work alone on their own timeline may not fit well into a team coding interview transcriptions for thematic issues. The whole process of reviewing candidates and interviewing applicants is both time-consuming and somewhat confusing. Everyone, including you, is putting their best self forward so candidly evaluating applicants is hard. What people put on paper and what skills they actually have can be two different things. Take

the time to hire the right staff and patiently evaluate your options. Your initial conversation with HR also should include how long an employee is on probation or in a trial period and what documentation you might need to terminate their employment.

People underestimate the amount of time, dedication, skill, and thought it takes to be a manager. Managing takes steady, consistent effort. It will not always take all of your effort or your time – and if you can embrace some of the concepts outlined, it is my hope that it will be rewarding both for you and for your staff. Building a team and having a group that works together toward a common goal and then sees that product to fruition is a reward in itself. Everyone feels engaged that she/he contributed to the work product. Once you have made your hires and put together your research team, here are some additional tools and suggestions that may be helpful in building a strong, high-functioning team:

- *Make your expectations clear and explicit.* If you have a specific way that you want work to be done, explain that clearly, and make sure that the process is documented so that each new staff member does the work in the same way. If you are open to staff taking different routes to the end goal, then documented work processes may not be needed. Misunderstandings or inadequate work deliverables are usually the result of a lack of shared understanding of the goals, the means, or the ends. They also can be the result of the manager having a specific end product in mind, but not stating that clearly.
- *Have regular meetings – and stick to the meeting schedule.* Having standing meetings with both your team and with individuals is a great way to make sure that work is happening according to the work schedule, that expectations are shared and understood, and that problems come to the team quickly and are addressed efficiently. Meeting as a team allows the group to see each person's role and contribution and provides a consistent opportunity to message your values to your team and to allow them to calibrate to your vision. Meeting with each individual staffer allows you to measure individual-level progress and

provide feedback to the staff person on a regular flow. Setting a schedule for meetings and having the team meeting regardless of who is in attendance or if there are agenda items can create a culture of accountability as people will come to expect to be asked about progress at each meeting and will want to demonstrate that goals are being met. If you have planned your work and are working your plan, each meeting should show progress toward the goal.

- *Give praise!* Acknowledge each staff member's contributions toward meeting a goal. Giving ample, genuine praise for each person's effort on a project takes no effort on your part and means more than just the words spoken. Science takes a lot of time and sometimes the wins are small and hard-fought. Recognizing these contributions makes everyone feel valued and demonstrates that you see the work people are putting into the project. You do not have to praise everyone all the time like they are children – and insincere praise can always been seen through – but true expression of gratitude are how we build trust in teams.
- *Performance reviews happen at every interaction*. Within each interaction you have with a staff member, you have an opportunity to comment on their performance. Many managers and employees get stressed out during performance reviews. This is totally unnecessary. If you are being a good manager, you should be letting your staff know in real-time how they are doing in their job. Let staff know when they are doing well and when they are missing the mark. As best you can, provide clear instruction on how to do better if things are not going well. If you don't let someone know that he is not doing a good job, you deny him the opportunity to grow, to change, to learn, and to do the best job that he can. Formal performance reviews should reflect the words and actions that you have been communicating over the last performance period and should not be a surprise.
- *Take the time to say hello!* Work can be stressful. Life can be stressful. When you come into work, do your best to greet your team and say hello. Don't interrupt work flow or meetings, but when appropriate do acknowledge your staff and check-in. We have all had a boss who rushed into the office and then went right into her office and growled or slammed the door. That sets a bad tone for the team. It creates anxiety that when the boss comes in, look out for trouble. Instead, we can choose to be civil and kind and do a basic greeting – and mean it – of hello to our fellow humans.
- *Do not gossip. Do not share personal information about other staff.* Period.

Manage Yourself

Take the time to reflect and manage yourself as well as your team. Learn how to take feedback from your staff, your peers, and your superiors. Part of learning to give effective feedback is learning how to ask for feedback and how to graciously take unsolicited feedback. While the latter may not be appreciated, you can find a pearl of wisdom in all critiques – whether that is experiencing a behavior that you will not repeat or taking a hard look at what you have been doing and implementing some changes. As part of managing yourself, you may want to in parallel devote some time and effort to professionalizing yourself and your staff. Find trainings that may be of interest to your team and share the dates and locations with them. For at least some of your staff, you are training the next generation of scientists so the investment you make in yourself and in them has unlimited potential. At the same time, it is important to remember that for some people, this is a job – this is not their calling. Different types of staff require different motivation so you have to learn what the driver is for a staffer and motivate them accordingly. You cannot make a person who really is only interested in molecular gastronomy into the next Marie Curie. It's also worth noting that you are thinking at a different level than your staff. Many times when I have seen teams in conflict, the problem lies with the expectations of the investigator, who holds the same standard of work for herself and for her staff members. The investigator has had years of advanced training, however, and has been down this path before. The newly-graduated college

student is being exposed to many new ideas and processes in his current job. He has not taken courses in developing theory and understanding journal articles or the art and science of protocol development. A lot of frustration can be mitigated when we accept that our standard of work is much higher than the current capabilities of a person with a first-time job. Recognizing this can turn a frustration into an opportunity to coach and develop a young person.

Finally, take vacations. You want your team to be engaged and dedicated at work and to have a life outside of work. If you never take vacation, then you are not modeling healthy work behaviors for your staff. After all, you are in charge now and you deserve a break.

Words to the Wise

- Make time to celebrate. In the rush to get work done and meet deadlines, we forget to make time to celebrate. Celebrate achieving milestones, celebrate small wins, celebrate big wins, and retrench when there are setbacks – and celebrate the retooling. It doesn't have to be cake and ice cream every day, but acknowledging the gains that have been made as a team helps to build collegiality, trust, community, and commitment to the goals.
- Hiring staff is a balance between skill set for the work and fit with the team. You could hire the most competent, capable, talented person in the field. However, if they are miserable to work with, then you will have a big problem in terms of productivity and morale. Make sure that you screen candidates for harmony with your existing stakeholders and harmony with your values and mission. Invite stakeholders to be a part of the interviewing process so that they can see how it works and have a voice in the choice – but only include them if you are truly open to their input.
- Things will go off track. Experiments will not work out as expected. Staff will go on vacation leaving you shorthanded. Participants

will disappear into the ether. IRB reviews will take four times longer than expected. Your tenure review will require more time than you had anticipated. You will catch a terrible cold. Journal editors will make unrealistic requests. Data will not comply with your hypothesis. It is okay. I repeat: it is okay. Go through the stages of grief; take a deep, deep cleansing breath; see the lesson in the event; and keep on going. You've got this.

Ask Your Mentor or Colleagues

- What piece of management advice do you wish someone had told you when you were starting out?
- In your opinion, what is the best practice that you have implemented in your research lab?
- What was your worst management mistake and how did you recover?
- Are there any tools that you use now that you find helpful? Books? Podcasts? Programs? Apps?

Suggested Reading

These texts are valuable management and leadership tools for scientists. Consider these as key reference materials to set yourself up for success.

Allen D. Getting things done: the art of stress-free productivity, revised edition. New York: Penguin Books; 2015.

Barker K. At the Helm: leading your laboratory. 2nd ed. Cold Spring Harbor: Cold Spring Harbor Laboratory Press; 2010.

Cohen CM, Cohen SL. Lab dynamics: management and leadership skills for scientists. 2nd ed. Cold Spring Harbor: Cold Spring Harbor Laboratory Press; 2012.

The Harvard Business Review (HRB). 10 Must Reads book series covers a wide range of topics with terrific resources and references.

Making the right moves: a practical guide to scientific management for postdocs and new faculty. 2nd ed. Burroughs Wellcome Fund and Howard Hughes Medical Institute; 2006. https://www.hhmi.org/developing-scientists/making-right-moves.

Patterson K, Grenny J, McMillan R, Switzler A. Crucial conversations: tools for talking when stakes are high. 2nd ed. New York: McGraw-Hill Education; 2011.

How to Conceptualize a Research Project

Shaili Jain, Steven E. Lindley, and Craig S. Rosen

For a research project to successfully advance medical and scientific knowledge, each component of the entire research process must be clearly and rationally conceived *before* proceeding with active research steps such as data collection and analysis [1]. The research process has three phases: the conceptual phase; the empirical phase, which involves conducting the activities necessary to obtain and analyze data; and the interpretative phase, which involves determining the meaning of the results in relation to the purpose of the project and the associated conceptual framework [2].

The conceptual phase is the part of the research process that determines *which* questions are to be addressed by the research and *how* the research project will be designed to successfully find the answers to these questions [2]. Conceptualization involves simultaneously bringing together several considerations to identify a good research idea, i.e., an answerable research question that is worth answering. Components of this process include conducting a thorough search of the peer-reviewed literature, finding a mentor and other collaborators, considering methodology and study design, and assessing feasibility. It should be noted that although we describe these various components in a linear fashion in the text, in reality, the conceptualization phase is not a linear process and will require consideration of these components to varying degrees at various stages depending upon evolving circumstances and the early-career investigator's unique strengths and weaknesses (Fig. 1).

Even though careful attention to all these components will require time and effort on the part of the clinician-scientist, it will be time well spent, as it is necessary to lay the ground for a truly successful research endeavor. Failure to plan thoroughly can result in wasted time, money, and, most importantly, unnecessary burden and risk for research participants if the project does not successfully answer the questions being addressed.

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Fig. 1 Components of
the conceptualization
phase of a research
project

Embarking upon a Clinical Research Project

In the course of caring for patients, we frequently make observations that pique our interest and appear to be worthy of systematic scientific investigation. These clinical observations may be related, for example, to observing a particular pattern among patients with a common illness or disorder, individual outcomes of a new treatment that appears to be effective for a patient population, or factors related to where the patient lives, works, or receives care that appear to be affecting the clinical presentation.

Although the possibilities of such observations are numerous, underlying them all is a common theme—a notion that we have stumbled upon something worth knowing more about because we believe it could, potentially, enhance the care we offer our patients. Academic clinicians are, no doubt, well positioned to generate novel, exciting, and clinically relevant ideas for potential research projects, but although the two are closely linked, approaching a research idea is very different from clinical decision-making. We suggest the following three considerations in this early stage.

Pursue an Idea About Which You Feel Particularly Inspired and Passionate

While there are many potentially interesting questions, the path toward setting up a systematic scientific investigation of an idea requires hard work, commitment, and time and may present frequent obstacles and dead ends. We state this not to discourage such an undertaking but, rather, to emphasize the importance of pursuing an idea about which one feels particularly passionate. This passion will provide necessary "fuel" for navigating the path ahead.

Take the Path of Least Resistance

Give preference to ideas that are synergistic with your clinical interests in addition to the mission and expertise of the department with which you are affiliated. For example, if your clinical expertise lies in serving patients with a particular illness, an idea which has that illness as a focus will be ideal. Or, if you work in a department with a tradition of conducting a specific type of research, e.g., health services research, an idea

that approaches the particular illness from such a perspective may be more likely to blossom in a department that has the "built-in" expertise to support such an endeavor. One can also, of course, seek out clinical opportunities or affiliations with other departments that match one's research interests. But look to create as much synergy between your clinical life and research interests.

Identify Your Immediate Goals of Conducting a Research Project

Finally, we recommend identifying, early on, specific goals of the research project. In addition to answering the question that has piqued your interest, how will answering this question contribute to your field in a meaningful way? Will the goals achieved justify the potential burden and risk to research participants or the cost and effort to conduct the research? How will you communicate to others what you have learned (e.g., produce peer-reviewed publications, present at professional meetings, or use this preliminary data to inform the writing of a grant)? Identify concrete goals that you wish to attain from embarking upon this project. Identifying such goals beforehand will assist in providing focus to your endeavor and lay a foundation for future work in this area.

Conducting a Thorough Search of the Peer-Reviewed Literature

Once you have decided on an area to pursue further, it is imperative to conduct a thorough search of the relevant peer-reviewed literature. This search will likely be different than searches normally undertaken to find an answer to a clinical problem. It should be substantial both in breadth and depth and, if necessary, also draw upon related fields. The goal is to get a complete picture of the current state of the knowledge in that particular area, including how others may have attempted to address this issue, limitations to previous research, opinions expressed in the literature about the problem, and approaches

used in related areas that may have been successful. Once you have identified key articles, study and review them carefully. The goal is to emerge from this process with an informed perspective about the gaps and weaknesses in the current evidence base and how your potential research will contribute in some way to closing those gaps. Conducting a comprehensive view of the medical literature is no easy feat. If you are unsure of your search skills, enlist assistance from a medical librarian, or take an online tutorial in how to conduct a search. Save your searches, and sign up for weekly alerts to ensure you are staying abreast of the relevant literature and hence are able to adapt to accommodate cutting-edge findings should the need arise. At this stage you should begin refining your initial question into a clear, well-focused research goal or hypothesis.

Perhaps write up what you have learned as a review article, which may be a particularly useful exercise if a large body of literature is associated with your idea and an organizing review has not been previously published. Manuscript preparation will be a useful opportunity to concretize your thoughts, have your ideas undergo a critical expert review by the journal, and lay the foundation for future scholarly work in this area. Such a manuscript, when published, also adds credence to your expertise in this field, which is especially useful when seeking collaborative opportunities with other experts and writing for grant funding.

Finding a Research Mentor and Other Collaborators

After you have established a clear research idea, you will need some degree of expert supervision to guide you through the various stages of this project, depending on your previous research training and experience. Seeking mentorship from senior researchers at your institution will be key to enhance the scientific quality of your project and to provide assistance on practical elements such as helping you navigate the unique regulatory requirements of your organization and overcome unexpected administrative obstacles.

Ideally your mentor should have expertise in the area of research you have identified and have time to meet with you regularly [3]. If such a person is not readily identifiable, ask the leader in your department to point you in the right direction. It may be that there is no one in your department who has a close alignment with your research interests, in which case you may have to be creative and seek out relationships with faculty in other departments or at other institutions. More often than not, you may need to assemble a panel of different mentors for various aspects of your project, e.g., an investigator with expertise in that disease to help refine the research question or a researcher with expertise in a particular methodology to help with study design.

Having a mentor who has an existing project in which you can get involved is a wonderful way to proceed, especially if you are new to research or time is of the essence. Such a project could be a valuable opportunity to bypass many of the hurdles that frequently prevent a project from getting off the ground and also "test" some of your ideas and garner necessary research skills. Additional benefits of working as part of an established laboratory are possibilities of additional resources to assist you, such as office space or research assistant time.

Developing relationships with colleagues who share similar research interests can be highly beneficial—such relationships should be viewed as mutually supportive: you will need forums where you can brainstorm ideas with other researchers, and you should also be ready to offer your services to your colleagues when the need arises. Once you have assembled a team of collaborators, you should be drawing on their expertise and experience to further refine your research question, goal, or hypothesis. *At this stage*, *consider* writing a draft proposal. It should not be longer than two pages and should include a title, rationale, objective, hypotheses, methods, data analysis plan, significance, and key references section. By keeping it succinct, you will help maintain the focus of your project. Share this document with collaborators, and revise it after receiving their feedback. This draft will serve as a concrete representation of what you wish to do but will likely need to go undergo several revisions before arriving at a version that is complete. This refinement process is crucial; it will guide the next phase of conceptualization, methodological considerations.

Considering Methodology and Study Design

Before you can have a clear, well-focused research question, goal, or hypothesis, you need to think about selecting appropriate methodological approaches and study design. Careful consideration of study methodology will require knowledge of the fundamentals of key design approaches and issues. For the prospective researcher who feels inadequately prepared in this regard, we recommend specific texts at the end of this chapter. In addition, taking time to receive live instruction by attending relevant courses or seminars, if available, is strongly encouraged, especially for those who are new to research. As with clinical skills, some direct training from mentors and colleagues is an essential component to being a successful researcher. Here we offer a checklist of salient areas to consider as one goes about considering methodology and study design [4].

What Will Your Study Design Be?

The design of your study will be defined by multiple factors, including most particularly by the nature of the question you are addressing. For example, if you are the first one reporting on a novel new treatment, an open, non-randomized design may be an appropriate first step. But if your research seeks to provide a more definitive explanation or draw causal conclusions, your study will require an experimental design with randomization. Randomization comes in the form of random placement typically into a treatment or control group so that each participant has an equal and independent chance to be placed in either group [3]. If your research seeks to explore associations among naturally varying

factors (e.g., how genotype relates to phenotype), you may be using a correlational or nonexperimental design. If your research explores epidemiological questions, such as disease prevalence, you will need to give greater consideration to sampling issues (e.g., whether your study participants are representative of a broader population).

Who Is the Target Population?

Clearly define the population of interest and identify an appropriate sampling procedure. Narrowing the population too much will hinder the generalizability of the findings; however, defining your inclusion criteria too broadly may make it hard to interpret your results. Consideration also needs to be given to calculating what the sample size needs to be in order for your study to have sufficient power to answer your research question. Because sample size is a critical factor in feasibility, it may be worth getting some early consultation to estimate how large a sample you will need.

What Are the Key Variables?

A careful review of the relevant literature and clear articulation of the research idea will help ensure that the appropriate variables of interest are identified and controlled or accounted for in the design. It may be necessary to include certain variables as part of the randomization process. It is key to account for all major variables to ensure that subsequent data collection yields useful information for the analysis.

What Are the Outcomes of Interest and How Will They Be Measured?

Again, the research idea should guide what the primary outcomes of interest actually are. The literature review will provide ideas for how best to assess such outcomes and guide the selection of appropriate instruments and measures. There is often a balance between selecting the most sensi-

tive and specific measure and the feasibility of administering a measure due to time constraints.

What Are Potential Confounders to Consider?

For studies that do not attend to sufficient randomization, the potential for confounding variables affecting outcomes, i.e., factors other than the experimental intervention, is increased. As this can have a significant adverse effect on results and interpretation, it is vital to identify confounders and control for them beforehand.

Assessing Feasibility

A research study is rarely perfect; hence, the goal becomes finding the right balance between what is optimal and achievable given the practical limitations and the research idea [4]. Some questions call for a more definite answer than others depending on a variety of factors. We recommend assessing the following practical aspects before committing to a particular design or approach to a study.

Access to Data

Perhaps the foremost constraint on potential research is the sources of data that one can expect to access. For example, if your study will be based in your clinical setting, you need to consider what types and amount of data you can realistically expect to obtain from your participants, how patient flow limits the number of participants you can expect to recruit, and that your conclusions may be generalizable to people who seek treatment but not the general population.

Ethical Guidelines

Research involving the participation of living human volunteers is carefully regulated and monitored both locally via the vice-chancellors

of research and institutional review boards and federally by the office of human research protection. Nonetheless, it is vital that as the one who is most intimately acquainted with the nuances of the proposed study design and population, you give careful consideration to ethical issues raised by your research and how you will ensure that appropriate safeguards are implemented. Such consideration will be shown in the writing of a well-informed grant and IRB protocol (see chapters "How to Prepare an IRB Application" and "How to Approach a First Grant Application").

Buy-In from Key Stakeholders

Who are the key stakeholders in your study? Do they agree with your plan? Perhaps the most obvious stakeholders can be found at the clinical site from where you intend to recruit participants. Have you spent time communicating with staff at the clinical site about the purpose of the study? Do they have suggestions about the design or confounding variables that you may not have considered? Do they have other reservations or concerns that need to be addressed? Do they think your line of inquiry is relevant and useful to their program's goals or mission? If your study involves, for example, access to administrative datasets or lab results, do you have the relevant permission and expertise to access this data? Partnering with key stakeholders, prior to starting the study, will provide an additional source of invaluable input to further sculpt your research idea. Such a relationship will also facilitate a smoother implementation phase of the project.

Costs and Funding

Will your project need funding? If so, how will you go about obtaining such funds? How long will this take? What is your backup plan if you are unable to obtain funding? Can you obtain sufficient release from clinical duties necessary to conduct the study? Will you need to ask for support from other clinical staff, e.g., nursing or laboratory service? Costs and funding will likely be a major rate-limiting step in the early phase of your project; if funds are elusive, you may have to think creatively—perhaps your project needs to be done on a very small scale first, i.e., as a pilot; then, if successful, you can use your data to inform the writing of a grant. Alternatively, you may consider designing a project that has little costs other than your time and negotiate for "protected time" to devote to the project.

Does the Research Project Timeline Fit in with *Your* Timeline?

A research project will require your devoted effort over a substantial period of time. It is important that you are able to meet this commitment, as it is integral to the successful execution of the project. Ensuring you have this time may involve negotiating with supervisors that you be alleviated from other duties or reprioritizing personal or other professional goals for the duration of the study.

Careful consideration to all these components is an iterative process from which, it is hoped, the reader will emerge with a good research idea, i.e., an answerable question that is worth answering. Such an idea will represent a successful conceptualization phase and will serve you well as you proceed with the next stages of the research project.

Words to the Wise

- Be respectful of collaborators' time. Be ready to adapt your schedule to fit theirs, even at the last minute.
- Keep collaborators appraised on the status and outcomes of the project at timely intervals, e.g., if a collaborator provided you with feedback on one or two occasions in the earliest phase of the project, be sure to keep him or her in the loop of subsequent positive progress, even if it is several months after the fact.
- Be respectful of the feedback process. Give people time to respond, and do not ask them to adhere to unrealistic deadlines; acknowledge

their input right away; if you decide not to follow their advice or suggestions, let them know why.

Ask Your Mentor or Colleagues

- Can my proposed study contribute to the field?
- What departmental resources exist to help with my research project?
- What institute or funding agency might be interested in funding this project?
- How much protected time can I obtain to pursue this project?

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Additional Resources

Chapters 8, 10, 19, 20, and 24. In: Roberts LW, Hilty D, editors. Handbook of career development in academic psychiatry and behavioral sciences. 1st ed. Arlington: American Psychiatric Publishing, Inc.; 2006.

Hulley SB, Cummings SR, Browner WS, et al. Designing clinical research. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2007.

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How to Understand Flaws in Clinical Research

Teddy D. Warner

Introduction

Health researchers, providers, consumers, and policy makers are confronted with unmanageable amounts of information. Being able to recognize and understand flaws that commonly arise in clinical research is an essential skill for academic faculty in clinical departments. There are a number of important issues or problems that seriously limit one's ability to trust the published outcomes in clinical research (Table 1) as authoritative.

First, quantitative researchers often examine tightly *defined questions* without first considering a broader view in defining a problem. In contrast, qualitative researchers usually take a much broader view initially than do quantitative researchers, but qualitative researchers do not conduct controlled trials of efficacy or effectiveness. Qualitative researchers seek to thoroughly explore the nature and extent of a problem or issue without being constrained by the need to reduce their results to numbers and statistics or having to predefine the specific scope of what they are studying. Qualitative researchers seek to have their data, and interpretations of their findings show them the way to understanding. In contrast, clinical researchers may rely on broad epidemiological data about a phenomenon of

interest or its importance, but they often then define a narrow range of subject characteristics, a limited population, and only a single outcome to measure.

All these factors combine to limit the possibility of the study to show valid results. Null results under such conditions may well fail to generate information about relationships or causes simply because of the narrow scope of all the factors in the study. That is, a broader range for the variables studied may have revealed statistically significant and clinically meaningful effects or relationships. This type of problem is sometimes called a "restriction of range" problem. Without studying the broader set of factors and degrees of each factor, a researcher may never know why his or her study failed to detect effects, and the value of the study may not be as great in advancing a field of scientific inquiry.

Second, researchers often conduct studies in *artificial and highly controlled settings*. In experimental studies, researchers do their best to control all variables other than the independent variables directly being studied to determine if they cause variation in the outcomes or dependent variables. In such highly controlled circumstances, other naturally occurring variables in the real world may be prevented from having their normal effects on outcomes. Controlled settings and studies are needed, however, because conducting research in uncontrolled real-world settings might well lead to results that would be

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Table 1 Some general criteria for evaluating clinical research study outcome validity

1. What are the main *objectives* of the study, and are they clearly and completely specified?	Will meeting the objectives advance meaningful knowledge in the field or subfield?

2. What is the *type of study* (e.g., randomized trial, nonrandomized trial, nonequivalent control group, case control, case cohort, cross-sectional descriptive, qualitative)?
   What is the basic *research design* and is it clearly and completely described?
   (a) Descriptive (e.g., case studies, observations, simple survey, interviews, focus groups)
   (b) Relational or correlational or associative (e.g., complex self-report or survey)
   (c) Comparative or case control (i.e., preexisting equivalent or nonequivalent groups)
   (d) Quasi-experimental (i.e., nonrandomized assignment)
   (e) Experimental (i.e., randomized assignment)
   (f) Review (i.e., narrative, systematic, meta-analytic)

3. Does the *Introduction* place the study in the proper context of the literature that is directly related to the study objectives?
   Recognize that only studies directly pertinent to the study objectives should be discussed
   Determine what important and uncited studies, if any, are not cited and how that may have influenced the study design, conduct, and reporting of the study

4. What are the *primary hypotheses*, if any, and are they clearly stated in a *testable form*?
   Are there secondary hypotheses?
   Are the hypotheses reasonably justified and significant to the field?
   Note that exploratory or purely descriptive studies may well not have hypotheses, but most other studies should

5. Were the hypotheses based on a theory or conceptual model?
   If not, is an atheoretical approach overtly justified by the authors?

6. Is the design adequate to meet study objectives and answer study hypotheses?
   Objectives, hypotheses, and design should be consonant with each other

7. What *population* was sampled for the study?
   What is the theoretical population of interest (i.e., to whom do the researchers ideally wish to generalize their conclusions)?
   How was the *sample* drawn (e.g., randomly, purposively, self-selected)?
   Does the sample allow generalization to a population of real interest?

8. If the approach is comparative, quasi-experimental, or experimental, what is the *full study design* in terms of independent or predictor variables?
   For example, is there more than a single independent or predictor variable?

9. What are the main *independent* or *predictor* variables (if it is not purely a descriptive study)?	Are the independent variables important or peripheral to the phenomenon under study?	Are independent or predictor variables manipulated by the researchers (i.e., causal), or are they measured as attributes of participants (i.e., non-causal)?
   Is the independent variable a *between subjects* variable (represented by different groups of individuals) or a *within subjects* variable [variables repeatedly measured at different points in time, most commonly, or measures from different sources that are correlated (e.g., from spouses or from siblings as pairs or repeated measures from subjects)]?

10. Are these variables justified from the extant literature, and are all key such variables included in some way in the design (i.e., is the study analytic model fully specified based on what is known)?

11. What is the *level of measurement* of the predictor and *independent* variables (*nominal/categorical*, *ordinal*, *interval/continuous*, or *ratio/continuous*), and are the analyses appropriate for that level of measurement?

12. What is the main *dependent* or *outcome* variable(s)?
    What is the level of measurement of the dependent or outcome variable(s) (*nominal/categorical*, *ordinal*, *interval/continuous*, or *ratio/continuous*), and is the analysis suitable for that level of measurement?

13. Are the *primary outcomes* conceptually appropriate, given the extant literature about the phenomenon studied?
    Are there also secondary outcomes which are less central to the effects of the independent or predictor variables?
    Were the most conceptually important outcomes assessed, or were key outcomes omitted?

14. Is there sufficient evidence for the *reliability* of the main outcome variables [no evidence vs. provided by past literature based on citations vs. provided by the data in the present study (always preferable)]? Note that reliability of measures is sample-dependent and is a *feature of the data* acquired and is *not* a property of the *instrument* used to measure the outcomes

15. What level of control (i.e., *randomization*, *stratification*, *equivalent groups*, *statistical control*) is exerted in the study over *extraneous variables* (i.e., variables other than the independent/predictor and dependent/outcome variables)?
    Do any important *uncontrolled* extraneous variables produce possible *confounds* with the independent or predictor variables that might provide plausible alternative explanations for study results?

Table 1 (continued)

16. If *statistical control* (i.e., in regression or ANCOVA models) is used for extraneous variables (i.e., covariates), were the interaction effects of the covariate(s) with the study independent variables and other covariates formally tested for presence?

    Analysis of covariance assumes the covariate does not interact with other model predictors, but if it does, then failure to include the covariate X predictor interaction term in the model may fully invalidate results obtained for study outcomes

17. Does the *Methods* section adequately describe key features of the study such that the study could be replicated by others and that readers can fairly assess the likely validity of reported outcomes?

18. At the outset of the study, are *groups* (if any) that are compared in the study equivalent or different on important characteristics (i.e., can preexisting characteristics or conditions explain or confound the study results)?

19. What is the *dropout or incompletion rate* of study participants, and does this vary by study group? How does this compare to other studies of its type using similar approaches?

    What *analytic model* was applied to deal with incomplete data (e.g., intent to treat, as normally preferred, or some other method, ideally regression-based imputation)?

20. How were *missing data* dealt with (e.g., ignored, cases dropped, simple imputation methods, state-of-the-art imputation methods), and how could that process influence study outcomes and validity of effects detected?

21. Did sufficient numbers of study participants complete the final study outcomes to provide adequate statistical power?

    Is *sufficient statistical power* present to detect the *smallest effect sizes* that are *clinically meaningful*? How were sample sizes determined?

    Is there *excessive study power* (i.e., a very large sample) that is likely to produce statistically significant differences for clinically unimportant effect sizes?

    What is the *minimum clinically significant difference* (MCID) for the phenomenon studied, and is that reported and discussed for this study?

22. Are appropriate *statistical procedures* applied to the data?

    Were important assumptions for these procedures tested and met (e.g., uniformity of regression for all groups on all covariates, absence of interactions effects that are not included in the final model, independence of observations)?

    Would alternative or additional statistical procedures enhance the ability to understand results?

23. Does the *Results* section clearly and succinctly describe all important results in the study based on the objectives and hypotheses?

    Were clear and informative *tables* and *figures* for data included? Would additional figures or tables enhance interpretation of study results?

24. Does the *Discussion* section clearly and succinctly summarize:

    (a) The major results from the study, while placing them in perspective to current knowledge

    (b) The important implications of the study results

    (c) The important limitations of the study

    (d) Specific needed directions for future research

25. Are the study results *appropriately interpreted* (i.e., was interpretation justified by the nature of the measures, how they were obtained, who they were obtained from, and how they were analyzed)? Were conclusions appropriate or overstated or incomplete or misleading?

26. Do the study results contribute to the existing *knowledge base* (i.e., current relevant empirical literature) incrementally?

    If not, is the study so novel that it provides unique information, and if so, is this clearly stated?

    Do the study results replicate or contradict important previous findings?

    What practical or theoretical relevance do study results and outcomes have?

27. Are all *citations* included in the body of the article cited in the Reference list?

    Are they cited in standard fashion such that they could easily be located in the literature?

28. Based on an *overall evaluation* of the article, does the research seem valid?

    Do you believe the outcomes, conclusions, and implications?

    If not, what is your specific *rationale* for disbelieving?

29. What is the *next research* that should follow from this work, and was that briefly described and explained by the authors?

difficult to interpret because of the operation of many influential, confounding variables that might interact with the study's independent variables. In short, researchers often must trade off efforts in studying variables in complex, real-world situations vs. studying them in controlled and artificial settings, which may produce more interpretable results about cause and effects, at least in the early stages of studying a phenomenon. In many research situations, after highly controlled laboratory studies have shown that the independent variables cause variation in outcome variables (efficacy), a researcher may then shift to conducting a related study in more natural environments to determine if the laboratory results generalize to real-world applied settings and under what circumstances they apply (effectiveness). That is, controlled RCTs usually need to be followed by translational studies conducted in actual practice settings. In most cases, translational studies have not yet been performed and reported, and because of this, NIH has greatly increased its emphasis on various phases of translational research [1].

Third, researchers often use highly *imperfect measures that show low reliability*, often unknowingly. Just as all studies are imperfect to varying degrees, all *measures* of outcomes are also imperfect. Many factors can contribute to error in measurements. Measures with a lot of error have lower reliability than measures with less error, and measures with lower reliability have lower validity as a result of lower measurement consistency. Thus, researchers generally should strive to make measurements as accurate and reliable as feasible. More reliable and more valid measures have greater statistical power to detect relationships with other variables; thus they increase the likelihood that a study will support its hypotheses if the predicted relationships or effects actually occur in the population being studied [2]. So, proper assessment of a study must consider the quality of the measures used in the work. Most researchers assume that outcome measures reported in prior published studies indicate that those outcome measures are inevitably reliable in general. However, measure reliability depends on the sample and context, such that measures that

produced statistically and clinically meaningful results in one study with a sample drawn from a particular population may not do so with a sample drawn from a different population or with a study context that is different. Ideally, each study should assess the reliability of its outcomes, but few do.

Fourth, researchers often *use far less than ideal samples* that prevent generalization to the true population of interest. Generalizability of outcomes is also termed the *external validity* of the outcomes. To have confidence in the generalizability of study outcomes, the sample should at least be *representative* of the population of interest. Realize that if a study's outcomes do not generalize to any broader population of importance than the study sample, then the study results are not very useful or meaningful. Of course, in most cases, generalizability can only be fully confirmed by replication of study outcomes in future studies, engaging diverse samples acquired from diverse populations. This said, a study sample demonstrated to be representative on key variables with the population may suggest that study outcomes are likely to be generalizable.

Ideally, a sample should be randomly drawn from the population. However, in health-related research, few samples are randomly drawn due to practical constraints. Most samples do not even end up being representative of the larger population of interest (e.g., all individuals with some type of disorder), and characteristics of individuals in study samples are very often quite unrepresentative of the population. Instead, most researchers draw samples of convenience (i.e., samples relevant and accessible to the researcher), which helps accomplish the study work but affects the generalization of study outcomes. The unrepresentativeness of a sample may well be the reason that the study outcomes do not replicate in future work that involves different samples of individuals.

Fifth, researchers usually conduct inferential statistical tests that provide *p*-values, and they often conclude that findings are important solely because the *p*-value is found to be "statistically significant" (i.e., $p < 0.05$). Interpretation of the pattern of findings (e.g., treatment group per-

forms better than the control group) then proceeds, and researchers make conclusions and recommendations based on such analysis simply because *p* was less than 0.05. Recent literature reflects a different approach—while statistical significance is desired, the size of the detected effect (e.g., the difference in the means for the control vs. treatment group; the size of a correlation coefficient; the odds ratio) is what should actually be interpreted. In this approach, the question to be asked (and answered) is, *Is the effect size found sufficiently large to have clinical or practical importance, irrespective of statistical significance*? With relatively large samples, it is common to find statistically significant effects that have little clinical importance (i.e., the treatment effect is small or is not large enough to have much practical benefit to patients or enough impact to justify the cost of treatments or the burden of adverse effects). Thus, it is critical to determine the *minimum clinically important difference* (MCID) a priori before study conduct and then to interpret study outcomes in view of the MCID. Once statistical significance is demonstrated, then interpretation of outcomes should only be framed by whether the treatment effect is worthwhile in terms of symptom reduction, cost of treatment, and adverse effects [3–5]. These assessments will also offer information that relates to the best available alternative treatments already identified as efficacious and effective (e.g., the evidence-based standard of care).

Sixth, researchers often report outcomes with insufficient details about how the study outcomes were produced because journals severely limit space allocated to author reports. That is, details from the study protocol are not included in the article, which are necessary to enable a reader to properly evaluate the validity or meaning of study outcomes or to attempt to replicate the original outcomes. In the past decade or so, increasing efforts have been made to *provide full protocols to those who evaluate studies* (e.g., proposals to post study protocols on accessible online databases), but the general access to study protocols remains low. How a treatment was actually implemented may greatly influence the size of the treatment effect and how any detected treatment effect (i.e., outcome) is interpreted. Without access to protocol details, readers of reports of study outcomes are usually faced with simply accepting the results on face value. This may lead to other researchers' efforts to replicate findings by using a protocol that is inconsistent with the original protocol, perhaps thus leading to failures to replicate the original results and in turn producing contradictory findings in the literature. This situation confuses other researchers, practitioners, and the public and greatly slows scientific and clinical progress.

Key Concepts

- *Efficacy* refers to the ability of a treatment to cause a beneficial effect. In health research, efficacy is ideally demonstrated with a well-controlled and unconfounded randomized clinical trial. The intervention tested could involve a drug, a medical device, a surgical procedure, a physical therapy, behavioral therapy, or a public health treatment. Efficacy is demonstrated by showing that the experimental intervention or treatment produces a statistically significantly greater benefit than a control treatment. Whether the demonstrated effect has clinical significance is then shown by indicating that the size of effect statistically detected is sufficiently large and likely to have practical levels of benefit in terms of improvement in patient condition, cost, reduction in side effects, and other practical factors. That is, statistically efficacious effects may well be outweighed by excessive cost, serious side effects, or other practical problems.

- *Effectiveness* refers to the ability of a treatment placed into actual practice environments to have beneficial effects on patients. Many treatments with demonstrated efficacy in controlled studies do not show effectiveness because many factors operating in natural environments may detract from the direct effect of a treatment. For example, some treatments in practice may have such low rates of compliance among patients that they do not in the long run show sufficient degrees of bene-

fit. Treatments with clearly demonstrated efficacy in highly controlled and artificial clinical trial settings may not show effectiveness under normal practice conditions.

- *Translational research* refers to studies of how to transform study findings from controlled research environments into real-world practice environments. Currently, translational research is categorized as T1, T2, or T3 types. T1 translation takes a research finding made in a laboratory (often called "the bench") to a new treatment tested in clinical (usually called "the bedside") studies. In contrast, T2 translation takes results from clinical studies to everyday clinical practice and health decision-making settings. Finally, T3 translation integrates evidence-based treatment guidelines into actual healthcare practice through delivery and dissemination.

Seventh, no single study proves anything in science. *Replication of findings is essential* to establish confidence in the validity of study outcomes. Efforts to replicate findings commonly fail in biomedical science—still, such replication failures are not definitive because there are many reasons that studies may fail, only one of which is that the findings are not real. One of the reasons I have emphasized in this chapter is that studies are often methodologically weak or flawed. It may take several replication efforts to isolate the reasons that different versions of the same study produce different outcomes. Are there differences in study designs, conduct, sample sizes, or analysis of studies with positive outcomes vs. those with null or negative outcomes? In addition, failures to replicate previous findings are less likely to be published than positive outcomes, and this bias distorts the understanding of phenomenon that can be gained from simply reading the published literature. Replicated study results increase our confidence that study outcomes are valid. In addition, movement is now on for all study outcomes to be reported, regardless of study outcome, along with reporting of full study protocols. In fact, almost 300,000 studies from over 200 countries have their outcomes and protocols reported in a single federal website maintained by the US National Library of Medicine (https://clinical-trials.gov/).

Assessing Outcomes Reported in the Literature. It is unlikely that all relevant articles in an area lead clearly to the same conclusion. How do you assess the whole picture, which probably includes some conflicting results, at least in terms of effect sizes, and certainly includes studies that have varying characteristics and methods, even if they have the same general objective?

Three basic types of reviews can be found. *Narrative reviews* critically appraise and summarize primary literature on a common topic area, but they do not set specific criteria for selecting literature to be included or for specific review protocol. A narrative review draws together major arguments and results in a field of research. Narrative reviews today only should be conducted on topics that do not lend themselves to systematic reviews. Narrative reviews used to be the most common review in the literature, and it was not unusual for different reviewers to publish rather different assessments of the literature only a decade or two ago. Today, the accepted standard is for a *systematic review* to examine the mechanisms underlying a phenomenon and usually focus on intervention, diagnosis, or prognosis in biomedical fields. Systematic reviews help practitioners and researchers to keep abreast of the medical literature by summarizing large bodies of evidence and helping to explain differences among studies dealing with the same question. A systematic review applies scientific strategies in ways that limit bias to the assembly, critical appraisal, and synthesis of all relevant studies that address a specific research question [5, 6]. A *meta-analysis* is a specific type of systematic review that uses statistical methods to combine and summarize the results of several primary studies that share similar independent or predictor variables and outcome variables. A meta-analysis is very useful when a set of studies on a phenomenon show different effect sizes or have two sets of studies, one set showing one effect and the other the more or less opposite effect.

Researchers also consult textbooks and other scholarly books to gain an overview of the phenomenon of interest. Textbooks have limitations that are different than those in the primary literature—textbooks are at least 2–4 years behind the literature, they tend to make conservative conclusions that do not reflect emerging literature at the time they are published, and they certainly make global pronouncements that may be far less useful than more specific primary articles in particular contexts.

The final decision about the value of a study or set of studies rests with the reader. I have encouraged readers to not be intimidated by the power of the printed word, especially if it is found in prestigious journals, but to do the best work possible in one's academic role. Each reader of any scientific article must make an independent but well-informed assessment. It has become widely known over the past decade that studies in biomedical and behavioral sciences often fail to replicate [7–9]. This fact makes it clear that all studies must be replicated before their results are widely applied.

Words to the Wise

As you evaluate research studies and their outcomes, ask and answer the following questions:

- Having evaluated (rather than merely read) an article, do you generally believe the study results and make conclusions? If not, what are your specific reasons for disbelief?
- What plausible alternative interpretations, if any, exist for the reported study outcomes?
- What novel and meaningful contributions to the literature do the study results make?
- Do you understand how the study results fit with or contradict other published work and knowledge?
- How might any study weaknesses be remedied (e.g., research design, sampling, procedures, statistical analysis, reporting) if someone were to undertake the study again?
- How might a new study be designed in a way to *extend* the findings of a published study?

Ask Your Mentor or Colleagues

- How can I gain a greater understanding of the concepts of reliability and validity of measures and outcomes?
- How do I search for systematic reviews, especially Cochrane reviews? For other sources of systematic reviews? How do I search for meta-analytic reviews?
- Do I have skills and knowledge regarding research design, conduct, analysis, and reporting sufficient to enable my competent evaluation of complex research? Do I need to consider additional formal training or independent study with mentors to enhance these skills?

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https://clinicaltrials.gov/. A web-based resource that providing the public with easy access to information on publicly and privately supported clinical studies on a wide range of diseases and conditions and maintained by the National Library of Medicine and the National Institutes of Health.

How to Prepare an IRB Application

Melinda Hantke

An Institutional Review Board (IRB) is a committee or collection of committees that review research protocols to ensure the rights of human subjects are protected, risks minimized, and the science proposed sound. While there are several types of IRBs, the mandate they follow is uniform. In the most basic sense, they review a protocol by comparing the potential risks and benefits of the procedures involved for the potential participants. IRBs do this by holding the research to the ethical standards defined by federal regulations [1], or the "Common Rule"; they also review research to ensure it follows the standard operating procedures or policies set forth by the institution where the research will take place. While we all have our own internal ethical dialogue, an IRB performs a diversely represented review of studies, comparing them to the ethical standard law that governs the research we perform. They do not exist to make life as academic medical researchers more difficult (even when challenging an effortful and well-thought-out plan); rather, they act as a guide to facilitate the ethical research we endeavor to perform.

Local IRBs exist in academic settings like universities, colleges, and medical schools where clinical trials, social/behavioral studies, observa-

tional studies, and record reviews are performed. The IRB will often be closely linked with the offices related to research administration, including the groups that process grants and contracts and monitor various institutional safeguards (standard operating procedures and compliance, conflicts of interest, biohazards, animal use, etc.). In 2018, with the revision to the Common Rule, the concept of single IRBs for multisite studies was introduced. The goal of using a single IRB for multisite studies is "to enhance and streamline the IRB review process for multisite research so that research can proceed as quickly as possible without compromising ethical principles and protections for human research participants" [2]. Each institution and even each funding entity may have its own unique application of the rules for this concept. Researchers should check with their IRB early in the process for guidance on this subject.

Central IRBs provide unique oversight for multisite studies that sometimes include hundreds of sites across the nation or internationally. A good example of this is the National Cancer Institute Central Institutional Review Board Initiative. They offer a centralized place for the streamlined review of clinical trials that often focus on a specialized topic or population in an effort to reduce the burden on local IRBs. Review and approval from a central IRB does not preclude a local IRB from its own review and decision on the research protocol. Each

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institution has a specific policy on how it uses the central IRB's decision because it may have more stringent or distinctive procedures at the institutional level.

Private or "for-profit" Independent Review Boards review research protocols separate from an academic institution. They use the same federal regulations in their review of research and are vulnerable to the same governmental monitoring as an Institutional Review Board in an academic setting. Some institutions may contract out review work to a private IRB if they do not have a large enough research administration needed to convene a local IRB.

Getting Familiar with the IRB

Academic medical researchers should make it a priority to get to know the local IRB. The first step toward this is to get online and review the information that the IRB has provided to the research community. Examples of consent forms, protocol application questions, standard operating procedures, institutional policy statements related to human subject research, data use forms, and many other resources are readily available to researchers in an effort to simplify and structure the process of developing a protocol. Making full use of these resources takes the guesswork out of many of the intricacies relating to federal regulations and institutional expectations. Be sure to register for access to the submission system for the IRB or find the forms necessary for paper submission if that is the preferred system at the institution. Find out what kind of training the IRB requires before a researcher can be a PI on a study and what will be required for research staff and coinvestigators. Many institutions are now part of the Collaborative Institutional Training Initiative (CITI), an online human research subject protection educational module, and will require completion of this training prior to protocol review. Knowing all of this before submission will help research planning proceed predictably.

At an academic institution, the IRB will have office staff that perform an initial administrative review to help prepare the research protocols for review by the committees and communicate decisions with study staff. The rest of the IRB will be made up of the committees that review the protocols and render decisions. An institution may only have one committee, but larger research-intensive institutions usually have more than one committee and either structure them by specialty (e.g., clinical/biomedical/medical versus social/behavioral/nonmedical) or type of review (e.g., expedited, full committee). Committees consist of at least five members, including at least one with a scientific background and one without, one nonaffiliated member (often known as the community representative), and a well-represented diversity of gender and professional focuses. Committee composition is mandated by federal regulations at *45 CFR §46.107 IRB membership*.

Most local IRBs have open office hours or monthly meetings for the research community to provide the latest news on related policies or changes in federal regulations. It is a good idea to attend at least one of these meetings if a researcher is new to an institution or to research altogether. Get familiar with the staff who will be working on the application and the process they follow. Ask questions about timelines and anything else that is unclear. If a connection is formed with someone in the office, he or she will be able to provide a clear path for questions down the road.

What Types of IRB Review Are There?

The first point of contact that a researcher might have with an IRB is to determine if the proposed research is, in fact, *human subject research*. An IRB office will usually have a flow chart or form with a series of questions that will aid them in deciding whether the proposed study can be defined as research, involves contact with human subjects, or can be defined as a clinical investigation. If it is determined that the study falls under the rules set forth by 45 CFR 46, a protocol will need to be prepared for IRB review. The type of review that the IRB performs is mandated by 45 CFR 46.

The IRB can determine that a protocol is exempt from the regulations if it falls under the exempt categories, defined under 45 CFR 46.104. Note that finding a study "exempt" is not the same as declaring it "not human subject research." These categories, including exempt from review, limited review, expedited review, and full review, are determined by the IRB, not the researcher. In general, the exempt categories include research where the information is already public or anonymous and will not put anyone at additional risk when used and is therefore exempt from regulation even if it is considered human subject research.

Certain types of research defined by 45 CFR 46.110 will be appropriate for expedited IRB review. Expedited review is allowed when a protocol involves procedures that are ruled no more than minimal risk. It is important to note that expedited review is often misinterpreted as an accelerated review—a source of potential frustration to researchers—when in reality, it simply means that the IRB review of the protocol can advance without a convened committee. This type of review can be performed by the IRB chairperson or other experienced members, and a decision can be made accordingly; only sometimes does this also mean that the researcher will receive the decision more rapidly.

A fully convened committee (i.e., Full Committee Review) provides the fourth kind of review to studies that potentially pose greater than minimal risks to human subjects. In these cases, the IRB will review the protocol to ensure the following criteria are met (for a complete list, see Table 1): the risks to subjects are minimized; the risks are reasonable in relation to anticipated benefits, if any, to subjects, and the importance of the knowledge that may reasonably be expected to result; the selection of subjects is equitable; informed consent will be sought from each prospective subject or the subject's legally authorized representative, and informed consent will be appropriately documented; and, when appropriate, the research plan makes adequate provision for monitoring the data collected to ensure the safety of subjects, and there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of data (45 CFR 46).

Table 1 General components of an IRB protocol form

Study type	Multisite? Single site? Record review? Clinical trial? Investigator-initiated? Pilot?
Study team	The study team may need to provide their CVs, as well as complete human subject research training *prior* to approving protocol (e.g., CITI training)
Funding	Federal? Private? Institutional? Nonprofit? None?
Participants	Who? (Healthy control subjects? Vulnerable populations?) How many? How (recruitment procedures)?
Inclusion/ exclusion criteria	Age Condition(s)
Study design	Procedures, including a written plan and document for obtaining informed consent Data collection Analysis
Questionnaires, medical procedures, etc.	Are they research related/routine care/not research related?
Insurance versus clinical billing	What will the study pay for? What is the participant responsible for? Who will pay if something goes wrong?
Payment/incentives	Is it reasonable reimbursement for time and expenses?
Safeguards	Does the study need a Data Safety and Monitoring Board (DSMB)? What are the plans to protect the confidentiality of participants? What are the data handling/ storage/retention plans? What is the plan for reporting (UPIRSOs, etc.) to the IRB?

After review, an IRB can approve, require modifications, or disapprove a research protocol. Once approved, the IRB is also required to perform continuing review throughout the lifespan of a study and can approve, suspend, or terminate activity at any point if there are serious harms to human subjects or other documented serious concerns. Any changes to the protocol must be

approved through an amendment before the change is implemented in study procedures. Even a simple change, like the contact information on the consent form, will likely need review and approval from the IRB. Be aware of the different IRB processes for minor and major changes to the protocol and study materials ahead of time so that they can be reviewed in a timely manner and the study can proceed without undue delay. Protocol deviations and other unexpected issues must be reported by the research team to the IRB within a specific timeframe—check with the IRB for standard operating procedures for these types of events.

In July 2018, after almost 7 years of dialogue related to potential changes, the federal government implemented revisions to the Common Rule, 45 CFR 46 [3]. Many of the basic aspects remain the same; however, additional exemptions and options for limited review were added, the concepts of single IRB review for multisite studies and broad consent were introduced, and efforts to simplify the informed consent process and documents have been made in response to the changing landscape of human subject research [4].

Preparing a Protocol for IRB Review: Best Practices

Information is widely available on the Internet and at local academic institutions regarding IRB composition, review, and regulations. The following section focuses on how to prepare a protocol for IRB review by providing a series of "best practice" suggestions to help guide a researcher through the process.

Allow Plenty of Time Preparing all of the study materials and the protocol for IRB review can be very time-consuming. Once submitted, these materials may take months for review, modification, and ultimately approval. Although IRBs vary in the amount of time review takes—due to scheduling of convened meetings, process for expedited review, and size of the administrative team—one thing remains common: performing careful review takes time and patience.

Use Grant Language The grant application, whether federally funded or not, should have a section with plans for including human subjects. This is a starting place for the language and details needed to fill out the IRB's protocol questionnaire. Many IRBs will also ask for the original grant language that was submitted to the funding agency so that they can review it and compare it to the protocol questionnaire to make sure they correspond. Another tip for creating a good protocol is to remember not to impose unnecessary limits. Keep things general unless specifics are requested or required. This will cut down on the number of amendments and changes needing review and approval by the IRB and also leaves room for discretion of the study investigators on minor study-related details. It may be easier to submit a protocol with more general language and have the IRB request specific detail, rather than limiting options right from the start.

Have Forms and Other Study Materials Ready to Include in the Submission to Avoid Delay of Recruitment Find researchers or research staff in the department that have submitted a project similar to the project and ask to read their approved protocol or find out what extra items the IRB requested, if any, e.g., screening questionnaires, recruitment tracking databases, procedure timelines, and consent forms. Find examples of approved consent forms in the department or on the IRB's website. This will be the easiest guide to institutional expectations that also meet the required regulations. But remember, just because a similar study was approved does not mean this study will not need revisions before approval—IRBs are a constantly changing mechanism.

Keep in Mind the Purpose for the Review and Oversight Protecting human subjects is the name of the game. The IRB needs to see that potential harms to participants have been minimized and that a clear plan exists for unanticipated problems. Ensuring forecasting and careful thought about each procedure involved is the purpose for the review; ensuring compliance with

Table 2 Criteria for IRB approval of research

1. Risks to subjects are minimized:
   (i) By using procedures which are consistent with sound research design and which do not unnecessarily expose subjects to risk
   (ii) Whenever appropriate, by using procedures already being performed on the subjects for diagnostic or treatment purposes
2. Risks to subjects are reasonable in relation to anticipated benefits, if any, to subjects, and the importance of the knowledge that may reasonably be expected to result. In evaluating risks and benefits, the IRB should consider only those risks and benefits that may result from the research (as distinguished from risks and benefits of therapies subjects would receive even if not participating in the research). The IRB should not consider possible long-range effects of applying knowledge gained in the research (e.g., the possible effects of the research on public policy) as among those research risks that fall within the purview of its responsibility
3. Selection of subjects is equitable. In making this assessment the IRB should take into account the purposes of the research and the setting in which the research will be conducted. The IRB should be particularly cognizant of the special problems of research that involves a category of subjects who are vulnerable to coercion or undue influence, such as children, prisoners, individuals with impaired decision-making capacity, or economically or educationally disadvantaged persons
4. Informed consent will be sought from each prospective subject or the subject's legally authorized representative, in accordance with, and to the extent required by, §46.116
5. Informed consent will be appropriately documented or appropriately waived in accordance with §46.117
6. When appropriate, the research plan makes adequate provision for monitoring the data collected to ensure the safety of subjects
7. When appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of data. When some or all of the subjects are likely to be vulnerable to coercion or undue influence, such as children, prisoners, individuals with impaired decision-making capacity, or economically or educationally disadvantaged persons, additional safeguards have been included in the study to protect the rights and welfare of these subjects
8. For purposes of conducting the limited IRB review required by §46.104(d) (7), the IRB need not make the determinations at paragraphs (a) (1) through (7) of this section and shall make the following determinations:
   (i) Broad consent for storage, maintenance, and secondary research use of identifiable private information or identifiable biospecimens is obtained in accordance with the requirements of §46.116 (a) (1)–(4), (a) (6), and (d)
   (ii) Broad consent is appropriately documented or waiver of documentation is appropriate, in accordance with §46.117
   (iii) If there is a change made for research purposes in the way the identifiable private information or identifiable biospecimens are stored or maintained, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of data

Directly quoted from https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=83cd09e1c0f5c6937cd9d7513160fc3f&pitd=20180719&n=pt45.1.46&r=PART&ty=HTML#se45.1.46_1109

the protocol in order to maintain participant safety is the reason for continued oversight.

Ask for Help Ask colleagues, mentors, and experienced research staff, and—most of all—ask IRB staff and committee members when it is unclear how to best safeguard potential participants.

Remember that IRBs are there to act as a researcher's guide in ensuring that ethical research is being performed and appropriate safeguards are in place. Having a well-thought-out plan for protecting the welfare of potential participants is required. When in doubt, ask the IRB

for advice. See Table 2 for a detailed list of questions a researcher will likely encounter in an IRB application.

Ask Your Mentor or Colleagues

- Are subjects safeguarded from risk? What is the risk/benefit ratio?
- Are the incentives for participation appropriate? Could they be interpreted as coercive?
- Is there a clear process for obtaining informed consent and keeping subjects informed of study changes?

- Is there a confidentiality plan and a method of safeguarding the data?

Key Questions for the IRB

- What kind of review does my protocol need?
- Is it human subject research or not?
- How long does expedited review take?
- Who can I call with questions?
- Are there any special rules or considerations when recruiting the specific population used in my study?

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How to Engage Communities in Research

Emmanuel M. Ngui

Interest in and popularity of community-engaged scholarship has increased significantly in the past several decades. Community engagement has become a popular "buzz" word in many academic and business settings, even though the term is not clearly defined or consistently applied. In both academic and business settings, community engagement is often considered a form of corporate social responsibility, in other words, a commitment of the industry to giving back to the community [1–3]. In academia, however, the process of engaging communities is increasingly expanding into a form of scholarly commitment of academics working together with communities by addressing challenging community and academic issues [4, 5]. In one study, over 85% and 90% of faculty respondents agreed that community involvement improved the quality and relevance of their research, respectively. Almost all respondents (97%) agreed that institutions should be more involved in the community [6].

The community engagement process, however, is not clearly defined and requires consideration of several important issues, including the following: (1) a clear definition of "community" and "stakeholders"; (2) clarifying of what community engagement means and the approaches that will be used; (3) clarifying who is engaging whom and how; and (4) examining and addressing ethical issues in the engagement process.

Defining Community

The complexity in the conceptualization and applications of community engagement perhaps begins with the challenges and a myriad of views and notions on how to define a community. Definitions of community are as diverse as the people or groups trying to define it. Community can be described as "a unit of identity, with various factors of commonality including a common interest or cause, or a shared geography, history, or set of values" [7, p. 58S]. Communities are often characterized by three factors, geography, interactions, and identity [3, 8, 9]. Geography relates to people living in a given geographical location or space with or without reference to interactions among the people. Interactions convey the social relational aspects of a community that occur within a shared geographical space or without a defined physical space. Several online communities, for example, share no physical space but still meet some specific relational needs of individual members. Communities vary by scope, context, and time. Some definitions are limited in scope, for example, to a given, clearly defined geographical location, population, or cultural group, while others are broad and abstract such as virtual online communities. Communities also differ by context, for example, professional

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communities may differ from social or religious communities, although they may all meet key aspects of what makes a community. Moreover, communities may also differ by time and space. In one place at a given time, a person's community may be different from another time and place. Overall, these ambiguities in defining communities can be a challenge in the engagement process. A key basis of the engagement process is clearly identifying and describing the community.

Mbiti sums a true sense of community using an African philosophical view that states "I am because we are, since we are, therefore I am" [10, p. 24]. This view captures both the individual and relational aspects of a community. Communities share some "common" elements; its people "commune" (relate and communicate) with each other and work toward "unity" in achieving desired goals. As such, an ideal community is the one in which individuals actively participate in developing and promoting the overall capacity, well-being, and cohesiveness of the entire community. Conversely, the community through its values, norms, culture, policies, and activities fosters individual and common good. The almost symbiotic relationship between community and the individuals who live in it highlights the close connection and interreliance of a "true" community, in which individuals are engaged in the overall health and social well-being of the community and, conversely, the community health and social well-being is closely linked and supportive of the individual's health and well-being. This view reflects three important components of a true community: commonality, commune, and unity.

A clear definition of a community is therefore critical and helpful in defining and identifying the key community stakeholders needed in the engagement process. According to Freedman and Reed (1983), stakeholders can be narrowly defined to include individuals or groups vital to the survival or success of a corporation or widely defined as individuals or groups who influence or are influenced by the corporation [11]. In community settings, stakeholders may include individuals, agencies, or groups that are directly or indirectly affected by a particular issue or who may have a

stake (interest) in a given issue or community (narrowly defined). Primary community stakeholders can include community leaders, individual and agency advocates, and faith leaders with direct interest in a community issue. Other stakeholders include organizations or individuals who may not have a direct connection to the community issues but may have concerns about the impact on the community issue or policies related to the issue on the broader community (widely defined) [11].

Community Engagement

Definitions of engagement vary within and across disciplines. Community engagement is hence defined as:

…the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people. It is a powerful vehicle for bringing about environmental and behavioral changes that will improve the health of the community and its members. It often involves partnerships and coalitions that help mobilize resources and influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices. [12]

A more recent WHO report defined community engagement in health as:

… a process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes. [13, p. 42]

Ideally, community engagement is a process characterized by intentional inclusive and collaborative partnership toward a mutual goal [12, 14–16]. In health, community engagement refers to the active involvement of people in any decisions that may affect the health of them, their families and the communities they are linked to. Assumes community engagement will aim to give equal status to lay people in decision making and take seriously lay knowledge and expertise [17, p. 2].

Table 1 presents an outline of the nine principles of community engagement outlined by

Table 1 Principles and tips for academic-community-engaged research and practice

Principles of community engagement	Tips
1. Be clear about the population/communities to be engaged and the goals of the effort	Do your homework, define community of interest, and clarify the goals of the engagement process Remember, the engagement process is a collaborative process; be flexible and prepared to work with community partners to revise and clarify goals (ideally, engagement goals should be developed in partnership with the community)
2. Be intentional in learning and practicing cultural humility and servant leadership in the engagement process	Be self-reflective Check your power, biases, and assumptions about populations and communities Lead in humility as a servant of the community Invest and grow leaders in the engagement process
2. Know the community, including its economics, demographics, norms, history, experience with engagement efforts, and perception of those initiating the engagement activities	Invest in knowing the community Commit and take time to know the community; drive and walk in the community; attend events; meet people; evaluate your own perceptions, stereotypes, and concerns; and identify colleagues, leaders, and community members who can orient you to the community networks
3. To create community mobilization process, build trust and relationships and get commitments from formal and informal leadership	Building community trust takes time; invest in building community relationships before any projects, and know, value, and respect the people in the community Remember, community partners are also evaluating you
4. Remember that community self-determination is the responsibility and right of all people who comprise a community	Recognize power differentials and dynamics within a community Community empowerment comes from within – partners must have ownership of the process Identify, recognize, and discuss external forces that may influence community self-determination and the engagement process
5. Collaborating with the community is necessary to create change and improve health	Remember to always treat, communicate, and relate to community as partners and not research subjects Consider the broader contextual factors – social determinants of health approach that incorporates broader socioeconomic, housing, economic development, and political issues may appeal more to community partners than a narrow health issue
6. Recognize and respect the various cultures of a community and other factors that indicate its diversity in all aspects of designing and implementing community engagement approaches	Cultivate and nurture "cultural humility" Remember your ways on knowing and dealing with issues may not be the community way of knowing and dealing with issues Learn to listen, and identify differences and experiences in community understanding, interpretation, and approaches Learn to adapt, adopt, and advance culturally appropriate community engagement approaches
7. Sustainability results from identifying and mobilizing community assets and from developing capacities and resources	Focus on being a catalyst for change; build on community assets to better understand community deficits
8. Be prepared to release control to the community and be flexible enough to meet the changing needs of the community	Meet in venues convenient and accessible to community members Learn to relinquish control Be flexible with your time; academic time and schedules may not work in the community Be adaptive, creative, and flexible with your time, skills, and timelines
9. Community collaboration requires long-term commitment	Plan to be there for the long haul, commit to being engaged and engaging others, and focus on building relationships beyond the project aims and timelines Give constructive feedback, and expect the same Always remember to value and respect community partner's time as you value your time

CDC, with some suggested tips for each principle. The engagement process involves the application of institutional resources, such as the knowledge and expertise of students, faculty, and staff; the institution's political position; campus buildings; and land to a community issue or need, through community service, service-learning, community-based participatory research, training and technical assistance, coalition building, capacity building, and economic development [18, 19].

This definition, however, does not fully capture the engagement process because it is unidirectional; it assumes engagement to be an institutional resource that is applied to communities and vice versa. True engagement is a bidirectional and even multidirectional process in which institutional and community resources are brought to bear in a mutually beneficial manner to address community needs and challenges. Communities have needs and so do academic institutions. Collaborative engagement indicates working *with* rather than *for*, *on*, or *to* communities. This definition of community engagement may also suggest a "charity" basis rather than a social justice base. Charity engagement focuses on institutions or individual's resources or surplus being given to communities to address areas of need. Such engagement approaches, while well intended, may increase health inequalities and cause harm [20]. Justice models of community engagement focus on mutual sharing of resources among community members and institutions [4, 21–23].

Community Engagement Models

Bowen and colleagues [24] outlined three stages in the engagement continuum: (1) transactional engagement, (2) transitional engagement, and (3) transformational engagement. These three are shown at the bottom level of Fig. 1, with the corresponding levels of engagement outlined by the International Association of Public Participation [25]. The key difference in these three processes can be summed as the level of collaboration in decision-making and leadership. Briefly, transac-

tional engagement, as the name implies, is largely a consultative form of engagement, a form of charity engagement characterized by "giving back to the community." It is a one-way process of interaction, with limited contacts among many people. Learning is assumed to be top-down, from academics to community. This approach has a very limited level of co-learning or community participation. Community acts as a passive recipient of information with limited or nonexistent participation. Decisions are usually paternalistic, made by academics or agencies "for" the community and not "with" the community [24].

Transitional engagement can be summed up as engagement that seeks to build bridges. It moves further than transactional engagement by seeking cooperative work with the community that allows two-way communication, consultation, and some collaboration. This form of engagement, however, falls short by not fully engaging communities in power sharing and control of resources or the process of leadership and decision-making found in transformational engagement approaches.

Transformational engagement is marked by high levels of collaborative and participatory decision-making, leadership, and empowerment among partners [24]. This form of engagement involves an interactive process involving critical thinking and reflections to address community issues. This form of partnership interrogates power structures and imbalances and seeks to "explicitly acknowledge and… redress historically shaped structures of inequality…" (p. 265) and privilege marginalized voices [26]. I have used an arrow in Fig. 1 to illustrate the increasing levels of shared leadership and ownership ranging from narrow focused outreach and transactional engagement efforts to transformational engagement characterized by more shared leadership relationships [27–29].

Community Engagement Interest

Several factors have contributed to the increased interest in community engagement efforts in academic settings. First, there is a desire and need for experiential and active learning that includes

Fig. 1 The community engagement continuum. (Reference: Adapted by the author from the International Association for Public Participation (TOP) and Brown et al. (2010) Three engagement strategies)

hands-on experiences in real-world environments rather than classroom settings. This experiential learning can include community internships and service learning projects that offer hands-on learning opportunities [4, 30]. Second, policies and resources have also been directed to community engagement initiatives from community, state, and national sources to encourage collaborative campus-community-engaged projects. The National Institutes of Health roadmap plan includes community engagement as a core component of the Clinical and Translational Science Institute (CTSI) funding mechanism and continues to fund, encourage, and support community participatory research and other health learning collaborative projects [31–34], especially in the areas of health disparities, in which traditional research and intervention approaches have had limited success. Third, there is an emerging shift

in the academic scholarship process toward more acceptance and valuing of community-engaged research, training, and service [35]. Fagnan and colleagues observe:

> it is increasingly important for academic health centers to reach beyond clinic walls and to develop collaborations and expertise in population-based medicine. Optimizing the delivery of preventive health services and chronic illness care requires strong community linkages and will benefit from academic partnerships. [32, p. 482]

These broader appreciation and vision of academic scholarship that values the community collaborative work allow faculty and researchers the freedom to pursue community engagement without the concerns that such endeavors will hamper or not be rewarded in the promotion and tenure process. We note, however, that while there is some shift in this direction in some insti-

tutions, the traditional approaches that place little value of community-engaged research in the rank and tenure process continue to persist [36–38]. Indeed, an important challenge in community engagement relates to the intrinsic complexity of cultural orientation and differences in perceived ways of knowing between academia and community [4, 39].

Beaulieu et al. [40] observe that engaged scholarship is characterized by two core values: social justice and citizenship. Douglas [41], for example, contends that engaged scholarship is important and should focus on why faculty engage (value) rather than how they engage (activity) with communities.

An underlying challenge in community engagement and perhaps a major reason for increased interest in community-engaged work are the persisting social and health inequalities in the USA. Historical marginalization and structural dislocation based on racism of racial/ethnic minorities in economics, health, and overall resource and power distribution have resulted in persisting mistrust and disengagement of minority groups. This legacy of racism and discrimination has contributed to significant residential segregation resulting in desperate power, socioeconomic status, and perceptions of communities. McNall and colleagues [42] have argued that the dominance of "university-driven isolated impact approaches" has limited progress and ability to address persisting community problems affecting the masses. They contend that these approaches usually target specific community problems without much consideration of the underlying factors perpetuating the problem. The authors propose a "systemic engagement" approach in community-university engagement, characterized by six principles: systems thinking, collaborative inquiry, support for ongoing learning, emergent design, multiple strands of inquiry and action, and transdisciplinarity [42]. The proposed systemic engagement is fundamentally similar and consistent to the social determinants of health frameworks used in public health, which also seeks to engage and tackle the complex underlying factors contributing to poor health and health inequalities in communities.

The cultural norms, values, and incentives in academia often differ from those of the communities, particularly racial and ethnic communities. For example, while academia places much value on scholarship and publications in peer-reviewed journals, thus the mantra "publish or perish," more and more communities are starting to question this values system, since much of what is reviewed and published is published in journals in a format that is inaccessible or too technical for communities to clearly understand. Communities often are interested in seeking practical approaches to address general or very specific community issues. Finally, there is increasing awareness in academic settings of the public relations value and benefits of academic-community engagement scholarship [4, 43, 44].

Regardless of the definition used, at core, community engagement involves an active, relational, and collaborative process of working together toward a common or shared interest or goal. Ideally, it should be a dynamic participatory process of working "with" others rather than "for" or "on" to effect change or seek solutions to community-relevant issues [24].

Who Is Engaging Whom and What Community?

Another issue to consider relates to the issue of who is engaging whom. Often community engagement is considered in the context of academics or an agency engaging the community in some activities. Such engagement may be motivated by an agency's perceived social responsibility to the community or society. Engagement, however, can also originate from the community, for example, a community's approach to academics to assist in an issue of importance to the community. Knowing who is engaging whom and why is therefore important, because it may reflect the success of the engagement process and overall group dynamics. According to Fagnan "advancing these collaborations will require recognizing the complementary nature of 'top-down' (university-initiated) and 'bottom-up' (community-initiated) approaches to community-based clinical

research)" [32, p. 482]. When communities seek to engage academics on an issue, some vetting process may have occurred as the community tries to decide who is best suited to be their partner and what that person would bring to the process.

Although an effective engagement process is participatory in nature with a willingness to share power, many academic-community engagement projects are not usually transformational and collaborative. A major assumption in community engagement is that by engaging community, we have an active, collaborative participatory process started. Unfortunately, this may simply indicate that the engagement "gears" have been shifted in place but may not be engaged. Academic and community partners need to identify what "kicks" and "sustains" the community engagement "gears" in motion (process). They need to develop ways of identifying problems or malfunctions in the engagement process and strategies to address such problems. Paying attention to these processes in the initial phases of the engagement process can reduce frustration and dysfunctions in latter phases of the engagement process.

Three essential ingredients in effective community engagement process include establishing and maintaining effective communication, building and sustaining trust, and cultural humility (Fig. 2). First, purposeful, effective, and

Fig. 2 Key ingredients in effective community engagement process

bidirectional *communication* is critical in the community engagement process. Indeed, effective communication can be considered the oil that keeps the engagement gears lubricated and working efficiently. The process requires bi- and multidirectional horizontal and vertical integration in communication, between staff as peers and the leadership/management structure of the partners involved in the engagement process. The process requires development of monitoring and identifying early warnings signs of communication breakdown, awareness of communication failures, and ongoing purposefully designed strategies to correct and improve intra- and extra-communication among partners. A critical component of effective communication is practicing "active-empathetic listening" in community engagement efforts [45–47]. Active-empathetic listening in community-engaged work is essential in building and fostering cultural humility and trust [48].

The second ingredient in the engagement process is *trust*. Trust is possibly the most important and perhaps the most challenging issue in the academic-community engagement process. This is especially so, when the engagement process involves collaboration of academic institutions and historically marginalized populations such as racial/ethnic groups and people living with stigmatized conditions such as mental illness. Historical and ongoing insults associated with racism, discrimination, and sexism perpetuated against these groups have created a level of mistrust of certain established systems that need to be considered in the engagement process. These insults cannot be ignored or assumed not to exist because they may often be hidden just below the surface waiting to emerge at the opportune time. These three components intersect at the core on the "value" we place on the communities or people academics want to engage. The quality and effectiveness of communication, trust, and humility in community engagement depend largely on why we want to engage the community and the value and respect we have for that community.

The effective community engagement process involves not only awareness of these issues and how they can influence the process but also

purposeful approaches to acknowledge them and work together to overcome any barriers they may cause in the communication and overall community engagement process. Indeed, although communities may not have issues with the academic partner, they may have issues with what, how, and whom the partner represents. Their views and attitudes may have been influenced by their individual and collective experiences and understanding over time. As such, building a strong engagement with communities may involve dismantling preconceived ideas to forge trusting relationships. This process may also entail managing and navigating historical landmines that may have nothing to do with the task or purpose of the current community engagement process.

Academic settings tend to emphasize and value narrow and focused research and interventions. Such focus, while critical in career development and funding opportunities, may not fit well with community interests, which are often broader-interrelated and multifactorial. Academics must learn how to interact with communities within this broader contextual framework of interests and adapt their own or their institutional narrow focus while preserving or broadening their own interests. The traditional narrow academic interests can be pursued within the broader community context in which evaluation of the effectiveness of the engagement process includes assessment of established relations (e.g., communication, trust, and collaborative spirit).

Third, *cultural humility* and understanding are also critical when working with marginalized or stigmatized groups. Cultural humility has been defined as a "lifelong commitment to self-evaluation, to redressing the power imbalances in the patient-physician dynamic, and to developing mutually beneficial and non-paternalistic clinical and advocacy partnerships with communities" [49, p. 117]. The community engagement process often questions the establishment, the "ivory tower," and top-down approaches and solutions to community problems that often mark traditional academic relationships with communities. Community engagement may question the power structures, resource allocations, and strategies used by academics and funding agen-

cies. Effective community engagement requires humility and respect to different viewpoints and approaches and especially the willingness to question and be questioned without feeling degraded or humiliated. Indeed, for community engagement to be transformational, it must address some of these imbalances that result in inequalities. Effective dynamism in community engagement involves humility and a willingness of community and academic partners to extend their comfort zones in dealing with community stereotypes, power, and resource differences. Cultural humility calls for a servant leadership approach to community engagement and is characterized by awareness and reflexivity on a person's own cultural values, biases, and beliefs and how these factors influence interactions and perceptions of others [48, 50, 51]. Graham and colleagues [39] have proposed a culturally integrated community engagement model that incorporates aspects of culture and diversity into the various stages of translational science process.

Individual- and Institutional-Level Engagement

Community engagement must distinguish between individual community engagement and institutional engagement. Individual engagement occurs when academics reach out to work with communities on issues of mutual benefit. Institutional engagement is often a broader engagement process in which the institution rather than the individual academic is involved in the engagement process with the inclusion of individual members. Historical perceptions of institutions by community members can at times influence their views of new researchers who may have nothing to do with that history. Evaluation of the engagement process must also include the historical lens of how the institution has worked or engaged the community. The "engagement presence," not "footprint," of the institution can foster or hinder effectiveness of the community engagement process. I define "engagement presence" as the ongoing "here and now" participatory process of working together

with communities that is informed by historical levels of institution investments, respect, trust, and power sharing with a community. I use "engagement presence" rather than "engagement footprint" to distinguish what is left, "footprints," from what is "active and ongoing" in the community. Conversely, the effectiveness of individual community engagement efforts may be the bar that community and other academics use to measure future engagement efforts.

Community Engagement Ethics

The community engagement process must adhere to the highest ethical standards. Given that the engagement process often involves multiple individuals and agencies in a given community or communities, the ethical responsibility and accountability in the process can become diffused, with no one taking the responsibility for the conduct of the community-engaged activities or research. The community engagement process must keenly monitor and track the ethical conduct of the engagement process and the project activities. Stigmatized and disenfranchised community members' views, concerns, and voices must be included at the table of decision-making and at best be presented not by a proxy but as much as possible by the people themselves [52, 53]. Part of the community engagement process often neglected relates to representation of marginalized groups. Academic-community partners, particularly those related to health inequalities, must intentionally foster engagement of marginalized groups within the community.

The Belmont Report of 1979 outlined several critical ethical principles to guide the conduct of human subject research. Critiques of these principles observe that they focus more on individual rights with little or no emphasis on community rights [54]. In 2001, the National Bioethics Advisory Commission proposed the addition of "protection of social groups" to the regulatory oversight of human subject research, while others [55] have called for the additional principle of "respect for communities" to those outlined in the Belmont Report. The use of the Belmont principles and other safeguards, while important in protecting individuals, can collectively contribute to community protection [56]. It is, however, critical that population-level ethical standards that focus on the whole community, not just the individual, be developed and applied in the community engagement. These ethical standards would ensure that community-level protections are developed through a participatory process that involves diverse community members.

The *beneficence* principle calls for the analysis of risk and benefits with the goal of minimizing risks and maximizing benefits [57]. In community engagement, this applies not only to the individuals but also to the community involved. Participatory collaborative engagement process, like gears in a machine, is a process of shared responsibility. Efficiency is achieved when all the gears are fully engaged, lubricated, and running smoothly or as intended. Regular inspection and maintenance of the engaged parts is critical for sustained efficiency and benefits. Too much strain on one gear can result in added strain on the others and eventual system failure. *Justice* calls for shared responsibility, accountability, and equitable distribution of burdens and benefits. Community engagement should not place undue burden on either academic or community partners; it must strive to do no harm, maximize benefits, and minimize harm to individuals and the community and always seek justice.

The academic-community engagement process must be governed by strong ethical and regulatory standards similar to those required by regular human subject research, but should also include community voices [56]. Pratt and Vries [16] call for the inclusion of ethical goals in the equity-oriented global health research which include "(a) generating research topics and questions that reflect the key problems disadvantaged groups face in accessing healthcare, services and broader social determinants of health and (b) promoting the translation of research findings into policy and practice in ways that benefit the health of disadvantaged groups" [16, p. 454]. Ideally, a community IRB should be established to review community-engaged research protocols. The IRB review should address at minimum both

the individual and community risks and benefits and ethical concerns [58]. It is important to note that in the USA, historical and intergenerational research abuses and unethical behaviors have contributed to the ongoing mistrust and lack of confidence with biomedical research and healthcare systems among racial/ethnic groups and other marginalized populations.

In conclusion, the community engagement process is more of an art than a science; for some people it may come easy, while for others it might take time and much trepidation. It is important to realize that engaging community stakeholders does not necessarily indicate community engagement. An effective process of community engagement requires valuing and respecting the community and seeking to engage stakeholders who have the pulse of the community. These stakeholders may not be the "career gatekeepers" (the same community members who tend to be included in almost all engagement activities in a given community) but, rather, other nontraditional stakeholders. We note that while community stakeholders are critical in the engagement process, we cannot assume that one or two community members speak for the entire community. This is particularly important in racial/ethnic groups and other stigmatized populations. Who speaks for whom? Often individuals from racial/ethnic communities are asked to speak on behalf of an entire community, yet this same approach is not usually used for the majority populations. Those involved in the engagement process must be cognizant of the diversity and complexity of communities and realize that people in the same community, whether defined by locality, socioeconomic status, race/ethnicity, or gender, may have very diverse assumptions, perspectives, and experiences that cannot be adequately articulated by one or two individuals [59, 60].

Finally, although developing effective and lasting community engagement remains a daunting task, it is a fundamental process of establishing trust and effective working relationships with communities. Community engagement is increasingly being valued and encouraged in academic scholarship and funding, as exempli-

fied by the ongoing emphasis on community engagement by NIH and other funding agencies. It is considered an important process of research, community interventions, and building trust between academics and communities [6]. It can enhance research designs, data analysis, and translation of research into practices and effective community intervention strategies and promote research based on real-world problems. Effective community engagement skills and expertise, however, are homed in the trenches of community experiences, culture, and history and not in academic offices or libraries. The engagement process requires a "boots on the ground" approach, a commitment to go to the community, meet, share, learn, and experience the community from within. This process, while somewhat challenging and unnerving, is also possibly one of the most rewarding scholarly endeavors.

Words to the Wise

- Clarify and be honest regarding your reasons for community engagement.
- Consider and utilize a justice-based approach to community engagement.
- Don't underestimate community skills, assets, and "ways on knowing."
- Community views and approaches may differ from your ways, but they can provide valuable insights.
- Avoid using communities as means to an end.
- Community perspectives may be informed by historical experiences and cultural understanding.
- Every community has some assets; they may be hidden, but they are there waiting to be identified, developed, and applied.
- Build on assets and community strengths rather than weakness or failures.
- Value and respect working "with" communities.
- There is no substitute for "boots on the ground" (walk the talk); visit, know, and interact with the community from within rather than "flyover."
- Focus on community strengths and assets rather than deficits and problems only.

- Respect diversity and wisdom in the different "ways of knowing."
- Remember: community gatekeepers may not always be at the "gate" or be your best fit in the engagement process, and seek and find other people with a better fit.
- Beware and avoid engagement efforts that disempower rather than empower communities.
- Learn and develop relationships in the community beyond your projects or community engagement focus. Attend community events, volunteer, assist in identifying resources, and seek to "walk the talk" as an advocate. You will be surprised how much these efforts break barriers, mend relationships, and build trust.
- Community engagement is complex and challenging; be committed, flexible, and learn from the past mistakes. You only fail when you don't try.
- Apply and practice the principles of respect of communities, benevolence, and doing no harm.

Ask Your Academic and Community Mentor

- What motivates their desire for community-engaged work?
- What suggestions do they have for establishing effective community-engagement process?
- How does your institution value and reward community-engaged scholarship and collaborations?
- What are some of the lessons learned from the past community-engaged research or collaborations?
- Who are the community stakeholder and why are they considered stakeholder?
- Who designated them as community stakeholders and based on what criteria?
- Why do I need community stakeholders?
- Are community stakeholders critical or simply an end or means to an end? This is a critical question. If your interest is getting opinions of community stakeholder rather than the broader community members, the engagement process may be different.

- What benefits do you derive from engaging the community?
- Are their benefits to the community stakeholder?
- Who will you assess whether the views and opinions presented by community stakeholders are congruent with those of the broader community?

Concepts/Definitions

Community "a unit of identify, with various factors of commonality including a common interest or cause, or a shared geography, history, or set of values." [7, p. 58S]

Engagement "refers to the active involvement of people in any decisions that may affect the health of them, their families, and the communities they are linked to. Assumes community engagement will aim to give equal status to lay people in decision making and take seriously lay knowledge and expertise." [17, p. 2]

Community Engagement "the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people." [12, p. 9]

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How to Approach a First Grant Application

Cheryl Koopman

Introduction

There are many reasons for the academic faculty member to apply for a first grant. While the rewards can be considerable, the application process presents challenges that can be daunting. However, by anticipating such challenges and by learning some practical guidelines for addressing them, one can optimize the quality of the first grant application while minimizing stress and deriving satisfaction from the process. This chapter describes major challenges and also provides practical guidelines for anticipating and surmounting such challenges. Given the challenges and sheer effort involved in applying for a grant, it is important to keep in mind the rewards of obtaining grant funding.

Rewards of Grant Funding

Obtaining grant funding can be tremendously rewarding. With grant funding, faculty members can accomplish goals they could not otherwise achieve, such as protecting more time to enable completion of advanced career training or a major research project. Grant funding can help

cover the costs of obtaining ongoing consultation from a biostatistician and others with relevant expertise. Many grants provide funding for hiring and paying the salaries of project coordinators, interviewers, data analysts, and others to do much of the work required in implementing a project. That frees up one's time to focus on overseeing all aspects of the project without becoming bogged down in the details of executing every step. Depending on the grant, it may cover the costs of new computers and software, laboratory assays, photocopying, postage, office supplies, incentives for patients to participate in the research, and funding to cover patients' travel costs and the price of the interventions that they receive. A training grant may pay for a living stipend, health insurance, tuition, fees, and textbooks. A travel grant may cover all of the registration and travel costs to attend a national or international professional conference. A conference grant can reimburse speakers' travel expenses and other costs for holding a conference on a cutting-edge topic that provides one's institution with greater visibility and offers a major opportunity for oneself and one's colleagues to develop relationships with top scholars in the field.

Grant funding is prestigious and rewarded accordingly in most academic settings. Often, it is also expected that faculty in certain academic tracks at research university medical schools, such as those in the tenure track position, will

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obtain grant funding to support their research. For such faculty, it may be essential to obtain grant funding in order to be promoted and reappointed. For these faculty and also faculty for whom grant funding is not required, obtaining grant funding may result in a substantial increase in salary or accelerated promotion. The achievements that are made possible through grant funding may be institutionally recognized with allocations of greater lab and office space, with nominations for prestigious career awards, and with appointments to serve on important academic committees such as the search committee to nominate candidates for the position of new dean of one's medical school.

Seeking grant funding also can be very rewarding on a personal level. Given how challenging the application process is, even the successful submission of a completed grant by the deadline can lead to a greater sense of accomplishment. Learning that one's grant has been awarded can be an exhilarating professional milestone, offering an opportunity to celebrate with one's colleagues and/or loved ones. Even learning that one's grant received a favorable if not fundable review can bolster a sense of self-efficacy and reinforce one's motivation to continue seeking funding. Once a grant is funded, the process of implementing it can be a source of tremendous career satisfaction on a daily basis, knowing that sufficient resources are in place for completing valued projects. Also, one can derive gratification by recognizing that one's funding provides opportunities for other persons' employment and professional development. Beyond rewards at these personal levels, grant funding can also support a research laboratory in which a sense of common purpose and group cohesion and morale can thrive under one's leadership.

Despite these many rewards of obtaining grant funding, it can be a formidable and stressful process to apply for one's first grant. The process of applying for grant funding poses a variety of challenges, which this chapter is designed to prepare the academic faculty member to anticipate and surmount. These challenges will be discussed within the context of general guidelines for planning and completing a grant. If more in-depth training is desired, the National Institutes of Health (NIH) has developed a variety of programs that coach biomedicine scientists for research careers, with training that includes education in comprehensive grant development [1].

Determining Which Kind of Grant to Seek

The Challenge Becoming familiar with types of grants and potential sources of funding to optimize the fit between the grant and the funding agency's grant program.

Many different types of grants are available. Some grants support research projects, such as small grants to fund pilot studies or larger grants to support epidemiological surveys or randomized clinical trials. There are also multimillion-dollar grants to fund large research centers. In order to establish a track record of funding and completing research as well as to provide pilot data in support of a major grant; one may wish to initially apply for a smaller research grant rather than starting with a very large one.

There are also grants to support one's career development as a clinical researcher, which include proposing next steps for a program of research as well as a plan for obtaining further relevant training and mentorship. For example, the NIH has funding opportunities for career development at various stages of one's career. There are also grants that can fund a pre- or post-doctoral fellowship program led by one or more faculty members. It is unlikely that faculty at early stages of their careers can obtain funding for a large postdoctoral fellowship program under their leadership; however, they may be able to obtain funding for individual postdoctoral fellows whom they supervise. Working closely with a gifted and motivated postdoctoral fellow can be immensely gratifying on a personal level and can also offer a "win–win" opportunity in which both the faculty member and the fellow work synergistically to achieve goals that benefit both.

There are also grants to purchase major equipment, grants to create/sustain/improve clinical services, and grants to develop/refine educational curricula, organize and hold conferences, and support travel for attending conferences.

How does one learn about grant opportunities? The Internet is a major ally in this endeavor, but it helps to have some clues about where to search. Perhaps the most visible source for grants is the NIH. Within the NIH, different institutes may be appropriate for one's grant application, depending on its focus. For example, faculty members in psychiatry are likely to have heard about the availability of grants from the National Institute of Mental Health, but funding also may be available through the National Cancer Institute if the application focuses on enhancing the quality of life of cancer patients or survivors—or encourages cancer screening or adherence to cancer treatment. Alternatively, if proposed research focuses on developing better understanding of risk factors for developing Alzheimer's, funding may be available through the National Institute on Aging.

It may be helpful to know that there are different kinds of mechanisms for NIH grant applications. For example, a "parent" NIH grant is the generic NIH research grant application for an investigator-initiated grant. There are also NIH research grant programs that invite applications in specific scientific areas to address clearly defined program objectives, with the call for proposals known as the "request for applications" (RFA). In contrast, an NIH "program announcement," or PA, invites grants in a specific area, such as inviting research on novel interventions to treat a particular disorder, but it is typically more open ended than is an RFA.

While there are notable exceptions, the odds of being successful in obtaining a grant are better when applying to a funding source other than the NIH. One possibility is to submit a grant to the NIH and also a version of the same grant to a less competitive funding source. In contrast to the prohibition against submitting a similar manuscript to multiple publication outlets for overlapping reviews, it is fine to submit a grant to both

the NIH and another potential funder. The faculty member would then need to reveal the "pending" application to the second funding agency to which he or she submits the same grant, so that agency would be able to check if the first agency decided to award the grant to the faculty member (in which case the second agency would refrain from doing so). Alternatively, the faculty member can wait for one agency's funding decision and then submit a refined version of the grant (improved to address the initial reviewers' feedback) to a new funding agency if it appears that this is more likely to result in the grant being funded.

Alternative sources of grant funding include private foundations such as the American Heart Association, Susan B. Komen for the Cure (for breast cancer), and LymeDisease.org. Those foundations fund research focused on specific diseases. There are also private foundations whose grants focus on neuroscience, for example, the Brain & Behavior Foundation funds National Alliance for Research on Schizophrenia and Depression (NARSAD) grants. Furthermore, some states have funding agencies that support grants for research, conferences, and/or postdoctoral training, for example, California's Tobacco-Related Disease Research Program. Another source of funding is the Patient-Centered Outcomes Research Institute (PCORI), which systematically involves patients and other stakeholders in the review process so that their perspectives are represented as well as those of the researchers [2]. Once a potential funding source has been identified, it is desirable to contact a representative of the funding agency to discuss one's initial ideas for a grant to elicit feedback for most effectively strategizing the grant.

Developing Really Good Ideas for the Grant

The Challenge Developing ideas that are innovative and significant while also being feasible to implement with grant funding.

A common mistake in applying for a grant is to start writing right away. It is not enough to have a few ideas and then get to work; it is essential to develop really good ideas and to check the previous literature to ensure that the ideas have not already been thoroughly investigated [3]. Two major criteria commonly used in the evaluation of grants are innovativeness and significance. Also, taking the time to think the ideas through and create a structure for the grant makes the writing process flow much more easily. Furthermore, it is important that one has a personal interest in the content of the grant and that it has real or potential significance for society; keeping the grant's importance in mind will help to keep one's motivation high throughout the application process even when challenging problems arise.

In the case of a research grant, it is critically important to develop an explicit conceptual model. This is a visual representation of the key concepts and their interrelationships that are relevant to a particular type of problem that is the grant's focus. A conceptual model is represented by a flowchart with key concepts appearing in boxes (or other shapes) that are connected by arrows to show the relationships that one assumes exist among these key concepts. A conceptual model describes what one thinks is true and thus highlights the hypothesized relationships between key variables that the research grant is designed to test.

This conceptual model eventually may not be found to reflect reality. For example, perhaps a presumed causal relationship between memory impairment and depression in a given population is actually due to a third variable, and that will be clarified by the research funded by the grant. A conceptual model can be generated for any research topic, for example, on risk/resilience factors for sudden onset of obsessive–compulsive disorder (OCD) in young children or mediating factors that may account for the effects of a couple's counseling intervention in improving spousal relationships. It may be helpful to read a dated but still very relevant and useful article by Earp and Ennett [4], which describes how to develop a conceptual model. Developing a con-

ceptual model not only clarifies to oneself how to focus the content of the research plan, but it is also very helpful to the grant's reviewers if it is included in a research grant, as it provides a quick visual overview of the grant's focus. It is important to ensure that the content of the grant matches the conceptual model: the literature review justifies the examination of these key concepts and their interrelationships; the hypotheses propose to test these relationships among these key concepts; the measures will be used to assess these key concepts; and the proposed statistical analyses will test the relationships among these concepts.

In addition to giving careful consideration of the conceptual model or other core ideas for the grant, one should also consider the population of interest. The grant is likely to be evaluated in part according to whether it gives adequate consideration to representing women, racial/ethnic minorities, and children. For some projects, it does not make sense to include persons from one of these categories, which needs to be justified in the grant application. For example, for a proposed study to evaluate the efficacy of an intervention designed for adults, it may not be appropriate to include children, and this should be explained in the grant application.

Grant reviewers also consider whether it is feasible to implement the proposed grant in a high-quality manner. For example, if the principal investigator (PI) lacks the expertise (e.g., in genetics or functional resonance magnetic imaging) necessary to implement certain aspects of a research grant, then either a collaborator should be included in the application who clearly has this expertise or the aims for the grant must be revised accordingly. Such expertise is demonstrated by the collaborator not only having relevant training and experience, but it is generally important that he or she also have a track record of relevant funding and publications. Another important consideration for determining the feasibility of a grant pertains to the selected population of interest. For example, for a research grant, it is critical that a sufficient number of participants from the population to be studied can be recruited via the

procedures outlined in the grant. It may be necessary to expand the sources to help with recruitment or to redefine the population of interest, perhaps by broadening the inclusion criteria.

Before proceeding with preparing a grant application based on one's initial ideas, it is critically important to see if anyone else has already been funded to do a similar study. This is important to do early in the application process because it is very unlikely that a grant will be funded to do a study that is highly similar to one that has already been completed or is in the process of being completed. There are databases on already funded grants that can be very helpful in this endeavor. For example, Computer Retrieval of Information on Scientific Projects (CRISP) is an online database of federally funded biomedical research projects that can be searched to see if similar grants have been funded. If a faculty member finds a similar study to the one that he or she was considering proposing, then the study ideas should be revised in key respects to ensure originality and significance.

Communications with One's Internal Grant Administration

The Challenge To obtain the help and loyalty of the administration at one's institution.

Colleges and universities typically employ administrators whose responsibilities include helping faculty members to prepare, review, and submit their grants. It is a good idea to inform administrators well in advance of the deadline about plans to apply for a grant, as that will help them to anticipate how to schedule their work on one's grant application within the context of their other responsibilities. Also, administrators may be scheduled to take vacation time or otherwise be unavailable at the last minute before one's grant deadline, which would be helpful to know in advance. The quality of faculty members' relationships with these administrators is important to attend to as they

do have some discretion in how carefully they review each grant for missing items or inaccuracies and how quickly they respond to individual faculty members' requests for information and help. Assuming that their help is necessary to submit a revised version of the first grant application or another grant, it cannot hurt to have developed a mutually respectful relationship. Of course, it is always appropriate to be respectful and friendly.

Multiple Grant Documents

The Challenge Completing all of the sections of the grant in time to meet the deadline while not compromising the grant's quality.

Getting Oriented

The call for proposals from the funding agency will identify the sections to be included in the grant. Generally quite a few documents are required for a single grant application. As an example, Table 1 presents a list of the documents commonly included in a grant application. The actual list of documents to be prepared will depend on the type of grant and the funding agency requirements. In applying for any grant, it is crucial to read carefully the funding agency's call for proposals. As exemplified by the list of documents shown in Table 1, preparing a grant application tends to be a complex process involving many steps, so allocating time to learn this process is strongly recommended. Online instructions for applying for a grant not only exist in written form, but also as instructional tutorial videos often available on funding agencies' websites.

Administrative Types of Documents

Roughly half of the work in preparing a grant involves administrative paperwork. For example, for a research or training grant, the PI's and collaborators' biographical sketches must be obtained and checked to ensure that they are in

Table 1 Documents commonly included in a grant. Be sure to consult the instructions

Document	Description
Cover letter	It is generally appropriate to mention the grant's title and funding program to which the application is directed. For an NIH grant, one can request a particular scientific review group to review the grant and identify anyone who should not review the grant.
Cover page	This document typically includes the grant title and total costs as well as the applicant's and authorized representative's signatures and contact information.
Abstract	This summarizes the key points of the proposed project to be funded, including the major aims, hypotheses (if relevant), theory or core concepts, approach, and significance.
Table of contents	This is likely to be included if the grant is submitted in printed form.
Performance sites	This identifies organization(s) where the project will be based.
Key personnel	This document names the individuals who are key to the success of the project—for example, for a research grant, the PI, coinvestigators, biostatistician, and consultants. This document usually does not include the names of staff, such as of the research interviewers.
Budget	The budget is usually presented in spreadsheet form, generally itemizing annual costs as well as providing a cumulative budget.
Budget justification	The budget justification is usually presented in narrative form and includes a brief justification for each anticipated cost.
Biographical sketch	For each person in the key personnel section, a biographical sketch is included that typically describes his or her education, professional focus, and achievements, including representative publications and recent grants.
Other support	Some grants require a description of current and pending funding for each member of key personnel.
Facilities and other resources	This document describes the facilities, equipment, and other resources already available to support the grant.
Introduction to application	In an NIH grant, this document is required for a revised or resubmitted grant to describe the revisions made.
Specific aims	The major aims of the project are described. If hypotheses are to be tested, they are usually listed here.
Research strategy	For a research grant, this document usually addresses the project's significance, innovation, and approach.
Protection of human subjects	This describes anticipated risks and benefits to human subjects, plans for minimizing the risks to participants, the importance of the knowledge to be gained, and, for clinical trials, plans for data safety and monitoring.
Inclusion of women and minorities	Plans are described for recruiting women as well as men and the anticipated breakdown by ethnicity/race, along with recruitment plans to maximize diversity. If any gender/ethnicity/racial category is excluded, it must be justified here.
Inclusion of children	This describes the plan for recruiting children. However, if children are excluded, this must be justified here.
Targeted/ planned enrollment	This is usually a table showing the anticipated numbers of participants analyzed by race, ethnicity, and gender.
Vertebrate animals	If applicable, this document describes assurances of meeting all institutional requirements pertaining to the ethical treatment of vertebrate animals.
Consortium/ contractual arrangements	If the project involves consortium or subcontract agreements, these are included here.
Letters of support	Letters of support can provide evidence for the feasibility of a grant, for example, documenting the willingness of a consultant or mentors to serve on the grant or an agency's willingness to serve as a recruitment site.
Appendices (e.g., manuals, measures, publications)	The types of documents included as appendices depend on the project and what the funding agency allows.

the appropriate format that is required for the grant. These "biosketches" are used to evaluate whether the team funded by the grant has the expertise and experience to be likely to be successful in implementing the proposed study or training project. For the NIH and other agency research grants, the quality of the team in relation to the proposed study plays a very important role in the overall evaluation of the grant. Often grants require "other support" documents from all members of the team, which provide additional data about the team's experience and expertise as reflected by other funded grants, and also indicate whether the team members may need to reduce their efforts elsewhere in order to be able to work on this grant if it is funded. Letters of recommendation will be needed if faculty members are applying for grants to obtain advanced training such as building on their expertise to bolster their clinical research skills.

Usually for a research grant, letters of support should be obtained from consultants, agencies willing to help advertise the study to potential participants, and principal investigators for any subcontracts. Furthermore, most grants applications require a spreadsheet with a budget that shows the anticipated dollar costs for each item, such as the salary costs for the research assistants, their fringe benefit costs, and their changes in salary if costs of living increases (e.g., 3% increase annually). Budgets are considered to convey specific plans for how the funding will be spent during the duration of the grant [5]. Many grants also require a narrative section of the grant called the "budget justification" that provides a rationale for each item in the grant. Grants usually require title or cover pages with contact information and signatures of the principal investigator and representative of the PI's institution who is authorized to approve the grant. Internal forms may also need to be approved by the faculty member's department chair and/or chief financial officer.

Typically, a grant requires a separate document that describes the resources and facilities available to support the grant. This is evaluated in reviewing an NIH or most other types of grants to determine whether sufficient resources are available to support the implementation of the proposed project or training program. There may be templates that can be requested or downloaded from the faculty member's institution's website that will provide much of the information to include in this document, for example, about the number of books in the institution's library and the availability of statistical or other types of consultation at no cost to the funder. This section typically also identifies the numbers of computers, printers, faxes, etc., which are directly available to the project if it is funded. The references section is highly relevant to the substance of the grant but it takes administrative effort to create and check it to make sure that the references are accurate and match all those cited in the grant. Many grants also include appendices such as copies of the measures, a facilitator training manual if there is an experimental intervention, coding manuals with directions for coding qualitative data, and prior relevant publications from the team. It is important to read carefully the call for proposals as these kinds of documents may or may not be permitted to be included as appendices. Furthermore, some of the other kinds of documents previously described (e.g., letters of support) may be included in the appendix rather than in the main body of the grant.

Substantive Types of Grant Documents

The remaining work involved in preparing a grant focuses on the main substance of the grant. The areas to cover in describing the substantive aspects of the grant should be identified in the funding agency's call for proposals. The substantive aspects of the grant describe, elaborate, and justify the main aims of the grant and how they will be addressed if the project is funded.

For a training grant, the major aims pertain to career development of one or more individuals. Therefore, the proposed training program should be discussed in considerable detail, typically describing the mentors' and mentees' backgrounds and expertise and the plans for the mentee(s) to learn from and collaborate with the mentors, as well as any formal

seminars, coursework, or apprenticeship programs that will be included in the training program.

Similarly, for a research grant, the main aims are designed to answer questions about a research problem. Therefore, a research grant generally includes the aims and hypotheses to be addressed, a literature review to justify the study's importance and innovativeness, preliminary studies conducted by the key personnel of relevance to the grant, which can include any pilot data—even if not yet published—and a detailed description of the methods proposed for implementing the study. These methods may describe the research design; inclusion and exclusion criteria for determining the sample; procedures for recruitment, selection, training, and supervision of interviewers; any interventions; the measures; procedures for analyzing the data; and the timeline for completing all tasks.

The substantive documents of a grant will likely include an abstract that summarizes the information contained in the main body of the grant about the aims, rationale and background for the study, and research methods. This is a very important document as it is likely to be carefully read by administrators assigning the grant to the reviewers, by the reviewers, and by those deciding whether or not to fund the grant. It is also likely to be used by the funding agency to publicize the project once it is funded. Research grants also require that ethical aspects of working with animals or human subjects are carefully considered and addressed by the procedures in the research protocol. When submitting a grant to the NIH and many other funding agencies, these ethical considerations must be anticipated and described in a separate document that accompanies the research plan. Furthermore, a funder's call for research proposals may require the inclusion of other sections as well, such as a description of the plans to disseminate the results of a proposed study.

Cover Letter to the Representative of the Funding Agency

Funding agencies are not human; however, it is important to keep in mind that each grant application will be overseen and assigned to reviewers by human beings who are devoting their careers to administering grant programs such as the one to which a given grant application is directed. Therefore, a grant application should include a cover letter. This not only helps to reinforce a personal connection between the faculty member and the funding officer, but it also may have practical advantages. For example, a cover letter can improve the chances that an NIH grant will be reviewed by the appropriate review panel and not by someone who is identified as being likely to be a biased if assigned to review the grant.

Planning Ahead to Complete the Grant Application Before the Deadline

The Challenge Completing a quality grant by the deadline while minimizing stress.

It is very important to plan ahead in approaching a first grant application. Many steps are involved in planning and completing a grant application. It is desirable to allow oneself far more time to complete these steps than initially might seem to be necessary. Several factors contribute to the need for this extra time. Most grant applications must be submitted prior to unmovable deadlines set by the funding agency and the administration at a PI's institution, without regard for unanticipated problems that may be encountered during the preparation of the grant. Typically grant applications are complex, requiring quite a number of documents beyond those discussing the rationale for the grant and a description of the work to be completed, as previously discussed. It can be surprisingly time-consuming to draft and edit each of these documents. When it is necessary to obtain documents from other persons such as letters of support and biographical sketches, one may need to send out multiple reminders, as providing these documents may be a lower priority for others. Changes may arise in aspects of the grant that may be time-consuming to incorporate. For example, increasing the sample size is likely to also require making revisions in the

abstract, recruitment plan, statistical analysis, timeline, and budget sections.

Please see Table 2 for an example of a personal timeline listing major steps and accompanying considerations in preparing a research grant application. The specific steps that will be required for a given grant will depend on the type of grant; however, a similar logic still applies—anticipating the many steps involved and ordering them in a logical sequence are likely to be very helpful in preparing the grant application.

Obtaining Feedback from Colleagues and/or Funders

The Challenge To elicit feedback from others that can improve the grant.

It is highly recommended that one invite feedback on an early draft of the grant (or key sections of it) from one or more colleagues and from a representative of the funding agency. Inviting feedback shows respect for others' expertise and is

Table 2 Example of a personal timeline for completing a grant application

Task	Considerations	Personal Deadline
Develop grant ideas	Brainstorm and evaluate grant ideas according to their personal relevance to originality, significance, feasibility, and one's career goals.	3+ months before grant deadline
Identify potential funding sources and select target funding mechanism	Consider various funding opportunities. Communicate with potential funder(s) about the match of the funding mechanism to grant ideas, and elicit suggestions for improvement.	3+ months out
Communicate with grant administrators at one's institution	One's administrators may help in the preparation, review, and approval of the grant. They should be informed about plans to apply for a grant well in advance of the deadline.	10+ weeks out
Refine the aims of the study and the research design	These components should be finalized before one can plan the budget and make agreements with key personnel about FTE/fees.	10+ weeks out
Set deadlines for getting/completing all required documents	Prioritize obtaining the grant materials needed from others, for example, letters of support, biosketches, measures, subcontracts, and budgets.	9+ weeks out
Draft the budget and request documents from other persons	The budget may require multiple iterations and internal approvals. Collaborators' materials may require corrections.	8+ weeks out
Draft all sections of the grant that are under one's control	Refer to the list of documents and internal deadlines. Attend to the criteria that reviewers will use to evaluate the grant.	4+ weeks out
Prepare final versions of the budget and others' documents	Obtaining all documents needed from others will likey require multiple reminders, so start reminding them 6+ weeks out.	3+ weeks out
Obtain grant feedback from colleagues and/or funding officer	Send grant drafts to colleagues and/or funder 4+ weeks out to allow them 2 weeks to complete their reviews.	2+ weeks out
Refine the grant to maximize its quality	Address feedback from others. Edit as needed. Adhere to font and margin requirements and word and page limits.	1+ week prior to deadline
Review the final version of the grant	Check that all required sections are included. Read multiple iterations to ensure that the grant application is logically coherent, accurate, well written, properly formatted, and attractive.	3+ days prior to deadline
Submit grant	The deadline is usually absolute, set by the funder, but theadministration at one's institution may have an even earlier internal deadline	1+ day prior to the deadline

very likely to yield critical feedback that allows one to improve the quality of the grant. It is best to give others sufficient time—at least 2 weeks—to complete their review, as they will be juggling other priorities as well.

Refining the Grant to Maximize Its Quality

The Challenge To prepare a grant that is complete, logically coherent, accurate, well written, properly formatted, and attractive.

A grant application should be double-checked to ensure that it contains everything that should be included. One should address any feedback obtained from the funding agency's project officer and colleagues. It is to be expected that multiple iterations of the grant application will be produced and improved upon for quality's sake. Mistakes such as listing *three* aims for the grant in the abstract but listing *four* aims in the body of the grant application can severely prejudice the reviewers against appreciating the grant application's strengths. One should read the grant application through, carefully checking to ensure that it flows and is grammatically correct and also factually accurate throughout. All references and numerical values should be double-checked to ensure that they are free from errors. There is no excuse for failing to conduct a grammar and spell-check of the final version of the application. It is critically important to adhere to word and page limits and font and margin requirements that are described in the call for proposals—or the grant application is likely to be rejected without being reviewed. Appearance can influence the overall impression of a grant application, so it is worthwhile to put effort into trying to make the grant as attractive as possible. Providing spaces between sections and adding bolded or italicized subheadings can help create the impression that the application is a thoughtfully organized narrative instead of a mindless, crowded "wall of words." Also, the application may be more visually appealing if tables, figures, and bulleted lists are included to break up the wall of text. Furthermore, to maximize the reviewers' interest in the grant application, it is best to try to make the writing "…energetic, direct, and concise" rather than to write in a dull wordy style with abundant technical language [6].

Meeting the Grant Deadline

The Challenge To ensure that the grant reaches the funders before the deadline.

As illustrated by the timeline example in Table 2, it is strongly recommended that the faculty member plan to submit the grant application a minimum of at least 1 day before the deadline. Alternatively, setting oneself a "soft" deadline a week or more before the actual deadline would provide a more comfortable margin. By so doing, the faculty member allocates at least some time in advance for addressing any unanticipated problems that arise at the last moment. The absolute grant deadline may be internally set by one's institution in order to provide sufficient time for the administration at one's institution to be able to review the grant for accuracy and completion, as well as to obtain all necessary internal approvals prior to submitting the application. For example, if the NIH deadline for a grant is October 5, one's department may require that one submit it internally by 9:00 AM at least five business days prior to the deadline, on September 28. That is the actual deadline that one must meet, and so one should submit the grant internally by 9:00 AM on September 27 at the very latest. Many departments/institutions have even stricter internal deadlines, such as requiring the internal submission of the grant at least 2 or even 4 weeks prior to the funding agency's deadline. Regardless of whether or not the entire grant must be submitted by an internal deadline or by the funding agency's deadline, aiming to submit the grant application in advance of the deadline is a very good idea. When determining one's personal deadline, it is useful to consider in advance the type of submission—by mail, by e-mail,

or online through a website. For example, when faculty members are faced with learning how to use an unfamiliar web-based application system to upload and complete grant documents, they should give themselves sufficient extra time to allow for the possibility that they may need to obtain help from others with that step. Also, it can prevent heartache to note in advance the time zone associated with the deadline to prevent erroneously thinking that one has until 5:59 PM to submit the grant when one actually has only until 2:59 PM because of the difference between one's time zone and the one used by the funding agency.

Managing Stress and Burnout While Preparing the Grant

The Challenge To experience good health and quality of life while preparing a grant.

Preparing a grant involves juggling a great deal of effort while being mindful of looming deadlines. Also, it is almost inevitable that unanticipated problems will arise, such as a key grant collaborator not responding to e-mails or phone calls or the copy machine jamming or running out of printer paper. The high likelihood that unanticipated problems will arise underscores the importance of allowing plenty of time to prepare the grant application. Providing this buffer of time should help one to derive greater satisfaction and fulfillment from preparing the grant while minimizing the emotional burden of working under stress. Another important strategy for optimizing quality of life while preparing a grant is to schedule in advance time to take care of one's health (e.g., exercise, get sufficient sleep, and eat nutritional food). Also, during this process, it is helpful to make time in one's schedule for highly enjoyable experiences (e.g., listening to favorite music, dancing, playing a game, savoring nature). The challenges of preparing grant applications are much easier to manage for faculty members who also take care of their mental and physical health during the process.

Words to the Wise

- Obtain copies of funded grants from mentors, peers, or the funding agency to use as models.
- Assemble a team of collaborators whose areas of expertise are distinctive while representing all of the areas that are relevant to the grant.
- Request help from grant collaborators with particular sections of the grant application for which they have expertise, for example, ask the biostatistician to prepare or review the statistical analysis and the power analysis that justifies the sample size.
- If possible, elicit help from an administrative assistant, student assistant, or an hourly temporary employee to help with the many administrative tasks involved in preparing the grant application.
- Avoid becoming discouraged if the grant application is rejected, as this is not a reflection upon one's long-term ability to obtain funding.
- Anticipate that it may be necessary to revise and resubmit the grant application to increase its chances of being funded.

Ask Your Mentor or Colleagues

- What advice do you have for persons who are preparing their first grant application?
- What do you see as the most important considerations in getting a grant funded?
- What do you think about my ideas for a grant?
- Would you be able to review the draft of my grant's [section of grant] and pass along any feedback you might have?

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How to Review Grant Applications

Ruth O'Hara and Shelli R. Kesler

Why Should You Review Grants During the Early Career Development Years?

Nothing puts you more in the mind of how a reviewer might judge your grant than actually engaging in the review process itself. As such it is an extremely valuable scientific learning experience, and it is our belief that it is never too early to begin reviewing grants. For example, in our own postdoctoral programs, we make sure that all our fellows have the opportunity, with supervision, to review the grant submissions of their peers. Much like reviewing manuscripts, reviewing the work of others can be extraordinarily informative to helping you learn about writing your own grants. When they engage in the grant review process, even seasoned grant writers are likely to identify areas that lack clarity or indeed are much clearer in the proposal they are reviewing, and this can subsequently inform their own grant writing abilities.

Reviewing grants early in one's career can thus be a very beneficial process for learning the mechanics of putting together an excellent grant proposal.

However, it is critical at this stage of career development that you balance such grant reviewing activities against the higher priorities of early career development, including obtaining your own extramural funding, conducting your own scientific investigations, and publishing your findings in peer-reviewed journals. Indeed, the latter is particularly important to forging your own academic identity and reputation, both of which lead directly to subsequent invitations to review grants from NIH, VA, and other agencies. Each year, hundreds of thousands of grant applications are received by the National Institutes of Health, Veterans Administration, NSF, foundations, state, and other granting agencies in the field of clinical and biomedical research [1]. As a result there is a substantial need for experienced experts to review each of these grants, and junior investigators are increasingly called upon to participate in the review process. When invited to review grants, there are several critical questions you should ask yourself, including whether you have the requisite expertise, whether you will serve as primary, secondary or tertiary reviewer, whether you are in conflict with the grant, how many grants are you being asked to review, and whether you have the time to do a thorough review.

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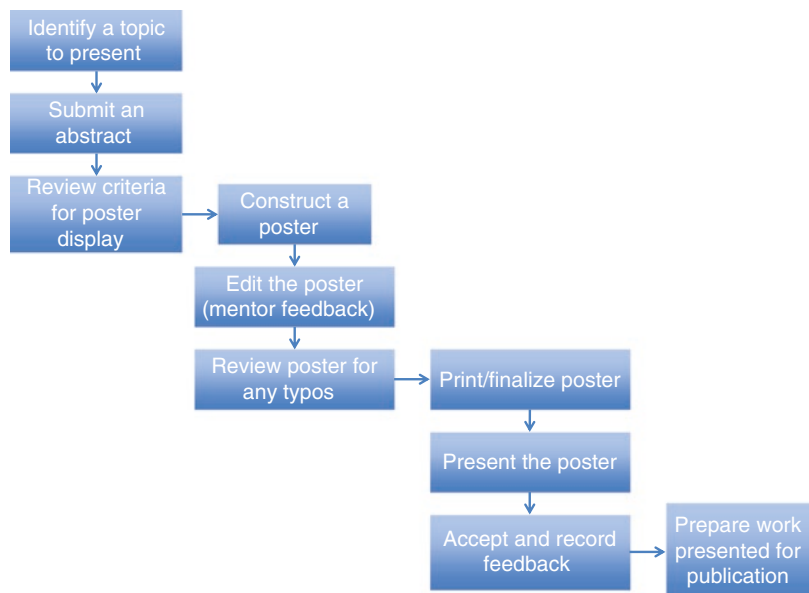Stanford, CA, USA
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Do You Have the Requisite Expertise?

The main requirements for a reviewer are that they have significant expertise in the domain area of the grant under review and significant experience in writing and obtaining grants. Just as with invitations to review manuscripts, invitations to review grants can be a clear indication that you are forging a reputation as a researcher with specific expertise in your domain area. However, your area of expertise may not be the primary emphasis of the grant proposal you are being asked to review. For example, if your area of expertise is in the field of sleep dysregulation, and the primary focus of the proposal is on PTSD and neuroimaging, and sleep is a more minor component of the grant proposal, you may not have sufficient expertise to review the primary areas of emphasis of the proposal. Given the interdisciplinary nature of biomedical sciences and thus grant proposals, many times the reviewers of any given grant will reflect a range of areas of expertise. You may be invited to review a grant where the patient population is not in your specialty area but where you are expert in the methodologies being applied, e.g., neuroimaging techniques, gene expression, or neuroendocrine function. It may be that you are expert in intervention research and can bring that expertise to bear on a review of a grant that examines novel treatments or interventions. However, even when the focus of a grant appears to fall directly within the scientific domain of your expertise, it still may not be a grant you are equipped to review. A grant may employ a very different methodology which makes it simply too difficult for you to judge the scientific merits or feasibility of the proposed work. The goal of most funding agencies is to match the expertise of primary reviewers as closely as possible to the focus of the grant, but secondary and tertiary reviewers may be identified who have expertise in specific key areas such as the methods employed, designs been implemented, or biological measures being considered. Making sure you have sufficient expertise to judge the grant proposal under review or defined components of that grant proposal is

essential. Of course, the expectation is that all reviewers, no matter what their area of expertise, are extremely knowledgeable about scientific methodological considerations and will be able to review all grants from this perspective.

Without sufficient information, it can be easy to agree to review a grant for which one has insufficient expertise. When approached to review a grant proposal, it is essential to consider whether or not you have the requisite expertise to review the grant. To make sure you have the required expertise, you should discuss this issue with the NIH or VA program officer asking you to do the review. If you are agreeing to review multiple grants on a NIH or VA study section, once you have agreed to participate, signed your conflict of interests, and agreed to the confidentiality requirements of the review process, you will typically be able to view the grants and can then indicate to the program officer or equivalent that there are grants you are in conflict with and/or that there are grants which do not appear to fall sufficiently within your area of expertise. At that point the program officer can change your review assignment or simply remove you as reviewer from the grant in question. Part of the decision regarding whether or not you have sufficient expertise to review the proposal is influenced by the next question, namely, whether you are being asked to serve as primary, secondary, or tertiary reviewer.

Are You Being Asked to Serve as Primary, Secondary, or Tertiary Reviewer?

Most granting agencies assign at least three reviewers assigned to review each grant: a primary reviewer, a secondary reviewer, and one or more tertiary reviews. The goal of most funding agencies is to match the expertise of primary reviewers as closely as possible to the focus of the grant, but secondary and tertiary reviewers may be identified who have expertise in specific key areas such as the methods employed, designs been implemented, or biological measures being considered. If we return to our previous example,

where the primary focus of the proposal is on PTSD and neuroimaging, and sleep dysregulation is a more minor component of the grant proposal, as a sleep expert it may be very appropriate for you to accept the role of tertiary reviewer, but not ideal for you to take on the role of primary or secondary reviewer, particularly if you do not have expertise in either PTSD or neuroimaging. Indeed, as one starts to review grants for the first time in one's career, it is probably wise to take on a role as secondary or tertiary reviewer initially, in order to gain experience reviewing grants. Often tertiary reviewers are assigned who may be more junior but are included because it is judged that they have excellent scientific expertise that they can bring to bear on the review of a grant and/or they have some excellent publications in the topic area of the grant.

Finally, before you agree to review a grant or grants, it is important to insure that you are not in conflict with the proposal. The rules for what constitutes a conflict can vary from one granting agency to the next but will be routinely accessible on the website or instructions for that agency. In general one should not review proposals from their own institution, unless you are serving as reviewer for an internal grant hosted by your institution. You should not review the proposals of colleagues with whom you have ongoing collaborations, either in terms of papers published together or serving as co-investigators on grants. Agencies also differ in how much time must have elapsed since you last collaborated with the investigators on the grant. If you are in doubt about potential conflicts, you should contact the grant agency to convey and discuss your concerns.

as the future of a specific scientific field. Although many granting agencies, including the National Institutes of Health, have reduced the number of pages required for a grant submission, this does not correspond directly to less review time dedicated to each grant. It is very important to read and reread each grant in depth in order to fully assess both its strengths and weaknesses. It is also important to remember that each grant consists of multiple components beyond the scientific section, including abstract, project narrative, human subjects, resources, biosketches, budgets, budget justification, letters, and appendices. As a reviewer you are required to read all of these components, so each grant can total many pages in length (often as much as 100 pages), far more than the page limitations on the scientific section alone. So even reviewing a few grants will require a significant amount of time for review. A reasonable estimate to effectively review a single grant is approximately 4–8 hours depending on the experience of the reviewer and grant mechanism under consideration. Further, when an individual is invited to serve on a foundation, VA, or NIH review committee, they are typically required to be a key reviewer for multiple grants. This can be a very time-consuming enterprise, often more appropriate to more advanced stages of an academic career when one has more expertise and experience. However, in the early stage of one's career, one is often issued ad hoc invitations, and many state and foundation grants may request that you review only one or two grants. This quantity can be very manageable for a junior investigator, providing them with the invaluable experience of reviewing but within a reasonable timeframe relative to their other career priorities.

How Many Grants Should You Review and Do You Have Time?

It is essential that you make sure that you have enough time to review the grant proposal in depth. Your decision regarding the review of a grant can have significant implications for its chances of being funded and as a result the career of the investigators proposing that work as well

How Can You Obtain Experience and Be Selected as a Reviewer?

As mentioned, your expertise evidenced through peer-reviewed papers and extramural funding obtained can lead to your identification as a potential grant reviewer. Mentors and colleagues can also facilitate opportunities for young investigators to review grants, and it is important to

discuss with and inform your mentors and colleagues that you are interested in availing of such grant review opportunities. Further, mentors and colleagues can be consulted for advice and tips on how to review grant proposals.

Internal and local institutional grants may provide ideal venues for obtaining your initial review experience. Another mechanism for review is to provide feedback on the grants your colleagues are submitting. This can provide your colleagues with an excellent "free review" as it were and provide you with an opportunity to learn the mechanics of grant writing from a seasoned grant writer. Yet another source of reviewing opportunity is to informally review for your peers, who will likely be submitting for similar mechanisms, such as junior investigator career development awards. This can be an invaluable service for your peers and also your department, where multiple evaluations before a grant is submitted can really benefit its chances for a positive review and potential funding. Early in your career you will have had most experience with writing small, pilot, and foundation grants, as well as Career Development Awards, including VA Career Development Awards, and NIH K Series Awards for early career development. Since your peers will likely be submitting similar grants, the opportunity to review their work can provide you with excellent review experience. Also, it is likely that in the early stages of your career you will collaborate as co-investigator on VA SPiRE or Merit awards or NIH R series grants. This co-investigator experience can also facilitate review experience as you will likely review components that you did not write of grants you are serving as a co-investigator. That said, it is rare for individuals at the earliest stages of career development to be asked to review NIH R01s or VA Merit awards.

What Should You Consider when Actually Reviewing a Grant?

Costello, in a review of NIH grant policies, states that "… proposals should be judged on the merits of the science, the quality and capability of the investigator, the existence of appropriate conditions and availability of essential resources, and the study's potential for new understanding, significant advancement, and/or resolution of a critical biomedical issue" [2].

To begin a review, it is critical to first read the requirements for the grant proposal(s) and the instructions for review. Each funding agency will provide you with guidelines for reviewing their proposals. Familiarizing yourself with these guidelines is an essential part of the grant review process. Regulations governing the application can be critical to your scientific review. For example, for NIH grants, information on inclusion and exclusion criteria essential to understanding the proposed work are not allowed to be considered for review if they are only included in the human subjects section. Review guidelines may also have requirements specific to the given funding agency. For example, in VA grants, detailed information on how the proposed work will benefit veterans above and beyond the contributions to the broader field of inquiry is a key component. Different funding agencies may place a differential emphasis on different components of the work. Consideration of the innovativeness of a grant is currently critical to review of NIH proposals.

Most granting agencies provide for both a written review and also a numerical score. Studying how scores are defined is also essential to providing a review that is within the parameters defined by the granting agency. Again, for junior investigator reviewers, seeking advice and input from mentors and colleagues who have routinely reviewed for the same agency can be instrumental in providing you with a more concrete understanding of how to appropriately judge the scores you should allocate to a grant and making sure your written reviews are reflected in your numerical score.

Despite variability across agencies in terms of review criteria, there are several components of a grant that need to be considered no matter the mechanism or agency soliciting the proposals. These include the following:

1. Is the goal relevant to the funding body's mission?
2. Will the proposed work make an important contribution to the field of inquiry?

3. Is the proposed work feasible and can it be conducted within the timeframe specified?
4. Does the principal investigator have the necessary expertise, track record, and experience to conduct the proposed work?
5. Do the co-investigators bring additional complementary expertise to bear?
6. Do the co-investigators have a history of collaborating with the PI, and can they get the work done?
7. Are the designs, methods, and measures appropriate to the aims and hypotheses of the proposal?
8. Is the statistical section appropriate and clear, and is there enough statistical power to truly test the proposed hypotheses?

The first component of a grant that lays out the overall goal, aims, and hypotheses of most grant proposals is the specific aims section or abstract. A reviewer should be able to obtain a very clear sense of the work proposed from the specific aims. This can serve as a valuable framework against which to review the rest of the proposal. Background and significance sections provide the scientific context for the proposed work and provide the rationale for the line of inquiry and key questions to be addressed by the proposed work. Reviews of the literature should be selective and relevant, not exhaustive. However, failure to acknowledge peer-reviewed published studies which support or call into question the fundamental aims or hypotheses of the grant should be noted in your review.

Setting the work in the context of the state of the science can be instrumental for conveying the importance of the proposed work for the reviewer. Questions you might ask yourself are does this work fill a defined and important gap in the field and/or does it apply a new methodology or approach to an outstanding question in the field. There are many unaddressed issues in the field of medicine, but not all have the same level of importance. Assessing the overall impact or significance of the proposed work involves assessing the likelihood that the project will exert an important influence on our current knowledge and future of the field. Grants are considered to

be significant if the proposed work will result in important changes to the concepts, methods, technologies, or interventions in the area under investigation.

It is now often important for reviewers to assess the innovativeness of the grant. Innovativeness can contribute to the overall strength or impact of the proposed work, but not all important grants are necessarily innovative. Modifications of services or interventions for specific patient populations or identification of the characteristics of treatment responders may all address gaps in the field but may not be judged to be as innovative as development of new methods for gene expression or potential identification of novel mechanistic explanations for a mental health disorder. Typically, innovation requires that proposed work has the potential to substantially shift current research or practice paradigms by considering novel theoretical constructs, methods, or interventions. To arrive at an assessment of the true innovation of the proposed work requires a strong knowledge of the constructs surrounding the innovative components.

While innovation and contribution to the field are necessary conditions for most academic proposals in the field of medicine, they are not sufficient. It is also essential that the work is feasible and can be conducted within the proposed timeframe. This point raises a broad range of fundamentals that need to be in place for a proposed study to be viable and feasible and facilitate the testing of the proposed hypotheses. These should all be considered in your review (Table 1). Does the investigative team present evidence of their past research and prior studies in the area and/or preliminary data which support the proposed aims and demonstrate their expertise and experience, as well as the feasibility of the proposed work? Is the number of patients or subjects reasonable to recruit in the given timeframe? Is the number of patients or subjects to be considered adequate for yielding sufficient statistical power to test the proposed hypotheses? Are difficulties specific to the assessment of the targeted patient population specified and addressed? Is the choice of control subjects, and/or control treatments, appropriate? Is the design appropriate for testing

Table 1 Review guide

Essential elements checklist	Confirmed?
Evidence of their past research and prior studies in the area is presented	
Preliminary data which support the proposed aims and demonstrate their expertise and experience, as well as the feasibility of the proposed work, is presented	
Number of patients or subjects is reasonable to recruit in the given timeframe	
Number of patients or subjects to be considered is adequate for yielding sufficient statistical power to test the proposed hypotheses	
Difficulties specific to the assessment of the targeted patient population are specified and addressed	
Choice of control subjects, and/or control treatments, is appropriate	
The design is appropriate for testing the proposed hypotheses	
The biological, neurophysiological, and mental health measures are all appropriate for the measurement of the predictor and outcome variables	
The measures are valid and reliable	
Distinctions between primary and secondary measures are clear	
The most appropriate statistical procedures are proposed considering the following:	
Statistical procedure has sufficient power to test the hypotheses	
Effect sizes upon which the power analyses were based are presented	
Multiple testing issues have been considered	

the proposed hypotheses? Are the biological, neurophysiological, and mental health measures all appropriate for the measurement of the predictor and outcome variables? Are the measures valid and reliable? Are distinctions between primary and secondary measures clear? Are the most appropriate statistical procedures proposed, with consideration of sufficient power to test the hypotheses, presentation of effect sizes upon which the power analyses were based, and consideration of multiple testing issues?

There are multiple other components of the grant which you are obliged to read in order to address specific components of the review, spe-cifically biosketches, human subjects, resources, budgets, budget justification, letters, and appendices. A critical component for almost all reviews is the qualifications of the principal investigator and co-investigators to implement the grant and accomplish the aims. The biosketches for each of the key personnel will allow you to judge the investigators. Have they exhibited sufficient expertise in the domain areas being investigated in the proposed grant? Have they been productive? This is dominantly indicated by the number of peer-reviewed publications, which play a key role in indicating level of expertise and past productivity. Have they had prior funded grants which appear to have attained their goals? The biosketches provide evidence of the extent to which this is the case as well as evidence of whether the co-investigators on the proposal have worked together and/or have expertise that maps onto the specific aims of the proposal. Another component of the proposal that contributes to the overall evaluation of the grant is the environment. This is whether the institution and department have the resources and equipment necessary for the PI and Co-Is to achieve the aims of the proposal. For example, if the investigators propose a particular neuroimaging technique which is not present at the institution or site at which the grant will be conducted, this could limit enthusiasm for the proposal and cast some doubt on the feasibility of the proposed work at that site. Detailed resource sections can go a long way to providing the assurances that the PI and Co-Is have all the resources at their disposal to achieve the aims of the grant. Such resources can include everything from clinics which will refer patients to the proposed research, equipment, libraries, office space, assessment rooms, etc. As such, the resources and equipment components of a grant proposal provide key information for the reviewer to ascertain that the investigators have what they need to accomplish the goals of their proposal. Human subjects and budget and budget justifications are sections that also provide valuable information. While on most review panels, scientific approach, pilot data, significance of the work, innovativeness of the work, and the qualifications of the investigators are scored, human

subjects and budget and budget justifications typically do not get scored. However, these components contribute significantly to the general impression of a grant and the qualifications of an investigative team to carry out the proposed work. For example, a human subjects section that fails to adequately address critical aspects of the risks of the proposed work can suggest that the investigative team does not have sufficient experience with the approach they are proposing. Such limitations on the human subjects protections section can raise substantial concerns, even resulting in the grant not been approved for funding, despite otherwise good review scores. Similarly, lack of specificity, inaccuracies, and contradictions in the budget and budget justification can also cast a pall over an otherwise strong application. Thus, all of these components of an application must be reviewed in depth by the reviewer.

Helpful Strategies when Reviewing Grants

It is easy to get lost in the dense scientific writing of a grant as you engage in the review process. Maintaining a copy of the specific aims beside you as you read the whole grant, particularly the hypotheses to be tested, can help you judge the specific details as you work your way through the grant. An important aspect of any grant proposal is that it is consistent and a lack of consistency can cast significant doubt over the veracity of the grant proposal and its chances to be effectively implemented as an investigation. Table 1, which provides a list of the key components to be considered when reviewing a grant, may serve as a useful review guide.

Other Challenges when Reviewing Grants as a New Investigator

There is no question that in the early stages of one's career we are often finding our feet with respect to the zeal with which we review any academic product, be it a grant, manuscript, or pre-

sentation. One thing you can do to prepare yourself for the process of grant reviewing is to read the successful grant applications, and accompanying reviews, from colleagues and/or mentors who had to respond to reviews of their grant. This can be an invaluable experience for providing you with a model of the review process.

It is important to remind yourself that reviewing a grant is not about indicating how much you know. It is not possible for any team of investigators to convey every aspect of the proposed work in one 12-page proposal. Thus, as a reviewer you have to be able to differentiate between critical information that is missing and details that there was simply no space to provide in the proposal. Often this is challenging for the newer investigator.

On the other hand, junior investigators may also have difficulty being critical of a grant, although such criticism is warranted. Along similar lines, when judging whether a grant is innovative, it is very important to do your homework sufficiently to be in a position to judge. All too often a component of a grant can be judged as innovative simply because it is novel or innovative to the reviewer. This is why it is very important to do your homework, researching the literature and field with respect to the potential of an innovative method or approach. Finally, it is important to thank the person who invited you to participate in the review process for the opportunity to review and indicate that you would be interested in providing future service.

Words to the Wise

- Make sure you have enough time to review a grant.
- Make sure the grant falls within your area of expertise.
- Do your homework: Make sure to familiarize yourself with the requirements for the grant mechanism.
- Do your homework: Make sure to familiarize yourself with the extant literature for components outside your range of expertise.

- Monitor consistency throughout a grant; this can be key to its potential.
- Employ the reviewers review sheet provided in Table 1.

Ask Your Mentor or Colleagues

- Am I at the right stage of career development for starting reviewing some grants?
- What grant reviewing opportunities are available to me?
- How much time should be dedicated to grant reviewing relative to the rest of my career development activities?

- Can we start a grant monthly writing/review workgroup for postdoctoral fellows and junior faculty?

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How to Prepare a Poster

Manpreet Kaur Singh and Sarthak Angal

Posters offer a critical introduction to scientific research in any field. There are numerous media resources available to help researchers with the technical details needed to create effective poster presentations to communicate their data to their scientific community [1]. This chapter will focus on five major principles associated with designing and presenting a poster at a scientific meeting. First, there will be an introduction to the purpose and relative importance of posters in academic settings. Second, the qualities of an effective poster and common pitfalls associated with an ineffective poster will be described. Third, this chapter will outline a systematic approach to preparing a poster in a scientific setting. Fourth, the chapter will discuss the leveraging contemporary technologies to increase poster accessibility and visual appeal. Finally, this chapter will conclude by detailing how to present a poster at a scientific meeting.

Poster presentations in academic meetings are used to convey knowledge through visual representation by a wide spectrum of scientific subspecialties [2]. They may also be considered an effective vehicle for introducing new and soon-to-be-published scientific data. The use of posters as a means of presenting knowledge is generally well accepted, as they have been shown to be as effective at reporting information as oral presentations [3]. However, the effectiveness of posters as a means to transfer knowledge or change perceptions is sometimes disputed due to limited published literature available on the topic [4]. In addition, data presented at conferences that have yet to be published can be difficult to access by those who did not attend the conference, thus limiting the audience and effectiveness of posters to disseminate and discuss information [5]. There are also concerns in some fields that data from poster presentations are too preliminary and may not survive the rigor of academic peer review [6–8]. Nevertheless, most agree that poster presentations offer an ideal opportunity to disseminate research findings [9] by conveying a compelling story [10] and can assist in manuscript preparation [11]. They also help trainees and early-career faculty members think critically, develop a national reputation, network, develop collaborations, facilitate promotion in academic positions, and can even create new job opportunities [12]. For anyone considering an academic career, these benefits become apparent fairly early in academic tenure when scientific results are shared in a nonthreatening and collegial poster session.

What makes a good poster? Many sources consistently suggest that readability, organization, and succinctness are qualities that make an effective and successful poster [9, 13]. Researchers

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need to first determine the main message or thesis of the poster and then assemble components to provide supporting evidence and illustration of the message, which can be communicated succinctly to anyone viewing the poster [14]. Problems with posters can arise when presenters fail to understand that posters are primarily a visual medium [12]. Having posters that are too cluttered or using long paragraphs instead of bullet points can render the poster difficult to read, and an audience may have a hard time quickly grasping its key points. Moreover, by simply posting pages from a paper, one risks having people merely skim the work while standing in the conference hall. Goodhand and colleagues [15] argue that researchers should focus on presenting high-quality data in pictures or graphs concisely and without an excess of words. Visual appeal is key to captivating an audience and stimulating discussion. Brief narrative descriptions summarizing one's work can also serve to initiate a conversation with colleagues about the key message being conveyed, which may then lead to important feedback or collaboration [16].

Presenters may also forget the range of specialties and training backgrounds to which they are presenting. Knowing the target audience is essential for effective and respectful scientific communication and does not leave those visiting a poster with the onerous task of interpreting statistical findings, particularly if they are complex or difficult to understand. In most contemporary scientific settings, it is helpful to be prepared for an interdisciplinary research audience and communicate a message that has real-world application [9]. There are multiple strategies that can help explain complicated topics so that a broader audience can understand your work. For example, comparing a complex concept to something well known through analogies or metaphors can help orient your readers. Other strategies include breaking up a concept into smaller, simpler parts to make it easier to grasp or using diagrams or flow charts to explain a concept visually [17].

We will now discuss the nuts and bolts of how to make an effective poster. Figure 1 provides a flow chart summary of the stepwise approach we outline here. The first step is to identify a topic of interest or scientific question. Topics suitable for a poster may be broad ranging and can report on any stage of a particular research project. For example, you may choose to report an original study (descriptive, observational, retrospective, or experimental), an evaluation of a method, device, or protocol, or present a case report or case series. Once a scientific question

Fig. 1 Steps needed to prepare a poster

and the corresponding data have been identified, an abstract can be written.

Abstracts are submitted to professional meetings based on the abstract topic or the theme of the academic meeting. Organizations hosting professional meetings will offer an open invitation to submit an abstract several months before the meeting and provide specific guidelines for abstract submission. A committee of peers is tasked by the organization to compile a scientific program for the meeting and carefully reviews the abstracts. There are several factors that lead to the acceptance of abstracts: adherence to the submission guidelines (some organizations will plainly state in their guidelines that abstracts will automatically be rejected if they do not adhere to such guidelines), presentation of new and original data (versus previously presented data or a review of the literature), and scholarship with inclusion of references, innovation, indication of comparisons or control groups and standardized measures, and complete studies (versus incomplete studies that promise later results).

Once a well-prepared abstract is accepted, it can be used as the outline for the poster content. Before laying out the components of your poster, carefully read any instructions that may have been sent by the organizers of the meeting regarding your presentation. Specifically, they will often send instructions about the size requirements of the poster and the date, time, and location you have been assigned to present your poster. It is important to review the size dimensions prior to constructing your poster, as it can be tedious to adjust the size once all of your content has been laid out. If it is not the right size, either your poster will not be permitted for presentation or it will stand out at the meeting in an undesirable way. Your aim is to invite positive rather than negative attention to your work, so reviewing the criteria for poster display is a critical initial step. Keep this in mind as you outline a draft of your poster using your preferred software program. There are multiple commercial tools available for download or purchase, such as PowerPoint, that assist with customizing graphics, tables, and text to make your poster organized and visually appealing [9]. If available, you can use your institution's poster template so that you have an access to your institution's logos and a standard format to get started [11].

Most abstracts follow a specific format, which includes components such as an introduction or background, methods, results, discussion, and conclusion. These components can then be subdivided into separate sections of the poster (Fig. 2). Typically, the abstract will be the first component and gives the audience a chance to take a cursory summary of your work. The abstract may be placed directly under the banner of the poster, which, in some instances, is considered the most

Fig. 2 General layout of a poster

important part of the poster because it is the most eye-catching. Some meetings require that the title in the banner and poster be a specific size and font so that it is easily readable to the audience from a typical distance of 10 ft [11]. The title of your poster will correspond to the title of the abstract you submitted and should be short but informative about the nature of your study. Directly under your title would be the author names followed by institutional affiliations. Contributions to the work you present in your poster will vary from one individual to another, but this is an excellent opportunity to acknowledge the hard work of your entire research team. It is helpful to review with your mentor who to include as a coauthor on your poster and in what order. In some instances, organizations will place identifiers on the banner of your poster to signal the audience if your poster won an award or if you are a new investigator or mentor. It is also helpful, if you do not routinely carry a business card or handouts of your poster, to have your contact information listed in the corner of your banner to invite people to contact you in the future. The abstract that follows under the banner is typically written exactly as was submitted unless your results have significantly changed after interim analyses. These changes or updates are more common than not, frequently reflecting scientific progress, and most often include changes in results, title, or authorship [18]. Moreover, this can lead to discrepancies among abstracts submitted, published in proceedings handbooks, and actual poster presentations. Consequently, attending the poster is often the best way to get the scientific information of interest. In any case, the abstract should be consistent with the data you are presenting in your poster because the abstract and the banner will likely be the most frequently read portions of your poster. It will summarize the objectives of the study, the methodological approach employed, the results, and the major conclusions drawn from the results. These are then elaborated in subsequent components of your poster.

The introduction section typically comes after the abstract and provides a background context and purpose for conducting the study you are presenting. It is helpful here to expand on the importance of your study and why it might be particularly relevant to your audience. You will then propose your research question and follow it with your hypotheses about the outcome of your study. These hypotheses may be informed by prior literature, which you should reference, or may be based on work you have previously presented. When you are presenting this section of your poster, it is helpful to determine the background of your audience to facilitate their engagement with your presentation.

The next component is the methods section of the poster. Here, bulleted text is often preferred to provide succinct, clear statements about how you conducted your study. The information should be sufficient for another researcher to be able to replicate your approach [12], but since space is limited, this may be an area of expansion during a discussion with your audience or in response to a question that is posed to you. Your methods should demonstrate a valid approach to answering your scientific question, providing sufficient information about your sample (from which population it was derived, selection criteria, group assignment), the materials or interventions you used, and your statistical approach to analyzing your primary and secondary outcome measures. It is easy to get bogged down in this section and provide too much detail that may not be within the scope of a poster presentation. One may be particularly vulnerable to losing the interest of the audience while presenting this component of the poster. Decide what is the most important aspect of the methods to be communicated, and reassure yourself that you will be able to provide additional detail to anyone requesting it while you present your poster.

The results section is another component of the poster that may receive more attention than other sections. Many are interested in understanding how you answered your scientific question and how the groups you studied compared to one another on the major outcome measures studied. Graphical presentation of your data is often necessary and helps to illustrate your data in ways words cannot. This also helps engage

your audience by displaying the data in an easily digestible format. It is important to make sure that any tables and figures used are clear and self-explanatory, with appropriate use of error bars to define variance around results and legends to define variables and abbreviations.

In the discussion section of your poster, take time to reflect on the significance of your findings in the context of the current study, as well as in the context of your broader field. It is useful to review the literature on related studies and offer some insights about how your study compares to those already published. It is very likely that your results will either support the extant literature on your topic or contradict them, warranting an explanation for differences in findings. Offer limitations of your current study and suggestions of future directions to address the scientific question you proposed. This section requires some inferential thinking and may spark fruitful discussions at your poster. It is possible that you might derive novel ideas from your audience about the interpretation of your results so it is important to be attuned to that. A concluding statement should relate your initial research question and predictions to your study results, tying the poster together.

Below your discussion and conclusions is a place to include references to any literature you have related to your study. The format of the references should be consistent with the text in the body of the poster. Including references is an important gesture that adds to the validity of your work and acknowledges how your work may be related to the broader field. It is quite possible that someone you have referenced will come to see your poster; at which point, it will be important for you to have knowledge both of your work and that of the authors you cite. If you should strike such luck as to meet an author you have cited, take advantage of the opportunity to learn more about his or her work as it impacts your study.

Finally, many organizations are now requiring you to report on your poster all relevant funding sources for your study and disclose any potential conflicts of interests. This has become an essential component of many posters and will certainly be required if you decide to publish your work. The integrity of the work requires disclosures of any potential distorting influences where they may exist, and the audience may then judge and determine the impact of bias on the information being presented. Investigators should not view this requirement as punitive or avoid engaging in studies involving interventions or devices sponsored by industry. This is simply a part of being a scientist in an era of open disclosure and transparency.

Once your components have been developed and assembled, your poster is ready to be constructed. After reworking your initial drafts, seek feedback from your mentors. You may have several months between the time your poster is accepted to the actual date of presentation. Do not procrastinate and leave your preparation until the last minute [11]. Your mentors will appreciate the advanced notice and the ability to provide you with meaningful feedback well before the meeting. Remember that they, too, may have to prepare for presenting at the same meeting. Moreover, if this is your first time presenting, engage with your research team to provide you with some helpful preliminary feedback, and simulate the poster experience so that you are ready to address any questions that might be posed to you about your work. Another set of eyes is always useful to check for any typos and stylistic or grammatical errors of which you may not be aware in your preparation. It is sometimes also helpful to get feedback from individuals who are not in your field to get a sense of how your work might be evaluated by someone in a less related area. Upon finalizing your poster, you may choose a variety of different ways to print or display your poster. In recent years, the scientific community has made remarkable strides in poster production [12, 19], which eventually may lead to more technologically advanced formats, possibly eliminating the need for paper in the future.

Indeed, posters have continued to evolve with the advancement of technology. Electronic posters, or e-posters, have become increasingly popular due to their convenience and interactive features. E-posters allow for the use of video files, graphics, and hyperlinks that can help make the information presented more accessible to an

audience [20, 21] and easy to share. In addition, they can be presented in virtual conferences, which can allow researchers to present their work remotely without needing to physically attend a conference [22]. Technology has also influenced oral presentations, allowing information to be accessed by broader audiences. This is exemplified by the popularization of online video-based presentations, such as TED (Technology, Entertainment, Design) talks, which provide a means to inform the general public about new research findings and are among the most popular videos on streaming sites such as YouTube [23, 24]. Notwithstanding, these electronic formats have their limitations due to their higher costs, impersonal formats, and the limited literature available on their effectiveness [21]. Thus, paper posters remain the preferred method of presenting findings to other researchers at this time, at least until these novel mediums become more refined and widely accepted [2].

The next step in the process is to actually present the poster. It helps to have a 2-minute presentation of your poster ready to help guide your readers through your poster in an organized way. Practicing your presentation with your mentor and colleagues can also be useful for refining your presentation and making you feel well prepared for your actual presentation. It is helpful to review your poster briefly before the meeting so that the information is fresh on your mind and you can anticipate questions that may arise. Some meetings offer an opportunity for early viewing of posters and request that you place your poster on its designated board the morning of your presentation. It is important to be on time for your poster session and, even at more casual conferences, dress and conduct yourself professionally. Try to remain at your poster as much as possible to be available to answer any questions by those viewing your poster. Be open to interruption and feedback during this presentation because, among other reasons, listening carefully may improve your study if you are preparing it for publication. A 2-minute summary of your poster will become easier to present as the poster session progresses because you will become adept in gauging your audience, revising

your approach, and getting to the heart of your message efficiently. This iterative process in a relaxed, nonthreatening environment [11] makes a poster presentation unique and very enjoyable both for you and for your audience.

After your poster session, it is helpful to record some of the feedback you received from the people you met. This will enrich your discussion with your mentors and colleagues after the meeting to debrief on the experience and plan for next steps related to your study or future projects. Among the most rewarding aspects of presenting a poster is the ability to utilize that medium to facilitate publication of your work. If publication is seen as the final step to the poster process, then poster preparation can be a fruitful way to becoming a prolific author because academic faculty members often attend several meetings a year, and while manuscripts often do not have deadlines ascribed to them, abstracts for meetings do. Thus, there is no better way to take advantage of that stimulus to produce and analyze data than to move that work from poster directly into a manuscript for publication. Posters also provide a helpful template for the initial draft of a manuscript. That template combined with the feedback you receive at your poster can help you write and submit a manuscript that has already anticipated concerns that would be raised by reviewers. For these reasons, the last step for presenting a poster should be preparing it for publication.

In this chapter, we reviewed the purpose and importance of poster presentations and described the qualities and pitfalls of this medium. Current opinion based on a review of the literature is that posters offer an opportunity to clearly and succinctly communicate research findings to colleagues, mentors, and potential future collaborators. The presentation of a poster offers academicians a chance to network with peers and receive feedback on their work. Eventually, this can lead to recognition, establishment of expertise, and possibly career advancement. Posters can serve as effective vehicles for the publication of scientific work and, if prepared and presented systematically, can be highly rewarding for an academician throughout his or her career.

Words to the Wise

- Start early and give yourself enough time to receive feedback from your mentors and research team prior to presenting your poster—they can improve the presentation of your poster and help you anticipate questions.
- Posters are primarily a visual medium. Keep your poster succinct and well organized.
- Target meetings that will enable you to share your work with colleagues and leaders in your field. This will allow you to make substantive improvements to your work as you prepare it for publication.
- The feedback you receive on your poster may help you anticipate questions reviewers might have about your work as you try to publish it. Take this feedback seriously to address any flaws in your design or approach or to recognize the importance of your work to the field.
- Use the poster session to network with individuals in your field and related fields. If you want people to stop by and see your poster, return the courtesy to them.
- Convert the content of your poster into the first draft of your manuscript.

Ask Your Mentor or Colleagues

- Can we identify some data that would be suitable for me to present in a poster?
- Which academic meetings would promote my research? Who is and should be my audience?
- What kinds of questions should I be prepared to answer while presenting my poster? What if I get stumped?
- Who should be listed as a coauthor on the poster and in what order?
- Which poster sessions should I attend when I am not presenting my own poster?
- What strategies can I use to convert to publication the work I present in a poster?

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How to Prepare and Give a Scholarly Oral Presentation

Cheryl Gore-Felton

An important function of being an academic faculty member is building an academic reputation, and one of the best ways to build a reputation is by giving scholarly presentations, particularly those that are oral presentations. Earning the reputation of someone who can give an excellent talk often results in receiving invitations to give keynote addresses at regional and national conferences, which increases a faculty member's visibility along with their area of research. Given the importance of oral presentations, it is surprising that few graduate or medical programs provide courses on how to give a talk. This is unfortunate because there are skills that can be learned and strategies that can be used to improve the ability to give an interesting, well-received oral presentation. To that end, the aim of this chapter is to provide faculty with best practices and tips on preparing and giving an academic oral presentation.

Strategies Used by Excellent Speakers

Excellent speakers are similar to one another in their approach and delivery of oral presentations. They use their voice, words, and nonverbal mannerisms to engage their audience. Academic speakers will often use different medium to accentuate their talk such as PowerPoint slides, audio, video, or interactive demonstrations. All too frequently, novice speakers use medium to give the talk instead of to accentuate key points in their talk. So, it is important not to let technology overwhelm the talk—the speaker is on stage not the medium (see Table 1 for tips on PowerPoint slide presentation). In fact, a good speaker should be able to engage an audience without using anything other than his or her verbal and nonverbal communication skills.

Table 1 Strategies for PowerPoint presentations

Use minimum of 24-point font
If dark background, then light font; if light background, then dark font
Do not put the entire talk on slides—the speaker will be competing for the audience's attention because there is no way an audience can read all that print and listen!
3–4 bullets per slide to highlight points the speaker is making, not to substitute what is being said
Put space between bullet points so that the slide is easy for audience members to read
Use slides to *guide* and *support* the oral presentation, not to *give* the oral presentation
Use pictures, visuals, diagrams, video, or audio to amplify speaker points
Humor can be an excellent way to amplify a point, and a well-chosen, well-positioned cartoon can bolster a presentation
Simple slides that are easy to read, amplify the speakers point, and add to the oral presentation are the best!

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Audience

Before a speaker can engage an audience, they need to ask, "Who is the audience?" This question is important because it will inform the speaker about the working knowledge of the audience, the format of the presentation, and the style of the presentation. For instance, a presentation to an audience of 300 will be different from a presentation to 10 individuals. The former lends itself to a highly structured, formal presentation, while the latter lends itself to an informal, interactive presentation.

Once a speaker knows who the audience will be, the structure and content of the presentation can be developed. Unlike written documents, mysteries do not make good oral academic presentations. The audience needs to know what the speaker is going to talk about and why it is important. If this is not clear at the beginning of the presentation, the speaker will be competing for the attention of the audience throughout the talk because the audience will be asking themselves, "Where is this going?" or "What is the rationale for that point?"

As a speaker, it is important to always strive to keep the audience engaged. Once the audience starts to question where the talk is going, their attention is no longer on the speaker which leaves room for them to get lost and not be able to follow the logic of the talk. Good speakers anticipate questions and imbed answers to foreshadowed questions as they move through their presentation. Moreover, excellent speakers will often ask the audience a question; it might even be a rhetorical question to get the audience to engage and interact with the speaker. This technique can build energy and excitement that holds the audience's attention and interest.

Structure

Just like academic papers, oral presentations need to have a structure—a beginning and an end. To assist the audience in following the oral presentation, best practices include starting with an overview. An overview lets the audience know where the presentation is going and what the main point or points of the talk will be. A speaker should always think about what they want the audience to take away from the talk, which will translate into the main points.

In general, audiences can recall three main points without difficulty. If there are more than three main points, they better be ones that are *really* memorable. To assist the audience, a speaker could start by saying, "Today, I am going to cover three main points." Then, state what each point is by using transitional words such as "First," "Second," and "Finally."

For research focused presentations, the structure following the overview is similar to an academic paper. Typically, it begins with a brief literature review or background that sets up the problem or idea that is being presented. Additionally, the background is where similar research or controversies are discussed. Following the background, the speaker usually discusses the current research study design, methods, results, and summary or discussion. The summary or discussion is an opportunity for the speaker to provide the implications of the presentation by translating the findings into clinical practice or future research ideas.

Taken altogether, the structure of an academic presentation can best be described by the following steps: (1) *tell the audience what you are going to say* (i.e., overview); (2) *say it* (i.e., background, design, methods, and results); (3) *summarize what you said* (i.e., discussion); and (4) then *translate what you said* into practical application or future research (i.e., implications).

Confidence and Cadence

An oral presentation is a performance. As noted earlier, the speaker must engage the audience, and a conversational style of talking is the best way to engage a listener. To be comfortable using a conversational style, the speaker must have confidence. In broad terms, building speaker confidence requires knowing the topic, practice, and receiving positive feedback on the presentation.

In specific terms, confidence can be increased by paying attention to speaker and learning styles.

How a speaker moves while speaking can impact an audience. Standing in one spot is typical for academic presentations, but for some speakers, moving around and making eye contact with the audience feels more comfortable. Importantly, no matter if a speaker is still or moves, a speaker who looks out into the audience, making eye contact at each side of the room, including the middle, increases audience engagement.

In addition to speaker movement, a speaker's voice can be used to affect an audience. The inflection or timing of a speaker's voice provides a rhythm or cadence to the presentation that can draw a listener in. It provides character to a presentation that makes it interesting. An important aspect of cadence is how a speaker starts and ends a presentation. Some speakers like to start bold with a question, while others build up to a bold statement. This is where a speaker's style comes in, and it is a matter of preference. Generally, starting out bold and capturing the audience immediately is a good strategy for holding their attention throughout the talk.

Audiences appreciate presentations that start and end when they are supposed to. Speakers can create an unnecessary distraction for the audience by fast forwarding slides because of a lack of time or because the slides are irrelevant to the current talk. To prevent this from happening, take the time to prepare before the presentation, and make sure *every* slide is necessary and amplifies the point that is being made. Ending a talk when the audience wants more is always a winner— think encore! These are the talks that when they end, the audience's hands fly up to ask questions which continues the conversation.

Learning Style Preferences

Recall is dependent upon attention, and it is always the speaker's task to hold the listener's attention so that the main thesis or points of the presentation are not lost. This can be difficult when speaking to diverse audience members who have different learning style preferences. For example, some individuals prefer visual, some auditory, some written, and others demonstrative or interactive content. This does not mean that they need that style to learn, but it is a preference [1].

For speakers, understanding different learning preferences is important because engaging an audience using different styles will keep the audience from getting bored. It will also leverage the fact that different people prefer different styles, which increases the probability of getting more of the audience, if not all of them, engaged in the presentation. Therefore, important points in a presentation should be amplified with data, stories, visual, audio, or demonstrative illustrations. This is an effective way to bring the information to "life" by capturing the listener's attention using different style preferences of learning.

Practice

Excellent speakers are made, not born, and like any skill, speaking requires practice [2]. Research indicates that it takes approximately 10 years or 10,000 hours of intense training to become an expert who can deliver superior performances that are repeated over time [3]. Importantly, practice without expert feedback or coaching will not lead to excellent performance because the learner will not instinctively know what to correct to improve performance. Therefore, an essential component of becoming a good speaker is getting feedback on your speaking style so that you can learn what is engaging and what is distracting about your speaking style. Once a speaker knows the strengths and challenges of their style, they can build on their strengths to create a captivating presentation.

For most speakers, practicing the presentation out loud is a good strategy because it allows the speaker to get comfortable with the sound of the presentation and creates an opportunity for awkward phrasing to be reworked. Practicing out loud also helps the speaker to develop "a sense of time." Often speakers' perception of time is different from that of the listener. For example, 1

second to a speaker may seem like several seconds whereas it seems like only 1 second to a listener. This tends to show up when a speaker needs to deal with silence.

Verbal "ums," or "uhs," to fill space are distracting and can reduce an excellent talk to a mediocre one. Allowing the silence and then moving to the next point takes focus and practice and increases a speaker's confidence by minimizing the fear of silence. Likewise, if the speaker misspeaks or makes a mistake, a quick correction and movement to the next point is barely remembered by the audience. In contrast, the use of "ums" and other fillers while dealing with a correction highlights the mistake and draws a listener's attention to it longer than is necessary, which results in it being remembered long after the talk is over.

Practicing in front of others or a mirror enables the speaker to become aware of their nonverbal communication. Too many hand gestures, facial expressions, or body shifting can be distracting. If you find that it is difficult to keep your hands or arms still, put a hand in a pant pocket, hold a pointer/pen, or hold onto the podium with one hand. Using hands to speak is a combination of style and habit. Speakers can practice talking and not using their hands even when they are not giving a presentation by being mindful of where their hands are and how they are using them to communicate. Importantly, a well-timed hand gesture for emphasis or illustration can be an excellent punctuation to a speaker's point. The key is for speakers to be thoughtful and deliberate in their body movements in relation to their presentation.

Dealing with Speaker Anxiety

Anytime an individual has to perform in an evaluative environment, there is going to be some level of anxiety. This is normal and even necessary. An optimal level of anxiety provides energy, while too much anxiety becomes overwhelming and will impede performance. There are ways to manage the emotional response to anxiety such as diaphragmatic breathing, regular exercise, restful sleep, hydration, and good nutrition [4]. In addition to these strategies, there are some strate-

gies specific to public speaking that can assist in reducing speaker anxiety. Previously, eye contact was discussed as a marker of confidence. However, anxiety can prevent a speaker from making good eye contact with the audience. If making eye contact is too anxiety provoking, a good strategy is to look at the top of the audience members' heads. It will look like the speaker is making eye contact and will engage the audience just as if the speaker was, in fact, making eye contact.

Another strategy that can help to reduce speaker anxiety is to find an audience member who is reinforcing to speakers—the one who nods and smiles—and speak to that person periodically throughout the presentation. Often worrying about something "going wrong" or "looking foolish" is a cause for speaker worry. To deal with this type of worry, speakers should focus their attention on the message or points they want the audience to take away from the presentation.

There will be plenty of time after the presentation to hear from the audience, so it is important not to "imagine" what the audience is thinking when the truth is, there is no way to really know unless they are asked to say what they are thinking. For example, it can be easy for a speaker to assume that someone walked out of a talk before it was over because they were not pleased with the presentation. However, it could be that the early exit was because of a time conflict or some other matter that needed to be attended to that had nothing to do with the presentation. So, speakers should not try to guess what is going on in an audience member's mind. Instead, the speaker should focus on making sure those who are in the audience leave with the speaker's main points. The point of an oral scholarly presentation is to disseminate information that advances academic knowledge and practice (see Words to the Wise for oral presentation tips).

Always prepare for a technical glitch. If slides or some other computerized media are being used, it is a good idea to print out the slides in case the computer is not working. If possible, giving handouts to audience members is also a good idea. Remember as the speaker, you are the expert. No one knows what you are going to say

or what you intended to say. So, if you leave something out, do not apologize or get flustered. You can always bring it up during the question and answer phase of the presentation.

Reframing feelings of anxiety from nervousness and fear to excitement and fun can also assist in calming nervous energy [5]. It is important to realize that giving an oral presentation takes energy and time, so allow plenty of time to prepare and practice the presentation. In fact, the most effective way to manage speaker anxiety is through preparation and practice. The more practice a speaker gets, the better they will become at delivering a message across diverse audiences. As speakers become better, they receive positive responses from audience members which increases confidence.

In summary, knowing the audience, preparation, and practice will increase one's ability to give an excellent academic oral presentation. Effectively managing the time allotted for the talk is important because people will remember how a talk began and how it ended more so than what was said in the middle. However, great talks capture the audience's attention by leveraging different learning style preferences to ensure that all parts of the presentation are remembered.

An important part of developing an academic career is being able to give scholarly presentations. The more an individual practices, the better speaker they can become. Developing effective speaking habits and crafting one's individual speaking style are skills that most faculty in academic medicine centers will need to devote some time to mastering. The rewards for becoming a good speaker include the ability to build a solid, academic reputation and the ability to share ideas with other scholars. Indeed, excellent speakers have the potential to shape the way people think about and interact with the world they live in.

Words to the Wise

- Pick a topic you know well.
- Know the audience.

- Structure the talk.
- Speak in a conversational style.
- Provide an overview.
- Engage the audience by attending to different learning style preferences.
- Start bold, with a question, example, or case study.
- Anticipate questions and answer them in the presentation.
- Amplify important points with visuals or stories.
- Be mindful of the timing of the presentation so that no part of it is rushed.
- Start and end on time.
- Deal with speaker anxiety.
- Practice, practice, practice and then practice some more!

Ask Your Mentor or Colleagues

- Are there seminars or workshops available at our institution that I can take to learn to be a better speaker?
- Are there speaking opportunities in the department that would allow me to get feedback on my presentation style?
- Can I get feedback on my PowerPoint slides that I developed for a talk I am giving?

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Part VI

Developing Administrative Skills

How to Think About Money in Academic Settings

Marcia J. Cohen

The Different Colors of Money

Every organization requires money to pay its expenses. In medical schools, the revenues come from a variety of sources, and each of these sources typically has an important set of designations or restrictions which must be followed in how the funds can be expended. Finance managers and administrators are careful to spend funds in accordance with each fund's designations and restrictions to avoid time-consuming rework, costly overruns, or loss of future funding. Understanding in advance the "color of the money" will help faculty avoid these pitfalls.

Funds may be *designated* to the exclusive use of an individual department, division, program, or individual faculty member. Funds may also be *restricted* to be used only for specific purposes, such as funds restricted by a donor to be used to support cancer research or research grant funds to be used only for the project purposes described in the grant proposal. The following paragraphs describe the major types of revenues in medical schools and their distinctive designations and restrictions.

Clinical Revenues

Typically, the largest source of funds in a medical school is the clinical practice of the faculty physicians who provide patient care in affiliated hospitals and clinics. In FY2017, 62% of the revenues at the 139 accredited schools of medicine came from patient fees and medical center support [1]. Even at the largest *research-intensive* medical schools, the faculty clinical practice generates 40–60% of total revenues [footnote AAMC/LCME data]. In some academic medical centers, the faculty practice revenues are controlled through a separate nonprofit faculty practice organization, which issues paychecks directly to faculty for the work performed through the faculty practice. In other academic medical centers, the academic departments receive the clinical revenues for their faculty's activities related to patient care and medical direction. These clinical revenues are controlled by departments and divisions and are used to support the compensation of clinically active faculty and a portion of department and division administration. These revenues are usually designated to the departments whose faculty earned them.

Clinical revenues are the least restricted of medical school revenues and can be used to cross-subsidize nonclinical activities, including education, research, infrastructure, and administration. Thus, clinical revenues are the source of the infamous *Dean's Tax*, a tithing from clinical

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revenues to support the infrastructure and investment of the school's dean's office. The Dean's Tax rates, set by the medical school dean, range from 3% to 11%. The Dean's Taxes typically are used to shift revenues from larger or more profitable clinical departments to activities such as education or research, which are not entirely self-supporting. Departments and divisions also retain a portion of clinical revenues to support the administrative activities associated with clinical operations and with residency and fellowship programs.

Research Revenues

The second largest source of revenues in a medical school is usually sponsored research revenues from research grant awards and contracts. These revenues are designated to a specific individual faculty member, called the *principal investigator*, and are highly restricted—they must be used to support the research plan described in the proposal and in accordance with the approved project budget and the terms of the grant or contract. They must also be spent in compliance with university policies governing sponsored research and with government agency policies, if the source of the funding is governmental.

There are two major categories of revenues in most research grants and contracts. The *direct revenues* constitute the larger component of the grant and contract and are used to cover the expenses associated with the research program described in the proposal. These direct expenses include a portion of the salary and benefits commensurate with the percentage of time spent on the project by the investigator(s), postdoctoral fellow(s), and other research staff, plus any materials, supplies, and equipment associated with the research project.

The second category of research revenues is the *indirect revenues*. The indirect revenues are calculated as a percentage of the direct revenues, at a rate, called the *indirect cost recovery rate*, negotiated between a federal agency or the sponsor and the institution of the investigator. Indirect cost recovery rate negotiations between institutions and government agencies are conducted every 2–3 years and are based on the actual costs incurred by the institution for the infrastructure and administrative overhead of research activities. Typical expenses included in the indirect cost calculation are, among others, expenses, utilities, space maintenance, accounting and research administration units, information technology, libraries, and interest and debt service for research buildings and equipment. Typical indirect cost recovery rates at large research-intensive medical schools range from 40% to 69% for sponsored research. The average rate for accredited medical schools was 54.39% in 2017 [2]. Rates for instructional grants, including training grants, are usually 10%. Private foundations and other nonfederal research sponsors may allocate no funding for indirect costs or offer the institution a reduced rate of up to 10–15%.

These indirect revenues are retained by the university, or allocated to the medical school, to support the infrastructure costs of research. Once received by the organization, the indirect research revenues can be repurposed and reallocated for other unrestricted purposes, such as support for research cores or investments in new programs.

Sponsored research grants and contracts are awarded to the institution of the principal investigator. The institution accepts the awards or enters into the research contract agreeing to administer the funds in accordance with the sponsor's terms and conditions. Medical schools or their parent universities are careful to administer the awards in accordance with these rules because a major infraction can bring sanctions across all the institution's research awards from that agency.

State Funds, Operating Budget Allocations

Most medical schools receive an allocation of revenues for general operations either from state funds, if they are a public institution, or from the parent university, if a private institution. The state funds and university allocations are often reallocations of the tuition revenues received from medical students. These funds are primarily

intended to pay for teaching and education program direction but are usually unrestricted and are also used to fund administrative support for teaching programs and faculty. A variety of formulae are used to allocate these funds to academic departments. Sometimes based on historical budget lines, many medical schools are revising their allocation formulae to track more closely the teaching effort of faculty. Even in major public institutions, the percentage of medical school revenues is small—in the range of 5–10% or less. In many new medical schools, tuition revenues are a primary, if not *the* primary source of revenue.

Expendable Gift Revenue

Philanthropy comes in two distinct types—gifts, which are intended to be spent entirely, and endowments, which are invested by the institution and generate annual income for the donor's stated purposes (more on endowment income below).

Gift and endowment revenues are usually restricted and designated. The donor specifies the purpose(s) of the gift and often targets specific faculty recipients who will control the expenditure of the funds in accordance with the donor's intent. For example, a typical gift designation might be, "For the purpose of Dr. X's research program in acute lymphocytic leukemia." Gift funds often come through the institutional or the school development officers who work with the donor to craft a suitable donor agreement to ensure that the donor's wishes are adequately documented. Gifts typically fund only the direct costs of programs or services (see above discussion of direct costs under research revenues) but may also be general enough to cover the costs of administering the program or other closely associated infrastructure costs, such as equipment or space.

Foundations and individual donors that seek to make large gifts typically request proposals outlining the plan and budget for how the gift will be expended. Most medical schools and parent universities have an administrative official who reviews all gifts to ensure that the funds coming into the institution are clearly categorized as "gift" or "grant." The lines distinguishing gifts and grants are blurry, but gifts do not typically require scientific or financial status reports, nor do they require the return of unexpended funds, as grants often do. Grants are charged indirect cost recovery and administered more closely to ensure that the budget is followed.

Donors do not typically require follow-up to ensure that funds have been spent in accordance with their wishes, nor do they specify a time horizon for the expenditure of their gift funds. But if they do follow-up, institutions want to be able to demonstrate that the funds have been used well—to encourage more philanthropy from that donor and to avoid any appearance of impropriety, which may affect other giving.

Changes to the restrictions on gift funds are difficult but not impossible. Institutional officials may contact donors to request a change in the restriction or designation. If the donor is deceased, then they may approach the donor's descendants. If no family is alive, the institution may petition the court to change the restrictions. There is a risk to each of these avenues for changing restriction—the donor, his or her family, or the court may decide that the institution can no longer carry out the donor's wishes, or the alternative proposed is not worthy, and instead of changing the designation, the court can withdraw the funds from the institution.

Endowment Income

Donors with the means to make large gifts may consider donating an endowment. Similar to expendable gifts, donors place restrictions and designations on these endowments. Because of the large size, endowments are usually set up to support an entire research or education program or a professorship. The size of a professorship is set by the institution (usually $2 to $4 million) and is awarded to a faculty member to support his or her compensation and benefits and associated costs, such as administrative support and research expenses.

The initial money received for an endowment is called the endowment *principal*. Institutions pool individual endowment principal into larger pools for the purpose of managing these investments. The size of the endowment and its annual income is based on the number of shares "purchased" in the merged endowment pool and the average share price when the original endowment was established. The institution's governing body (e.g., the Board of Trustees) sets the annual income per share, which is typically in the range of 4–6% of the current value of the endowment.

Once the endowment has been established, the value of the endowment principal can increase and decrease based on the results of the investment returns of the merged endowment pool. The original (or "permanent") endowment principal cannot be spent, but growth in the endowment that has accumulated over a number of years may be "invaded" if required to pay out the annual income set by the governing board. The current value of the endowment principal is reported at its current *market value*, and the annual income per share is typically set at a percentage of the market value at a specific point in time.

Institutions can also establish another type of endowment, called a *quasi-endowment* or a *fund functioning as endowment* (FFE). Universities, medical schools, or departments may establish these quasi-endowment funds to ensure an ongoing annual stream of funding for a specific purpose. These endowments follow all the same financial rules as regular endowments, but the endowment principal may be liquidated by the institution if financial needs change.

Other Miscellaneous Unrestricted Funds

Medical schools and departments have a myriad of other possible unrestricted revenues. These revenues include patent royalties from the licensing of faculty intellectual property, sales of special education programs and services, and revenues from auxiliary enterprises, such as fees generated from conferences, recreation facilities, rental properties, and contracts for special clinically related services at offsite locations.

Often these extra, unrestricted revenues are important sources of subsidy for education and research programs, pursued vigorously by department or school leadership and carefully guarded to provide flexibility in covering the inevitable deficits and meeting financial commitments.

Fund Accounting

With so many different types of revenues, how do accountants track the restrictions and ensure appropriate expenditure of these funds?

Accounting systems in academic medical centers are based on principles of "fund accounting." Each unique revenue source (e.g., the clinical account for the surgical oncology faculty practice, the NIH grant for Dr. X, or the gift from Donor X for arthritis research) is set up as a separate fund which has restrictions recorded somewhere in the institution's financial records. Individual funds are given unique identifiers, including letters and numbers (e.g., ABDC-55057-123). Expenses are charged to individual funds using this unique identifier.

All expenses, including employee compensation, equipment, and supplies, must be charged to at least one fund. However, many expenses are split based on responsibility and charged to more than one fund because the expense benefitted more than one program area. For example, the salary of a faculty member who spends 1 day in her surgical oncology clinical practice, 1 day teaching medical students, and 3 days on a sponsored research program may be expensed as follows:

- 20% to the fund for surgical oncology's clinical practice
- 20% to the fund for the surgery department's operating budget
- 60% to the fund for the grant supporting the research program

At the end of each month, quarter, and fiscal year, financial reports detailing revenues and

expenses for individual funds can be prepared to ensure that expenses do not exceed revenues. Monthly or quarterly review of financial reports is typical for all funds that are being actively spent. Many departments require projections of future revenues and expenses based on historical spending patterns through the end of the fiscal year or program period. Due to the restrictions on how individual funds can be spent, this active monitoring of revenues, expenses, and future projections is key to inform faculty and academic leadership of potential problems ahead, while there is still time to contain costs or search for alternate sources of funds.

Annual Budgeting

Medical schools, through their department and program units, prepare annual budgets of expected revenues and expenses in the coming fiscal year. This annual budget process is important for a number of reasons, including the concomitant budget negotiations that occur between dean's offices and departments, between hospital(s) and school, and between university and school. At the department level, one of the important objectives of the annual budget process is to estimate the costs of faculty compensation (usually the largest expense component) and the sources of funding in the coming year. Faculty may be queried about their outstanding sponsored research proposal pipeline, and the likelihood of new research awards, as well as the amount of time in patient care activities. At the department level, balancing the projected costs with projected sources of revenues to achieve at least a breakeven or better for the next budget year is the responsibility of the department chair along with the business manager. This is often done in conjunction with salary setting for the next year, since in most medical schools, awarding salary increases is dependent upon having available funds to support higher salaries.

Faculty members should find out when and how the local budget process is performed. Preparing any requests (such as those for new program initiatives) months in advance of the upcoming budget cycle will provide more opportunity to have the requests considered in the budget projections. Presenting requests in categories that fit the department or school budget format may also be helpful, for example, salary and benefits for each employee and itemizing non-salary expenses in the appropriate categories (telecommunications, materials and supplies, and meals and entertainment are typical categories in these budgets).

Commitments and Commitment Tracking

In addition to the annual budget process, most schools and departments track the commitment of funds that may span multiple budget years. Typical commitments include start-up funding for a new faculty's research program, a percentage of faculty salary over multiple years to provide specific services, or support for part of an equipment purchase if the investigator is successful in obtaining grant funding for the remaining costs.

If medical school or department leadership makes a financial commitment to you, you should ensure that the commitment is clearly stated in writing, and a copy is provided to the department business manager. At a minimum, it is good practice to estimate the total dollar amount of the commitment, estimates of annual allocations (which will facilitate budgeting), and what types of expenses will be covered by the commitment. The commitment may also be time limited, for example, the chair commits $50,000 per year for 3 years to support a new research program; any remaining funds not spent at the end of 5 years will return to the chair. This clarity incentivizes the expenditure of the funds and avoids unnecessary and unpleasant wrangling about remaining fund balances. At the end of each year, it is good business practice to provide faculty with the remaining balances in commitments. Most schools and departments wish to honor all commitments, including those promised by previous administrations. However, faculty can assist this process by seeking clarity in writing for all

commitments and requesting annual reconciliations of remaining balances.

Clinical Funds Flow

Funds flow is the common term for the methodology governing how money for patient-related services provided in the hospital or clinics is passed to the faculty practice plan or the clinical department, if there is not a separate faculty practice plan, or from the faculty practice plan to the clinical department.

The most common *funds flow* method is that the entity that bills for the physician professional fees passes all revenues collected from these bills to the entity responsible for paying the faculty physician compensation. Often there are carve-outs before the revenues are passed for expenses, such as billing fees and other management services, the Dean's Tax, and the costs of clinic expenses related specifically to faculty practices.

Another *funds flow* method used in medical schools is based on physician payments per work RVUs, where the payment rate per work RVU is negotiated between the hospital and the school or department. Academic medical centers are also adding incentives and disincentives to these payment methods for patient satisfaction scores and quality measures.

Another component of funds flow is the support payments, typically from the hospital to departments, for medical direction or on-call coverage services provided by faculty physicians. Hospitals may also backstop the costs of new physician recruitment; typically, these last for up to 3 years, during which time the new physician builds a practice to a level that is self-sustaining.

Conclusion

Medical schools and departments are funded by a variety of revenue sources, each with unique designations and restrictions. Academic business managers and faculty leadership are careful to spend funds according to their restrictions in order to avoid costly rework and the potential of jeopar-

dizing future funding from government, university, or donor sponsors. The annual budget process brings this all together in a skillful balancing exercise to plan how the next year's projected revenues will cover projected expenses. Important to individual faculty or programs are commitments made by leadership that span more than 1 year. Having clearly written commitments is an important step in securing funding and avoiding future disagreements or disappointment. Funds flow is the common term for the methodology governing how money generated from patient-related activities is passed to the school or department. Funds flow methods differ at various academic medical centers but are typically based on the professional fees collected or on a payment-per-work RVU method.

Words to the Wise

- Plan your potential funding needs several years in advance to ensure that you will have the funds available to pursue your academic goals.
- Discuss your plans and potential fund sources with your department business manager.
- Include an annual inflation factor in future years.
- Understand the restrictions of the funding sources you have. Plan carefully how to justify the expenditure of any restricted funds provided to you, matching the expenses with the restrictions of the fund.
- If you are using gift or endowment income funds, establish a relationship with the donors and provide timely reports on your work and achievements. Your development officer(s) may help you with these relationships, and ultimately this may lead to more funding.
- Review your accounts on a regular basis, if not monthly, then at least quarterly.
- Work with your business manager or financial analyst to project future expenditures and plan ahead. Ideally, your efforts on a particular project or program will be completed when the funding runs out. Further, your ability to sustain programs with new sources of funding will be greatly enhanced through careful

financial projections and anticipation of when more funding will be needed.

Ask Your Mentor or Colleagues

- I am interested in understanding the major sources of revenues for our School of Medicine and for our department. Can you share with me the School of Medicine's annual financial report?
- Can you share with me the department's annual financial report and annual budget?
- From where do the funds for my compensation and program funds come? How much of the physician fees generated from my practice are returned to the department (division)?
- (If you have a start-up package) May I review with you the sources of funding for my start-up package? I would like to understand if any of the funds are restricted.
- With whom should I work on receiving regular financial reports on my accounts? Are

there any tips you have for understanding these reports?

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Suggested Reading

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How to Read a Basic Budget

David J. Peterson

Throughout the course of an academic career in medicine, faculty will inevitably be asked to review and even construct a budget. Such a review could be in the context of evaluating the financial health and performance of a departmental or an institutional program. If research is a component of the academic career and the faculty member is the principal investigator, co-investigator, or one of key personnel on a grant, the faculty member will most certainly need to build a budget and track its performance and may even need to review a budget as a member of a review committee at the local or national level. Developing an understanding of budgets, then, is an important skill set for the academic faculty member to acquire.

More than a page of numbers, budgets tell a story. Regardless of the context for this story—be it clinical, educational, or research—knowledge of a few basic budgeting principles will contribute to the faculty member's confidence and success in both telling and understanding the story. Budgets can tell the reader how a program will be supported (revenue) and how the funds will be spent (expenses). Within these broad categories, budgets provide detail about how the funds will be earned and spent and on what they will be spent. Once a budget is established and a pro-gram is initiated, budgets can help measure performance by comparing actual revenue and expenses to those that were expected (budgeted).

Budget Basics

Although the format, platform, or audience for a budget can vary, the reviewer can rely on a basic set of traditions, conventions, and principles when evaluating a budget. These "generally accepted" principles are found in a national set of standards identified as Generally Accepted Accounting Principles, or GAAP. GAAP rules ensure a level of standardization and include such principles as "sincerity, consistency, continuity, and good faith" [1].

In its most simple form, a budget identifies the resources a program will require to fund the expenses necessary to support the program's goal. Resources—revenue—can come from a variety of sources. For example, revenue can be a direct award of departmental, institutional, or agency funds; revenue can be drawn from philanthropy, public, or private sector grants; or revenue can be generated from professional fees derived from the clinical services or medical direction provided, to name a few.

Expenses are usually grouped into categories such as personnel costs (salaries), fringe benefits, general supplies and expense, equipment, and travel. Rent for the space the program occupies is

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often included in a budget except in the instance of federally funded and other extramural research where a factor for "facility and administrative" costs (also known as "indirect costs") is calculated on the total proposed direct costs in the budget. [Direct and indirect costs are described in more detail later in this chapter in the section labeled "A Federal Twist on Research and Other Program Budgets"]. Figure 1 is an illustration of a simple revenue and expense budget. Budgets are often accompanied by a narrative description, describing the overall intent of the project or program and justifying, if necessary, the revenues and expenses proposed.

All budgets identify the revenues and expenses of a project, program, or organization over a period of time. Time is generally measured as a 12-month period referred to as a "*fiscal year*." Fiscal years can start at any time during a calendar year, but as a general rule, once the fiscal year is defined, the start and end dates of the fiscal year need to be consistently followed year after year [2].

Fiscal years often follow the business cycle of the organization. In the case of academic medicine, the fiscal year is most often identified as the academic year, beginning on July 1 and ending on June 30 of the following year. For the federal government, the fiscal year begins on October 1, ending on September 30 of the following year.

For one-time projects that are shorter than a year, the budget period is usually defined as the duration of the project.

An important principle to follow when constructing a budget and reviewing a budget is the accurate identification and timing of the revenues and expenses attached to the project, program, or organization. This "*matching principle*," the pairing of the expense to the revenue within the same time period, ensures that the budget reflects all of the revenues and expenses and reflects a true profit or loss or the true cost of the project [3].

An example of an extreme violation of the matching principle (and other GAAP principles) would be purposely omitting expected expenses, artificially lowering the budget, inflating a profit, or minimizing a loss.

Matching revenues and expenses to the correct budget period is a principle of "*accrual accounting*," a practice that recognizes a revenue or expense for a given activity in the period it was incurred, regardless of whether that revenue was actually collected or that expense was paid. "*Cash-based accounting*" or its variants recognize a revenue or expense when the cash is actually collected or the expense is paid regard-

Fig. 1 Sample revenue and expense budget

Academic Medicine Department/Program
School of Medicine
University of State
July 1, 20XX - June 30, 20X+1

	Budget
Revenues	$ 135,000
Expenses	
Faculty Salaries	75,000
Staff Salaries	10,000
Fringe Benefits	25,500
Supplies & Expense	10,000
Other	5,000
Subtotal Expenses	$ 125,500
Total Profit (Loss)	$ 9,500

Note: Generally accepted practices in budget presentations include a descriptive header, the period that the budget covers, dollar signs at the beginning and after each line for a subtotal or total, and a double underline indicating a final total.

less of when the activity attached to that revenue or expense occurred [3]. For example, a service is performed in year 20XX, but the cash for that service is collected in 20XX + 1, the following year. Accrual-based accounting would recognize the revenue in 20XX, but cash-based accounting would recognize the revenue in 20XX + 1, the following year.

Medical group practices and medical schools often use a cash-based accounting method or one of its variants as the method to recognize both revenues and expenses [4].

Throughout the budget period, often quarterly if the budget period is a fiscal year, comparisons are made between actual performance and the budgeted performance. These comparisons result in "*budget variances*"—either a positive or negative indicator—highlighting the difference between what was budgeted versus what was actually realized, by revenue and expense category. An "actual versus budget" analysis appears in Fig. 2.

Finally, budget profits are identified as a positive number and in black ink (hence the term "in the black"), while budgeted deficits can be identified in red (hence the term "red ink"). A budget deficit is also often noted as a number bordered with parentheses, "($deficit)," or with a minus sign in front of the number, "-$deficit."

Reviewing Budgets

Academic faculty may be asked to construct and monitor their own budget, prospectively review other program budgets for approval, or be asked to evaluate an ongoing program's performance. Any of these reviews could occur in the education, research, or clinical program area.

Monitoring Individual Budgets

After the faculty member constructs a budget that captures all identifiable revenues and expenses attached to the project or program, monitoring actual performance against the budgeted, expected performance is essential. Ensuring that the revenue and expenses actually realized are occurring at the level and pace that was expected is critical to a program's sustainability and success.

Revenues that underperform budgeted expectations or expenses that exceed budgeted

Fig. 2 Sample actual versus budget comparison and variance analysis

Academic Medicine Department/Program
School of Medicine
University of State
July 1, 20XX - June 30, 20X+1

	Budget	Actual	Variance
Revenues	$ 135,000	$ 140,000	$ 5,000
Expenses			
Faculty Salaries	75,000	80,000	5,000
Staff Salaries	10,000	10,000	-
Fringe Benefits	25,500	27,000	1,500
Supplies & Expense	10,000	12,000	2,000
Other	5,000	4,000	(1,000)
Subtotal Expenses	$ 125,500	$ 133,000	$ 7,500
Total Profit (Loss)	$ 9,500	$ 7,000	$ (2,500)

Note: Variances can be positive and negative and care must be taken when evaluating variances on revenues and expenses. For example, a positive revenue variance would be "good" because the program has collected more revenues than budgeted. However a positive expense variance would be "bad" because the program has incurred more expenses than budgeted.

expectations jeopardize a project, often attract unwanted organizational oversight, and sometimes result in the premature termination of a project or program. Monitoring the budget on a reasonable periodic basis through a variance analysis, as noted in Fig. 2, allows the faculty member to make adjustments to the budget as needed to ensure that program remains financially viable. For example, if revenues are underperforming, a faculty member might need to lower expenses to remain "in balance." Conversely, if revenues are exceeding expectations, the faculty member might be able to expand the project, that is, increase expenses and still remain "in balance."

Evaluating Proposed Budgets

When prospectively evaluating a proposed budget, the faculty member can focus on at least two core questions, asking himself or herself the following:

Does the Budget Appear to Capture All of the Revenues and Expenses That Are Required to Do the Work?

Omitting expense items such as personnel salaries or the benefits attached to personnel would be one glaring omission. Inadequately budgeted supplies, equipment, or travel expense items will damage the project, if not addressed in the prospective review, and will result in unfavorable budget variances once the program has started.

Is the Budget Reasonable?

There can be several tests for reasonableness when evaluating a budget, and these include:

- Can the work be realistically accomplished within the period identified?
- Is there enough faculty and staff effort dedicated to the project, and has this expense been fully addressed in the budget? In academic medicine, personnel salaries and benefits often consume 60–70% of a budget unless large equipment purchases are part of the bud-

get. Consequently, the reviewer can ask, does the faculty and staff effort identified match the work proposed? Table 1 describes in more detail how faculty and staff effort is measured.
- Are the underlying assumptions supporting the budget reasonable? For example, is space available for the program, and has this cost been considered?
- If the budget is multiyear, are annual inflationary costs and performance increases for personnel included?
- If effort is expected to increase or decrease in the "out-years" (years beyond the first year of the budgeted project), has this change in personnel cost been included?
- If equipment or other purchases are expected in the "out-years," has this cost been included?
- Finally, do the revenues and expense budgets in the "out-years" generally reflect the work that is proposed?

Table 1 Measuring personnel effort

Annualized full-time faculty or staff effort is considered to be 2080 hours of work per year. When calculating an hourly rate of pay from an annualized salary, divide the annual salary by 2080. For example, a $50,000 annual salary will equate to a $24.04 hourly wage ($50,000/2080)
Faculty and staff effort (time) is usually measured in "*full-time equivalents* (*FTE*)" identified as "percents of effort" where full-time effort equals 100% or 1.0 FTE. Effort is usually evenly prorated; for example, half-time effort equals 50% effort or 0.5 FTE. Any portion of faculty or staff effort can be identified in FTEs and can range as low as 5% effort to 100% effort but never exceed 100% effort
For faculty and staff based in the Veteran's Administration (VA), effort is usually measured in eighths (1/8), where eight eighths (8/8) effort equals full time, 100% effort, or 1.0 FTE. Half-time work in the VA would be four eighths (4/8), equaling 50% effort or 0.5 FTE. Any factor of one eighth can describe personnel effort in the VA system
Federal grants measure faculty and staff effort in calendar months, where 12 months equals full time, 100% effort, or 1.0 FTE. Half-time effort would be identified as 6 calendar months or 50% effort and 0.5 FTE. Calendar months ranging from 1 to 12 can describe personnel effort in federal grant budget proposals

Evaluating Ongoing Performance

For evaluating another project or program's ongoing performance, the variance analysis as described in Fig. 2 is a useful tool. A review of the outcomes of the project or program and work performed will also likely accompany such a budget review, so the faculty member needs to be prepared to evaluate both "program and money" in such an instance.

If the budgets extend over more than 1 year, the faculty reviewer should observe if the revenues and expenses are "trending" appropriately. Ongoing budgets for mature programs often extend over multiple years. When faced with multiyear budgets, an evaluation of the upward or downward trends in both the revenues and expenses provides the faculty reviewer a meaningful picture of the financial health of the program and the sustainability of the program. For example, are the program's revenues appropriately growing, one indication of a financially robust program? Are expenses growing too fast in relation to the revenues, a condition that might indicate future challenges? Conversely, are revenues declining, indicating a struggling program? These types of questions and their answers, arising from a "*trend analysis*," can assist the faculty member in his or her review and budget analysis.

A Federal Twist on Research and Other Program Budgets

If fundable research is part of the faculty member's academic world, he or she will encounter a federal twist or two that affect how a research project budget is constructed and reviewed.

Federally funded research budgets include both "*direct*" and "*indirect*" costs (also called "facility and administration" costs or "*F&A*"). Direct costs are generally defined as "salaries and benefits, consultant services, travel, materials, supplies and equipment and communication costs directly attributable to the award or activity" [5]. Indirect costs "represent the expenses of doing business that are not readily identified with a particular grant…but are necessary for the general operation of the organization and the conduct of activity it performs" [5]. These indirect costs of federally funded research are funded by an "indirect cost rate" and are calculated on the direct costs of the research grant budget. The indirect cost rate is established through an institutional negotiation with federal government officials, and this rate is then referenced in all grant budget submissions.

In the simplest of examples, if the negotiated indirect cost rate is 50% and the direct costs of the grant total $100,000 annually, the indirect costs that accompany the grant will total $50,000 annually, for a total budget award of $150,000 annually.

Because of the indirect cost calculation, costs such as rent and other common institutional costs necessary for the conduct of federally funded research, which otherwise might appear in a proposed budget, do not appear in detail as part of the research project's direct costs. As such, reviewers need to ensure that proposed budgets only include the direct cost of the work and do not inadvertently itemize indirect costs—such as rent—as part of the proposed budget.

Also, limits on the total annual salary that can be allocated to a federal grant exist. Often referred to as the "federal cap" or "salary cap," these salary limits can change annually and are set at the federal level. Investigators need to be aware of these limits to ensure they are not exceeded and build budgets accordingly.

The federal government and other extramural funding agencies award grants throughout the calendar year, regardless of when the award falls within an institution's fiscal year. Consequently, grants can begin and end out of sync with the faculty member's fiscal year. In such instances, the faculty member needs to be cognizant of both the "grant year" and the institutional "fiscal year" when constructing and reviewing a budget.

Finally, as noted earlier and in Table 1, faculty and staff effort is measured in "calendar months" as opposed to "percent effort," another twist on budgeting for federal awards.

Conclusion

Reviewing a budget is a privilege the faculty member should welcome. Faculty members who are asked to review a budget are directly and indirectly being recognized for their expertise on a given topic, their experience with other projects, and their leadership in the academic setting.

Faculty will find more comfort and success when asked to review a budget by remembering some key principles and points such as:

- Sincerity, consistency, continuity, and good faith
- Completeness
- Reasonableness
- Properly matched revenues and expenses
- Budget variances
- Budget trends

Regardless of the venue or program area, consistently returning to these basic principles and conventions will help to ensure an informed faculty peer review of a proposed or ongoing budget.

Words to the Wise

- Line graphs, pie charts, and other visuals are effective tools to describe budget performance.
- Budgets are often accompanied by comments, and sometimes these comments can be more revealing than the budget itself. For example, a comment about negative trends or other forecasts might offset an otherwise positive budget picture.
- Attention to detail is important when building a budget. Columns that are mislabeled, periods that are misidentified, and budget numbers that simply do not add up cast suspicion on the entire product or project.

- The budget message gets lost in too much explanation. Keep budgets simple, concise, and accurate for maximum effectiveness.
- Success for department heads, program leaders, researchers, and other faculty with budget responsibility lies in clearly understanding the components of the budget.

Ask Your Mentor or Colleagues

- What is the impact on the budget and on the project when no allowance for inflationary increases is calculated after the initial year of the project?
- How does an investigator account for salaries that exceed the federal cap? Who funds the salary gap between the cap and the actual salary?
- Is a profit allowed in a federal grant budget?
- How does the indirect (F&A) calculation affect a project's budget?
- Is there ever an instance when revenues will exactly match the expenses?

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How to Negotiate

Mickey Trockel and Nikitha Menon

Our experience has taught us that with goodwill a negotiated solution can be found for even the most profound problems. –Nelson Mandela

Introduction

To negotiate is "to confer with another or others in order to come to terms or reach an agreement" [1]. The goal of negotiation is to reach an agreement, and the basic process of negotiation is back-and-forth communication. Within this basic definition of negotiation lies a myriad of strategies, methods, and underlying goals, pressures, and ethical assumptions driving a large range of negotiation styles. A great number of faculty find themselves underprepared for negotiation—with insufficient knowledge of and skills in this process [2, 3]. Women in academic medicine may be less likely to view negotiation as important in career opportunities compared to their male counterparts [2]. Long-standing disproportionate gender representation in career advancement and leadership positions [4–6] suggest particular importance of offering negotiation skills training

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and coaching to women in academic medicine. All faculty are likely to benefit from mastery of negotiation skills. An unenlightened perspective of negotiation may pigeonhole negotiation styles as hard or aggressive versus soft or passive or somewhere in between. Aggressive negotiators place high premium on the goals they are trying to obtain and discount the relationship costs incurred by doggedly digging in their heels to defend the position they presume paramount. They are inflexible and do not give in to compromise.

Imagine a department head embracing this negotiation style when approaching senior faculty to discuss the need to increase revenue in order to rectify the department's precarious financial state. She may approach a negotiation with faculty as an opportunity to convince them of the necessity and urgency to implement her proposal to increase the number of patients each faculty member must see in a week. When other faculty members suggest the correct strategy is to increase research funding and engage in more fund-raising, she may feel her position of authority is being challenged and articulately discount these options as too slow, and then comment: "The best academic physicians welcome increased opportunity to help patients, and are able to do good research at the same time. Others aren't yet as motivated, but we can help them come around." Her comment implies that those

who oppose her perspective are lazy. The more others suggest opposing views, the more articulately and passionately she discounts them and the integrity of their authors. If she continues with her approach to negotiation and is eventually able to implement her plan, at least some of her faculty members are likely to begrudge the change and will look for an opportunity to defeat her or to get a new department head if they have the opportunity to do so.

Now imagine another department head with the same circumstances who embraces the opposite negotiation style: passive acquiescence to win favor with faculty, discounting the integrity of a viable solution to his department's financial problems. Although nobody is wildly enthusiastic about his proposal, some faculty are openminded, understand the financial constraints, and are willing to give his plan a try. These members of the faculty remain silent when he proposes his plan to require every faculty member to increase clinical revenue from direct patient care. Others are visibly upset and insist on finding another solution. Those who oppose an increase in clinical revenue targets propose an alternative strategy of increasing department acquisition of NIH research funding. The department head is acutely aware of the risky business plan of betting the department's current fiscal integrity on uncertain funding that will take at least 1 year to procure, even if a well-executed increase in grant writing is perfectly implemented. However, he feels his relationship with faculty who oppose his views is of primary importance and wants to win points with them by giving their plan a try. Unfortunately, these points are likely to be far spent if a year later he must propose more drastic measures, such as a pay cut or increased work hours, in order to balance a then-drowning department checkbook. And the dean may try to get a new department head if she has the opportunity to do so.

Most negotiations in any context and virtually all negotiations in academic medicine occur within longer-term interpersonal relationships and organizational structures. Both aggressive (hard) and passive (soft) negotiation styles are increasingly problematic in this long-term

interpersonal relationship and organizational context. Any negotiation style that pits goals of getting what one wants from others against collegial relationships and organizational integrity has no place in academic medicine. Negotiation is not a zero-sum game, and negotiators in academic medicine should strive toward positive-sum outcomes in which benefits accrued are not at the detriment of the other party or the relationship [7].

Foundations of Principled Negotiation

The enlightened view of negotiation is not the halfway point between the dysfunctional aggressive and passive extremes. Rather, an enlightened view of negotiation simultaneously and entirely embraces the principles that protect the interests driving the negotiator's participation in the negotiation (respect for self) and those that uphold the importance of treating people—including opposing negotiators—with dignity, empathy, and equanimity (respect for others). Effective negotiation is grounded in mutualism, communication, preparation, self-knowledge, and self-observation. Our description of principled negotiation in this chapter leans heavily on a classic book on this subject—"Getting to Yes: Negotiating Agreement Without Giving In" [8]. We focus our discussion on the application of principled negotiation strategies in the context of a career in academic medicine. Adherence to these principles will increase your chances of good outcomes, both in the negotiation itself and the involved interpersonal relationship.

Separate Relationship Issues from Negotiated Issues

The weightiest outcome in most negotiations is the effect of the negotiation interaction on the long-term relationship of the negotiating parties. The specific issue at hand being negotiated will usually pale in comparison. In a negotiation over who gets a vacant cubicle of office space, a senior

professor may be able to use his "rank" as the winning determinant of space allocation, overriding a more junior colleague's actual need driven by her current space limitation requiring three research assistants to share one cubicle. However, the cost of playing the "rank card" with no principled negotiation may be that subsequent collaboration with the more junior colleague will be soured or perhaps not even possible without some effort to repair the relationship damage. Six months later, when the department head announces a plan for construction of a new facility that solves critical space limitations for everyone, the victory over a single-cubicle stewardship becomes even hollower, while the relationship loss remains. Even when negotiating seemingly critical issues such as a new academic appointment, the relationship between the negotiators will usually prove to be the most important long-term outcome of the process. Failure to recognize the importance of relationship factors can lead to bruised egos, inability to reach an agreement, resentment, and retaliation harmful to both parties. Nevertheless, placing a premium on relationship outcomes does not require dismissal of the substantive problem being negotiated.

It is essential to separate relationship issues from substantive problem issues that may be solved by negotiation. It is almost always possible to strive for positive relationship goals and substantive problem-solving goals, without losing sight of either in the negotiation process. If the professor discussed above had given due regard to his relationship with his more junior colleague, he may have taken time to explain the fact that he was anticipating a new center grant which would require extensive staffing while making an effort to understand his colleague's critical space needs.

When preparing for a negotiation, first decide on the relationship outcome you want to achieve; then decide on the specific issue outcome you want to achieve. During this planning stage, it is often useful to learn what you can about your negotiation partner's needs, ambitions, and circumstances. Then, practice arguing the issues you plan to negotiate from the vantage point you believe represents your negotiation partner's perspective. Keep in mind your negotiation part-

ner's basic human needs for safety, social support and love, respect, autonomy, and mastery [9]. Then, reflect on your needs, ambitions, and circumstances. Thoroughly reflect on the question: "Why are the relationship and the specific negotiation outcomes important to you in this negotiation?" After you have reflected on your negotiation partner's interests and yours, you will be far more prepared to work toward protecting both.

Identify Interests Rather than Fixate on Positions

Focus on interests underlying hoped for negotiation outcomes makes it easier to achieve an agreement while respecting the long-term relationship between negotiators. Conversely, focus on positions pits the needs of one party against the other arbitrarily and makes it difficult to separate the specific negotiation problem from the people involved in the negotiation.

To illustrate some of the pitfalls of focus on positions, consider the failed negotiation between a psychiatry department head and an applicant she was trying to recruit to fill an open associate professorship in her department. The department invested approximately $3000 to fund the interview and site visit, in addition to dozens of hours donated by faculty and support staff spent on the process. The department head carefully examined the financial position of the department, including the compensation amount current faculty in her department were receiving. She determined she could offer $219,000 to the applicant, with no flexibility to negotiate for a higher salary. The applicant, aware he may be receiving an offer, carefully considered his current salary at a more prestigious and much larger institution where he was an assistant clinical professor. He calculated his "bottom-line" salary by considering his current salary and his current call schedule compared to the call schedule he had learned he would assume at the university wanting to recruit him. His current salary was $195,000, to which he added $50,000, to represent the value he placed on being on call once per month at his

current larger institution, compared to the once per week call he would have at the smaller university department. However, he wants to move to the new location—at least in part—because his fiancée has just accepted a very lucrative job in the area. Here is how the short telephone negotiation went:

- *Department head*: "We would like to offer you the associate professor position with our department. I can offer you $219,000 and the standard benefits package we have talked about."
- *Applicant*: "I liked what I saw when I came to visit, but I was expecting a more attractive financial offer."
- *Department head*: "How much were you hoping for?"
- *Applicant*: "Based on my current salary and circumstances, I'm hoping for $258,000."
- *Department head*: (Taken aback by that figure as it exceeded her own salary by about $5000). "While we would like you to join our faculty, unfortunately, we really can only offer $219,000."
- *Applicant*: "My bottom line is $245,000."
- *Department Head*: "I really can't offer you more than $219,000."
- *Applicant*: (Surprised at the department head's inflexibility) "Can I sleep on it and call you in the morning?"
- *Department head*: "Sure. We'll look forward to your call."

The next day, the applicant feels he cannot accept the offer based on the principle that "to take a pay cut would be a career-backslide." He calls the department head and graciously declines the offer. Although simplistic, this brief dialogue illustrates some of the problems inherent in a negotiation focused on positions. The department head does not arrive at an understanding of the applicant's interests in obtaining compensation he deems equivalent to his current position with another university at a lower academic rank, adjusted for the difference he perceives in call frequency. Nor does she arrive at an understanding of the high monetary value the applicant

has placed on having a lighter call schedule. The applicant does not seek to understand the department head's motivation in recruiting him nor her interest in fairness to other faculty and the financial integrity of the department. Neither is happy with the brief negotiation outcome, and both were left with somewhat more negative views of each other following the negotiation impasse.

The outcome may have been different if both the applicant and department head had focused on the interests rather than on inflexible positions. The department head may have asked questions such as the following: Although you would be on call more frequently here than where you currently work, how do you think call nights here compare with call nights where you are now? What do you feel you are giving up if you are on call once per week versus once per month? How does pressure to publish papers where you are now compare with the goal of one paper every 2 years in our department? What besides salary and call schedule weigh in to your decision?

The applicant may have disclosed the way he arrived at his bottom-line salary calculation by considering his interests in compensation and in a light call frequency. He may have asked the department head questions such as the following: What keeps you from being able to offer more? What besides affordable compensation do you consider important to the department when you negotiate a new academic contract with an applicant? What about me in particular do you consider valuable enough to your department to offer me this job? After discussing the answers to these and other questions focused on both parties' interests driving their part in the negotiation, the applicant and department head will be well positioned to move forward. Specifically, armed with understanding of their own and each other's interests, they will be able to work together to creatively think of ways to meet those interests within the financial and other organizational constraints framing their effort to reach an agreement about compensation and other details of a new appointment contract. In addition, sincerely seeking to understand each other's interests will facilitate early relationship building that may benefit both directly as they

work together following agreement on the terms of a new academic contract. Even if the applicant does not join the department head's faculty, the more thoughtful negotiation process is likely to lead to better feelings on both sides of the negotiation table that could pay reputation dividends later in the relatively small world of academic psychiatry.

Identify Several Mutually Beneficial Options Before Deciding

A creative search for solutions that would serve both the department head's and the applicant's interests may make it possible for both to benefit significantly. Would the applicant (board certified in forensic psychiatry) consider doing some forensic psychiatry consultation for the department to justify a pre-negotiated stepped increase in salary contingent on his revenue productivity? Could a night-shift hospitalist be hired to reduce call schedule demands for all faculty members? What would the applicant consider to be a fair salary if he were relieved of all call responsibilities? Does the department have any way of offering housing purchase assistance that is not part of the base salary? Is there a mechanism to create bonus income from clinical revenues in excess of a minimum quota? If the applicant's job duties include securing funding for research, is there a mechanism for increasing salary based on successful research grant funding? On the applicant's end, there may be ways to obtain benefits that may be worth a somewhat lower salary, such as office space, support staff, greater clinical autonomy, and a greater ratio of teaching and research versus clinical time allocation.

In order to generate a sufficient number of possible solutions to key negotiation problems, it is essential to uphold curiosity and free discovery while suspending judgment. When negotiating an offer for an academic appointment, it may be helpful to take a time-out to generate alternatives in another setting or to meet with other faculty members separate from discussion with the applicant in order to reduce inhibition during the idea-generating step. Suspending the assumption of fixed resources is also important. There may be creative ways that addition of a new associate professor could increase department revenues in a way that benefits all. Focus on interests and creative ideas to meet interests of both parties as much as possible will facilitate decision-making. During the decision-making step, principled negotiators will insist on outcomes based on objective standards, rather than based on eloquent arguments or passionately held positions.

Advocate for Outcomes Based on Objective Standards

In the above example, the applicant focused on his position of a bottom-line salary. Logically, he based his counter offer of $258,000 simply by doubling the distance between his bottom line and the department head's offer, hoping she would "at least" meet him halfway. He didn't articulate the principles he felt underscored his hope for a higher salary (his current salary plus $50,000 to account for the difference in call schedule intensity). The department head did not disclose the reasoning behind the amount she offered, which was based on the salary range of her current faculty members and current national academic psychiatry salary ranges. Other objective criteria the department head might have considered during negotiation of salary could have included call frequency in other departments offering similar salary compensation and cost of living differences between the new location and the applicant's current location. Insisting on outcomes based on objective standards helps negotiators separate people from the issues they are negotiating, which can help protect long-term relationships in the process.

Attention to the relationship context of negotiation, focus on creative ways to serve the interests of both parties, and basing decisions on objective criteria rather than on positions will enhance the quality of the negotiation process and associated outcomes. Nevertheless, even the most principled negotiators will run into problems that threaten the negotiation process and outcomes.

Navigating Negotiation Barriers with Grace and Purpose

Troubleshooting the entire breadth of problems encountered during negotiation is beyond the scope of this chapter. Here, we focus on active listening and dealing with difficult emotions. We then briefly discuss considerations for negotiating when power between you and your negotiation partner is not equal. We conclude with advice on how to improve your negotiation skills over time, including a list of books for further learning on the topic.

Identifying and Managing Communication Problems

Misunderstanding is perhaps the most common communication problem. Just a slight change in intonation or volume can change meaning. Consider the simple change in placement of a pause, represented in writing by a comma: "She's an amazing clinician sometimes" versus "She's an amazing clinician, sometimes." The message heard often differs from that intended by its author. The best strategy for preventing or ameliorating misunderstanding is active listening [10, 11]. Active listening also attenuates the natural tendency to focus on what to say next while your negotiation partner is speaking. Almost everyone has stumbled on this communication barrier on at least a few occasions and will have learned by personal experience that we have limited capacity to simultaneously listen to understand someone else while focusing intently on fabricating an articulate next response. Tenaciously avoid the temptation to plan your next line when your negotiation partner is speaking. Carefully listen. Then, verbally summarize with comments like "Let me see if I understand you. You need the office space because you currently have three research assistants in one cubicle." This gives your negotiation partner a chance to clarify. Then, after listening and seeking to understand, you have a better chance of being understood when you explain your vantage point. "I see how that is difficult. Unfortunately, if I do not get the

space, I will not be able to hire additional staff for the new grant-funded project that starts next week because I already have three staff members making shift-rotation use—two at a time—of both the cubicle spaces I have allocated to my lab currently." Misunderstanding and perceived pressure to come up with a persuasive next response will become more prevalent when the emotional intensity of a negotiation increases. Managing emotions is a critical negotiation skill.

Managing Emotions in Negotiations, Yours and Theirs

> Be not hasty in thy spirit to be angry: for anger resteth in the bosom of fools. –Ecclesiastes 7:9

As the above ancient proverb implies, anger seems to compromise intelligent action. Negotiators with high anger and low feelings of compassion toward each other achieve fewer gains during negotiation and are less likely to want to work together in the future [12]. Consider your own experience. If you are like most people, you have not experienced your best thoughts, words, or actions when you were angry. You are likely to recognize that many of your words and actions when you were most angry are those you have regretted most. Like anger, anxiety can also jeopardize favorable negotiation outcomes [13–15]. Strong anger or strong anxiety can block communication or create turbulent communication, which causes misunderstanding, perceived or actual aggressive interactions, intimidation, defensiveness, or unproductive passivity. The associated negotiation outcomes can be unhappy for everyone involved.

Be aware of your emotions before and during negotiation. When you notice you are experiencing an unpleasant emotion, label the emotion. The simple act of labeling the emotion you are experiencing in the moment can initiate prefrontal cortex attenuation of amygdala-driven emotional intensity [16]. It may also be helpful to use "I feel" statements [17]. If you are feeling anxious during a negotiation, stating this openly may help reduce the intensity of your own anxiety and will welcome similar response from your nego-

tiation partner. Imagine the relationship-soothing effects of such open communication modeled by a department head during negotiation with a long-time donor to the department's general research fund. "As we talk about the reduction in the amount of your annual donation and associated reduction in our research program, I am feeling a bit nervous. I am guessing this may not be an easy conversation for you either." Making emotions explicit allows people to deal with strong feelings openly, rather than tripping over them in a dysfunctional, emotionally laden communication process. Being aware of your emotions and perceptive of your negotiation partner's emotions can prevent negotiators from losing perspective and making serious mistakes [14]. Openly acknowledging your emotions when you feel passionately about something may also help you be understood and make your point, which can allow you to make strong emotions work for you rather than against you during negotiation. It is equally important to recognize and acknowledge your negotiation partner's emotions. Being accurately perceptive of a negotiation partner's emotions correlates with higher performance in achieving favorable negotiation outcomes [18].

If you notice your negotiation partner is becoming angry, use the disarming communication technique of openly acknowledging the element of truth in what you are being accused of [17]. For example, consider the example of an internal medicine applicant who has been negotiating an appointment contract during the past week. He is holding strongly to his interest in compensation equal to the average amount paid to other equally ranked academic internists. His potential new department head seems exasperated as, in a frustrated tone of voice, he fires off, "You cannot seem to see beyond the narrow scope of the base salary amount to consider the other very attractive aspects of our offer, including a tenure appointment and guaranteed 50% time research funding for the next three years." The temptation when feeling attacked is to become defensive, which could lead the applicant to fire back, "I just want to be compensated fairly, commensurate with other equally ranked academic internists." If he keeps his cool and is able to use the disarming

technique, he may instead respond with something like "I see your point. You are absolutely right; during the last 30 minutes of our conversation I have focused exclusively on salary amount and have not even acknowledged the generous aspects of your current offer, like the excellent guaranteed research funding and lab space you are offering me. While I would still like to agree on a base salary commensurate with other equivalently ranked academic internists, I am feeling embarrassed that I have failed to acknowledge the very generous aspects of your current offer as you have described them during the past 30 minutes of our conversation." In both cases, the applicant appropriately focuses on objective salary criteria. However, adding a disarming comment to address his potential new department head's frustration during the negotiation process may make it easier to reach an eventual agreement and is likely to help the applicant with her goal of establishing a good relationship with her potential new boss.

Communicating an empathetic understanding of your negotiation partner's concerns and use of sincere complements when appropriate are also important communication skills that facilitate relationship bridges during the negotiation process. Nevertheless, even with good communication skills, it may be more challenging to achieve an optimal negotiation process or outcome when the balance of power is markedly unequal between negotiators.

Tips for Negotiation When Your Position of Power Is Not Equal

Ideally, negotiation involves side-by-side partnership rather than head-on confrontation [7]. A metaphor representation of this concept is a boat with a motor on a freely moving shaft in back and a steering wheel connected to a rudder in front. Both must be manned to move the negotiation boat forward. However, when one negotiation party seems to have control of both ends of the boat, motivation to work together to navigate a negotiation process may be less obvious. This can occur, for example, when a department head

is considering "negotiating" an increase in faculty clinical workload to offset emerging budget difficulties.

A simple negotiation tool that can help under-empowered negotiators in such circumstances is knowing their best alternative to a negotiated agreement (BATNA) [8]. In the above example, if a productive assistant professor can obtain an offer for employment at a nearby prestigious university, her BATNA will be very empowering. For others, a BATNA of nonacademic employment may feel empowering when discussing clinical quotas with the department head during a faculty meeting. Some research evidence suggests having an identified BATNA may increase productive assertiveness during negotiation [19]. In the context of a negotiation with the department head about clinical productivity quotas, faculty who have identified their BATNA are likely to feel more empowered and will probably be more likely to suggest creative alternatives to increasing their clinical quotas, if they feel another alternative should be sought.

Motivation to engage in egalitarian negotiation from the perspective of the empowered negotiator may be in short supply when holding a significant power advantage. The temptation to efficiently compel rather than struggling to patiently persuade is an ever-present temptation faced by all people who hold any position of power over others. The developmental growth and relationship costs of giving in to this temptation can be catastrophic. Whether a parent or head of state, compelling compliance can suffocate autonomy, stifle creativity, and bruise relationships beyond repair. Leadership in academic medicine affords no exception to these basic principles. Although there are some circumstances when forced compliance is warranted (e.g., when a toddler is running toward oncoming traffic, a parent may need to forcibly change the toddler's trajectory), whenever negotiation is appropriate, opting for unilateral compulsion may yield more rapid change in the short term, but the cost may be unacceptable in the long term. Carefully honing negation skills is a worthwhile endeavor for academic medical professionals of all ranks.

Developing and Enhancing Your Negotiation Skills Over Time

Frequent practice coupled with self-monitoring of performance criteria is key to mastery of most skills [20], including those pertaining to negotiation. Consider role-playing negotiation with a friend or family member and formally self-monitor by videotaping the negotiation role-play [20]. After each opportunity to negotiate, consider evaluating your own performance in implementing the four basic strategies of principled negotiation introduced in this chapter and described in detail in the book "Getting to Yes: Negotiating Agreement Without Giving In" [8]. In addition, consider evaluating your use of good communication skills during negotiation, using effective communication criteria such as those outlined by David Burns [17].

Words to the Wise

Strategies of principled negotiation [2, 8]:

- Separate relationship issues from negotiated issues.
- Identify interests rather than fixate on positions.
- Identify several mutually beneficial options before deciding.
- Advocate for outcomes based on objective standards.

Four elements of effective communication [7, 17]:

- Ask additional questions to understand what your negotiation partner is thinking and feeling.
- Thought empathy (summary restatement of what was said) and feeling empathy (accurately reflecting back an understanding of emotions felt).
- The disarming communication technique (agreeing with the element of truth in what

you are being accused of when the individual you are talking with is angry with you).
- Sincere complements.
- "I feel" statements (stating the emotion you experience, without assigning blame).

Ask Your Mentor or Colleagues

- What factors should I consider when evaluating an academic offer?
- What things do you wish you had considered when you negotiated your contract?
- What are the things that you are happy you did consider when you negotiated your contract?

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How to Engage in Departmental Strategic Planning

Diana L. Carmichael and David O'Brien

Introduction

A strategic plan is essential to the growth, evolution, and continuous improvement of any successful academic department. A strategic planning process should be undertaken in conjunction with changes in departmental leadership and at least every 5 years to ensure faculty and staff stay engaged and focused on the department's vision, commonly agreed-upon departmental goals, and the strategies to achieve the vision. The strategic plan should be comprehensive, should have clear performance metrics, and should be used as the foundation for communicating and achieving the vision and goals of the department. It is important that the departmental strategic plan serves as a living document. To accommodate new trends or changes in the department's environment, the plan should be monitored, evaluated, and refined on at least an annual basis.

Value to the department is not only derived from the product of the strategic planning process but from the process itself. Strategic planning provides the opportunity for faculty to get to know each other while bolstering cohesiveness across the department as they coalesce around a common vision and shared goals. Further, by increasing awareness of the diverse interests across the department, the strategic planning process fosters collaboration within the department.

Departments are the fundamental academic units of any university. As the university and its individual departments evolve, it is imperative that clear and coordinated strategic visions and roadmaps be developed and are frequently monitored. Departmental strategic plans provide the necessary framework to realize the higher-level institutional strategic visions through the current and planned activities of the department and its individual faculty. At its most basic level, it is through the actions of individual faculty that the missions of the institution are executed. Departmental strategic planning should be individualized reflections of the overall goals of the school and university and the specific strategic visions of the department and its faculty. Medical school clinical department plans must also reflect the strategic goals of their medical center part-

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ners. A department's strategic plan must address each of its core missions (education, research, and service/clinical care) in addition to other traditional areas of leadership and governance, faculty development, and resource management.

Strategic planning is a leadership function, and, as such, it is critical that the strategic planning process is actively led by the department chair to ensure its success. Ideally, strategic planning should be completed in concert with changes in departmental leadership (both new appointments and renewals). Strategic planning is also a community process which should engage all members of the department as well as other important partners and stakeholders outside the department and even outside of the organization.

The use of professional strategic planners from within and outside the institution will help to facilitate and bring order to strategic planning, ensuring an efficient and efficacious process. A comprehensive departmental strategic planning process will take approximately 6–9 months. Most of the strategic planning work will be performed by a steering committee comprised of a small group of departmental members meeting *at least* monthly. Plan communication is critical to achieving broad buy-in. Once the plan has been developed, it should be presented to, and discussed by, the entire department and other stakeholders prior to finalization. An implementation plan should be an integral component of the strategic plan.

Leadership

Academic departments function as small businesses led by department chairs who serve as de facto chief executive officers. The chairman's role in strategic planning is to unite and lead faculty through the development of a shared and compelling vision and to oversee the tactical work required to execute the plan and achieve the vision. Although the department chair often has a clear vision for the department, a strategic planning process performed effectively will engage and empower the faculty and staff to help shape

the vision through its specific goals and strategies and ultimately, to own the vision. A strong departmental chair will delegate "ownership" responsibility for many strategies to other faculty and staff leaders. Success measures associated with a strategic plan are essential for strategy owners and the chairman to track progress as the plan is executed. Success metrics also enable monitoring of strategies to ensure they are the right strategies to achieve the intended goal.

Strategic Plan Components: Mission Areas

Education Programs

Strategic educational objectives are important for any academic department. In addition to traditional undergraduate, graduate, and postgraduate programs, many academic departments sponsor educational programs for high school students, fellows, continuing professionals, and community members. All departmentally sponsored educational programs should be considered in the department's strategic planning process. Curriculum, pedagogy, and educational technology changes should be carefully evaluated. All educational programs included in the strategic plan should have clear goals, including funding sources, and should clearly align with the department's vision.

Research Programs

The development of a detailed program to promote the discovery of new knowledge is central to any academic department's strategic plan. Opportunities in basic, translational, and clinical research should be contemplated. Research strategic planning deliberations should carefully evaluate current and potential research collaborations, current departmental strengths, and changing areas of investigation. Recognizing that innovation and solutions to large problems, as well as government funding, will likely require interdisciplinary teams including investigators

from outside the department, research strategic planning should seek input from a broad community of interests. Philanthropic funding for those targeted research programs identified for future growth as well as intramural funding from the dean's office or university institutes can provide the resources to begin new programs and permit longer-term funding through grants and development of endowments.

Clinical Programs

Strategic programmatic development is an important part of any strategic plan for clinical departments. A comprehensive market and competitor analysis must be completed to fully understand unmet needs and opportunities for market share growth. These clinical program plans should be done with the department's health system partners. Ideally the clinical programs identified as strategic opportunities for growth and investment will be well aligned with the department's research programs. The clinical section of a departmental strategic plan should include (1) detailed marketing plans for targeted clinical programs using print, radio, television, web, and social media; (2) quality benchmark objectives in addition to clinical efficiency goals (both can be used in marketing plans and contract negotiations); and (3) clinical outreach strategies designed to maximize clinical referrals of profitable tertiary and quaternary cases.

Strategic Plan Components: Resource Areas

Faculty

The recruitment, retention, and development of outstanding departmental faculty are critical to the success of the department, and plans for how to continuously help the department's faculty evolve professionally are an important product of the strategic planning process. The mission-based strategies of the plan should capitalize on the strengths of the department's existing faculty and provide a clear roadmap for the recruitment of the future faculty needed to achieve the department's vision.

Finances

The strategic planning process should include a complete and transparent evaluation and discussion of departmental finances. A well-crafted plan for financial sustainability will be essential for the department to continue to grow and achieve academic success. Moreover, poor departmental financial performance creates a stressful environment that often leads to faculty underperformance and results in heavy scrutiny and potential micromanagement by the dean's office. Careful budgetary control and fiscal responsibility are important to maintain the department's financial health.

The strategic planning process should also include discussions about departmental compensation plans and investments. Development of strategies to increase clinical, teaching, research, and philanthropic funds should be aligned with targeted programmatic development. Clinical departments should include health system leadership in their planning for programmatic development. Additionally, funds flow principles should be developed to include medical direction funding and strategic programmatic investment. Strategic plans will invariably require targeted strategic investments. The vision and strategies included in the plan should be compelling enough to make the case for investment by institutional leaders and donors.

Space

A comprehensive environmental resource analysis should be central to any departmental strategic plan. Requirements for research, clinical, and educational spaces, as well as academic and administrative offices, should be considered during the strategic planning process. As informatics becomes more important for clinical, educational, research, and administrative programs, the stra-

tegic plan must include provisions for adequate information technology infrastructure support. It is critical that plans for expansion of departmental space be aligned with the department's vision and strategic programmatic development.

Staff

The recruitment, retention, and development of outstanding departmental staff are critical to the success of the department. Plans for how to continuously help the departmental staff evolve professionally should be a product of the strategic planning process.

Organization

The strategic planning process should begin and end with a departmental organizational chart. Academic organizations are slow to change, and a current organizational chart provides an important reference point for where the department has been. But organizations are also a means to an end and, as such, should be carefully considered in light of the department's vision, goals, and strategies. If significant organizational changes are required, a strategic plan should include a chart of the departmental organization that best reflects the department's future.

The departmental executive leadership team generally consists of division chiefs, a director of finance and administration, or business manager and vice chairs for academic affairs, research, and education. Each of these roles should be clearly delineated on the department's proposed organizational chart in the strategic plan.

Strategic Planning Methods

Strategic Plan Development

There should be a rigorous methodology to the strategic planning process (Fig. 1). The strategic planning process must also be sensitive to the unique culture of the department. To ensure broad engagement and buy-in of the process and its outcomes, the planning process should be supported by an unbiased third party who has significant facilitation and strategy development experience and who can help to design a process that best suits the department's culture. Very often, this person is retained from outside the organization; this not only ensures neutrality but also signals leadership's commitment to, and the importance of, the strategic planning process to staff and faculty. The department chair should assemble a diverse planning team or strategic planning steering committee. Beginning with the end in mind, the composition of the steering committee should

Fig. 1 The strategic planning process utilizes a three-phased approach with specific tasks assigned to each phase. The conclusions drawn from each phase established the foundation of planning for each of the subsequent phases. (Reprinted with permission from AMC Strategies, LLC)

PHASE I
Planning Research

PHASE II
Define Strategic Direction

PHASE III
Finalize the Plan

- Planning Interviews
- Environmental Assessment

- Define Vision for the Future
- Define Goals with Measurable Outcomes
- Develop Specific Strategies & Tactics
- Develop Specific Clinical Program Plans

- Finalize the Strategic Plan
- Develop Implementation Plan with Target Dates and Assignments

represent the various constituencies of the department and the management areas that will be tasked with the plan's implementation. Finance, faculty affairs, facilities, and human resources should all be represented.

The orderly planning process should begin with a discovery period that includes qualitative and quantitative assessments to establish where the department currently is and how it has gotten there over the past 3–5 years. Ideally, the qualitative assessment would involve confidential interviews with key stakeholders within the department and the parent institution to gather input on current views of the department, important future opportunities, and the hope and dreams for the department. The quantitative assessment should include a thorough analysis of the key internal and external trends in each of the department's tripartite mission areas of research, patient care, and education.

In some instances, it may also be worthwhile to reach outside the institution in this assessment phase. Confidential interviews with select thought leaders in the discipline can provide valuable insights into key trends that could inform on a department's strategic options. Collecting benchmark measures from peer departments can also be helpful in placing the department within an objective external context.

Based on the findings of each of these "discovery" activities, the next phase of the planning process involves creating a mission and vision statement for the department that clearly articulate its unique purpose, the "why" of the department. The mission statement should be a concise statement of purpose, reflecting the overarching reason members of the department perform their jobs. The vision statement should describe the department's aspirational goal, its "moon shot." The vision statement should clearly differentiate the department from the thousands of peer departments.

These two seemingly simple exercises are critical to the success of the strategic plan because these statements will guide every subsequent objective developed in the planning process. There should be healthy debate and meticulous attention to every word in each of these state-ments. The group should be deliberate with this process and patiently work toward group consensus since the mission and vision statements will not only guide the planning process but will also serve as the centerpiece of the marketing and communication of the department's strategic plan. To avoid excessive wordsmithing by committee, it is often helpful to develop initial "working" versions of mission and vision statements and then revisit and refine them periodically throughout the process.

With a clear understanding of its environment and affirmations of its mission and vision, the department's strategic planning team can then develop a comprehensive set of goals and the tactics to achieve these goals over the next 5–10 years.

A critical component of the plan is to embed metrics that can be used to monitor progress and measure success as the plan is implemented. A detailed analysis and resource plan must be completed, including estimates of the personnel (faculty and staff), financial, space, and political assets required for successful plan implementation.

The final strategic plan should be collated in a format that is easily referenced, communicated, and updated. This often results in multiple versions of the strategic plan targeted to specific audiences, including detailed and executive versions in presentation, online, and print formats. In any case, the strategic plan should be formally presented to the entire department and communicated to the department's key stakeholders. Again, this might include leveraging online capabilities or other creative solutions.

Strategic Plan Implementation: The Last Mile

Unfortunately, sometimes strategic plans end up only filling space on a bookshelf. Though much has been written about how to *develop* a strategic plan, less thought has been given to the challenges of *implementing* the plan. Strategic plans that are well-crafted and focused, that identified and included the right stakeholders throughout the planning process to ensure buy-in, and that

launch a thorough and thoughtful approach toward implementation planning often find success with plan implementation. Those that fail do so most often because of disconnects between "planning" and "operations" and not adhering to a rigorous implementation process, resulting in an underestimation of the resources required. Thus, the active engagement of key resource managers throughout the process is critical.

Implementation of the strategic plan requires leadership, focus, and discipline. While using metrics, timelines, and dashboards to assess the progress of achieving each goal is valuable, clear delegation of responsibility and allocation of resources is essential.

Faculty in academic departments are stretched: teaching requirements, clinical responsibilities, research pursuits, and leadership responsibilities leave faculty with little or no bandwidth to take on additional responsibilities. Many faculty may not have, or want, the leadership skills necessary to champion strategies and tactics and to move a plan forward. Even the most skilled faculty champions may be confronted by seemingly insurmountable barriers – funding requirements, space issues, leadership deficits, organizational complexity – that cause implementation tasks to be de-prioritized.

Successful implementation of a strategic plan requires the identification of capable faculty leadership and the collaborative development of the required resource budgets, including providing protected time and leadership coaching and identifying potential funding sources for high-priority tasks.

Addressing these barriers will significantly increase the likelihood of successful plan implementation.

Conclusion

Strategic planning is essential for the growth, evolution, and improvement of any successful academic department. This process should be performed with changes in departmental leadership and at least every 5 years to ensure that faculty and staff stay engaged and focused on the department's vision, commonly agreed-upon departmental goals, and the strategies to achieve the vision. The strategic plan should be comprehensive, should have clear performance metrics, and should be used to communicate the department's vision and goals. It is important that the departmental strategic plan serves as a living document and be monitored and evaluated on at least an annual basis for refinement and to address any new trends or changes in the environment.

Words to the Wise

- Departmental strategic plans provide the framework to realize the higher-level institutional strategic visions with the current and potential activities of the department and its individual faculty.
- The strategic planning process should begin and end with a departmental organizational chart.
- The strategic planning process is best led by the department chair to ensure its success but is also a community process that must involve all members of the department as well as other important partners and stakeholders outside the department.
- The strategic planning process must include implementation planning.

Ask Your Mentor or Colleagues

- What has been your experience with strategic planning?
- How do you recommend that I become involved in the process?

How to Engage in Fundraising

Jennifer Riedel Kitt

In 2012, Brian Kobilka won the Nobel Prize for his work on the G protein-coupled receptors. This fundamental research took years of focus. With Brian's achievement, we now understand the structure of this receptor and can design better and less expensive drugs to activate or inhibit then. When he won this award, many of us were surprised to learn that philanthropy made it possible. Brian's lab struggled with funding for years. In some years, philanthropy bridged the critical needs before a grant would come in. Brian reported at his Nobel press conference: "There are very bright people with very good ideas who are not getting funded. Even those of us who have been fortunate enough to receive grants have seen our budgets cut to the point where we won't be able to accomplish all of what we've proposed. It's short-sighted, because — although it can be hard to understand and explain to the lay person — basic research like this ultimately leads to pharmaceutical products and other innovations from which we all benefit."

Without philanthropy, big ideas would routinely miss the opportunity to become big solutions to our most pressing problems. All sources of revenue are important, of course, but philanthropy is especially helpful for starting up new ideas or funding research that is too creative for federal grants. Working with development staff and donors is thus a key skill for leaders in academic medicine. Because fundraising is not rocket science, however, many faculty leaders think they already know how to do it. In this chapter, I outline key learnings for anyone starting out in academic fundraising. Your best teacher, however, will be a strong development partner [1].

> In the beginner's mind, there are many possibilities. In the expert's mind there are few. –Shunryu Suzuki

Start with Beginner's Mind

The Zen master Shunryu Suzuki teaches that starting with "Beginner's Mind" allows an openness to learning that the expert rarely can accomplish. Suzuki offers that approaching a task with the wide-open curiosity of a beginner allows one to avoid the pitfalls experienced by those who think they know it already [2].

Faculty leaders are experts in many things: their research areas, clinical specialties, and even leadership skills. Faculty members are accustomed to being experts, and the staff, patients, and trainees around them defer to that expertise and positional authority. Nevertheless, if faculty leaders can learn to park that expertise at the lab or clinic and start with Beginner's Mind when fundraising, they will learn faster and be more

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effective with donors. So, even if you think you know how to engage a prospective donor or how to share what is compelling about your work, start your conversations with your development colleagues with an openness to learning from them as the experts. Reverse the power dynamic and give them a chance to help you be better. By doing this, you will learn faster and hear the feedback you need to be a strong faculty fundraising partner.

With Beginner's Mind, it will all come quickly. Now, on to the basics: when to fundraise, how to fundraise, and making the time.

The Basics: When to Fundraise

Philanthropy is best used as a funding source when there is a *compelling vision* to do something *important for humankind.* Small-scale vision generally will not inspire donors, nor will a purpose that misses the human impact. In exchange for their philanthropic gifts, donors are hoping to find deep meaning and satisfaction, so asking for a gift requires inspiration, vision, and impact. Even a decision as simple as fundraising to build a new building requires clarity about the impact that building will have on the mission of the organization, research, or care. If the building cannot connect to a compelling solution to a tangible problem, then philanthropy is likely the wrong source of funding.

In order to ensure we are using philanthropy for the right needs, at Stanford Medicine our development team works with faculty leaders to answer a series of questions before starting any analysis of fundraising potential:

- What do you want to accomplish in the next 3 years/5 years for this area? Who should be providing input to help answer this question? What impact will this vision have on patients, community, or the world?
- What is the budget need to achieve this vision? Do we have the staff/faculty billets and space to build to this vision?
- What revenue streams are available to fund what the faculty leader wishes to accomplish

in this priority area, for example, clinical revenues, NIH funding, philanthropy?
- How will the impact/program be sustainable long term (if it needs to be) after any initial fundraising investment?

These core questions ensure that philanthropic gifts go to the right institutional causes. Only once these questions confirm impact, vision, and a sound budget/business plan do we move on to evaluate whether there are potential donors to fund the idea and how to engage those donors. The decision about what deserves *philanthropic* fundraising focus is an appropriately rigorous one grounded in the basis of the word itself, which literally translates "love of humankind." Philanthropy is a high bar.

The Basics: How to Fundraise

Once the decision is made to fundraise, you will want to know the best practices for doing so. To that end, you must know, or seek to learn, what will inspire the donor to give and where that donor is in the donor engagement cycle. Your role is to match the donor's interests to the deserving vision within your organization. Understanding the donor engagement cycle helps plan for and build to that match.

Preparing: Donor Engagement Cycle

The Donor Engagement Cycle in Fig. 1 is a model fundraisers use to consider where our donors are as they think about their gifts. Potential donors can be at any stage of the donor cycle. They can be newly identified so we are just learning about their interests. They can be deeply engaged and ready to discuss their philanthropic priorities; they can be interested to hear how their last gift was used or any step in between. Sometimes they are not yet philanthropic at all. As you work with your development colleagues, you will want to discuss clues about where the prospective donor is in this cycle and design an engagement strategy to match. Since your role is

Fig. 1 Donor engagement cycle, Stanford Office of Development

to build relationships that match donor interest to your deserving vision, consider carefully the donor's perspective, interests, and timeline.

Donor Engagement Cycle
- *Identification/Discovery* = Recognizing a prospective donor, based on gratitude, interest, or wealth.
- *Cultivation* = A two-way educational process in which the prospect learns about your work and you learn about the prospect's interests and philanthropic goals.
- *Making the Ask/Solicitation* = Presenting specific giving opportunities to the prospect and asking for a gift.
- *Stewardship* = Thanking the donor and conveying the impact they have made with their philanthropy. When done in a compelling manner, *this can serve as cultivation for a future gift*.

Source: Dr. Clifford Harris, Stanford Medicine Clinician Liaison for Development

As you prepare to meet a donor, you and your development colleague might not know whether the donor is engaging with you to consider a gift (considering philanthropic options) or just beginning to learn about the area (embracing philanthropy). Open-ended questions can be a way to learn more. Listen carefully to your donor. For example, I often ask the simple question "what are your top three philanthropic priorities?" This question can start a person thinking about philanthropy even when she or he did not previously consider it.

We prepare our strategies to help the donor move through these engagement steps to be ready for a solicitation. The visual at left can be a powerful tool as you do so, in partnership with your development colleagues.

As you prepare, you may hear your development partner using language such as "cultivation," "stewardship," or "discovery." Use your Beginner's Mind stance to slow him/her down and define these terms. Then brainstorm open-ended questions to learn more from the potential donor, and design a strategy to share your vision matched to where the donor is the cycle.

Meeting Prospective Donors

Prepare
Your development colleague will prepare a background briefing to guide planned interactions. This briefing will outline the goal for the meeting, provide background on the donor/prospective donor, and draft talking points or a conversation map. Of course, this is the development professional's best thinking, and we remain flexible in the conversation to adapt as needed.

Work with your development professional to find a format that you can absorb, and make time to read these materials so you are prepared. Briefings save you time, ultimately. If you find you are not getting to them, ask for other alternatives like a voice-recorded version or a call to review the content live. Development professionals are adept at making efficient use of your time and know to be flexible.

Practice
Role-playing donor discussions is the single best way to get better and more fluent before an important meeting. Practice matters. Strong development staff will often have mapped out a conversation to get to a goal in the meeting. The

goal may be to build the relationship and learn more about the donor's philanthropy. The goal may be an actual solicitation. The goal may be simply to thank the donor. Whatever the goal, the conversation map is a great tool, and practice will give you confidence and help you find the right words. Even if you don't have the time to rehearse formally with your development colleague, spend some time in your morning run or under the shower to say the words and refine them for impact.

There is no one busier than faculty in academic medicine. Leaders in this space have two to three jobs, at least. Nevertheless, time spent reviewing background-briefing materials and practicing how the meeting with a donor will go saves time in the end. Even if you are an experienced fundraising partner, use Beginner's Mind and practice your conversations. This is also a good time to share with your development partner what you are comfortable saying and where you need the development colleague to step in. You don't have to ask for the money directly to be an important part of the philanthropic request.

Listen Actively

Although most people think the persuasive pitch is the most important part of asking for money, accomplished fundraisers know that active listening is the most important skill. A donor conversation needs to have many open moments where we ask for feedback and reflections from the donor. When we overfocus on what *we* want to communicate, we can easily miss *what the donor* needs in order to make a gift decision. To learn more about the donor and their interests, I work in open-ended questions [3].

Examples:

- I have shared some of what I think will help us solve this problem, what do you think about those ideas? How do they connect to your own interests?
- What is your vision for solving this problem? How did you first get involved?
- What are your philanthropic priorities and how does this idea fit in?

- What information would be helpful to you to make a decision about funding this area or research?

Active listening also can include a pause in the conversation. Do not be afraid to leave some silence. You will be surprised what you learn.

The Master Class: Making the Time

Development work requires time and focus because it is grounded in building relationships with the donors. When philanthropy is an important revenue source for your program or "big idea," you may benefit from the following tips for making the time.

Your development professional should make your part of the development work as efficient as possible. This means working meetings into your schedule while you are waiting in an airport or setting 30 minutes to meet after grand rounds each month. He or she can also help you by ghostwriting emails, letters, and other nonscientific touchpoints to help your donors stay close to you. Even with this support, however, you will need to make the time to review proposals, share your vision with potential donors, and have meetings and meals with them [4].

If you are leading a significant fundraising effort, say as a chair of a department or fundraising project leader, you will need a standing meeting at least monthly with your development partner. Pick a time and location that serves your busy schedule, but do not cancel the meetings or you will find your impact diminished and the fundraising results slowed. These meetings can be a time to do "real work" such as pressing send on the emails you need to get out asking for a potential donor meeting or vetting the 5-year budget for your new microbiome center.

During Stanford's Campaign for Stanford Medicine, our team met with the Dean of the School of Medicine weekly to review donor strategies, hear of new relationships he had made, vet proposals or new ideas, and stay focused on our goals. Since the close of that campaign, our meet-

ings are still very frequent at twice a month. This kind of focus brings results.

Engaging donors with the kinds of meaningful research and programs we have in academic medicine is a privilege. Donors who give to these causes have an impact on human health and discovery well beyond what they would ever be able to do without you and your teams. This two-way street of impact is built on respect, relationships, and follow-through. So, your time commitment does not end when the gift is made. Your donors will expect to hear how things are going. Here again, your fundraiser can make sure your time is used well on donor reports and meetings during the stewardship stage.

With Beginner's Mind, excellent development colleagues, good vision and preparation, listening and follow-through, and your time allocated to fundraising can have a big impact.

Words to the Wise

- Ask your development partner for help preparing and practicing.
- Tell your development partner that you want their honest and genuine feedback, and make sure you create a safe environment so that they give it to you. Their feedback is a gift to help you get better.
- Make space for development in your schedule.
- Know that listening is more important than pitching.
- That said, know your vision and how to express it succinctly.
- Make sure you are fundraising for something impactful in the world.
- Ask your fundraising partner for key performance indicators and review in your meetings. Examples are strategic moves with prospective donors, proposals made, and secured, declined, new prospective donors discovered.

Ask Your Mentor or Colleagues

- How do you make time for fundraising?
- What do donors care most about from your experience?
- What has been most rewarding about fundraising for you? What is the most challenging?
- How do you keep track of progress toward goals; what metrics matter?
- What are the most important skills in a development partner?
- What is the most powerful question you ask to potential donors?
- How much time do you make for development?

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How to Be an Effective Team Leader and Committee Member or Chair

Sabine C. Girod

Academic leaders are often chosen based on their academic success and reputation in the core mission of research over teaching and patient care [1]. However, leadership of a team, committee, or department in an Academic Medical Center (AMC) also requires knowledge of clinical operations and finances, as well as administrative and managerial skills that are usually not part of the academic medical education or career. Many AMCs have recognized the need for effective physician leaders to successfully advance innovation and improve the clinical care of patients. They offer educational programs to help their faculty grow into leadership roles spanning the traditional silos of hospital administration, clinical care, research, and education of the next generation of physicians and scientists. The academic physician is encouraged to take advantage of these opportunities. The skills one will learn will greatly benefit one's academic career even if one does not choose a traditional leadership position.

What are the skills that make a good academic leader? While successful leaders have widely differing backgrounds and personality traits, they generally excel in vision, communication, and strategic planning. The special challenge to leaders in AMCs is the different missions and parallel reporting structures, from clinical operations to faculty development, that require the mastery of a range of different leadership styles adapted to the environment. While support staff in a clinic may respond to a more authoritative leadership approach, faculty physicians are independent experts who can only be engaged by means of a democratic communication and decision processes. Academic leaders usually cannot and should not try to employ corporate reward and punishment powers but need to rely on their interpersonal and persuasive skills to motivate their peers and staff. Participation in academic and administrative committees is usually voluntary for faculty and an opportunity to become engaged in the leadership decision process of their AMC at multiple levels. Faculty can help produce a superior outcome by contributing their expertise and creativity to the leadership of an AMC. In order to fully engage them, leaders need to make faculty team members feel respected and valued for their work.

The Three Pillars of Leadership: Vision, Communication, and Organization

Most of us see leadership as a person in power who pulls people in the right direction using a set of acquirable tools. This perception is widely advertised in an infinite number of publications and courses. However, while it is important to

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learn excellent communication and organizational skills to be a good leader—think of how your clinical skills evolved since medical school to become a good doctor—it does not guarantee leadership success. Leadership is all about understanding and transforming people and their minds and behavior to create change—including and foremost yourself [2]. Your personal integrity and shared values are what other people will respond to, not the leadership tools.

Vision

Before you start working with a group, stop and think about the vision. Where will your division, department, or school be in the future? How does the work of your committee fit into an existing vision? A compelling vision has power. It can inspire, clarify, focus, and motivate faculty, students, and/or staff. Draw on the specific strengths of your organization, and create a positive and inspiring statement describing where you want to be in the future, such as "To be the medical school that sets the standard for *educating* physicians, scientists, and teachers to be leaders of change in creating a healthier, better world" (Dartmouth Medical School). Then define the immediate mission of your group's or committee's work in the context of the vision, and determine the milestones that you all will accomplish to reach them. Besides the overall mission and vision, leading a department or committee will of course also involve multiple short-term operational objectives, such as hiring and space, that need to be addressed on an ongoing basis.

Strategic Planning

There are two principal processes for how you can develop a vision and mission statement and move forward with your organization. You can either develop the vision yourself and then get "buy-in" from your group or employ a strategic planning process with your group to create the vision and mission statements. In an academic environment, the strategic planning approach is preferable since it is an open, deliberate decision process that focuses the collective vision and expertise of the participants on creating a roadmap for the future. One of the major advantages in an academic environment is that it creates the "buy-in" from the participants whose voices are heard in the process and unites them behind the goal. The process is thus far more important than the plan itself.

Expertise

In order to develop a vision, formulate a mission, and successfully lead a committee or department, knowledge of applicable subject matters is essential for leaders and members alike. For a committee, it may be one single subject, while for leadership of a department or division understanding of a wide variety of topics from residency programs to clinical care, reimbursement may be required. While extensive expertise or the access to it is essential for some areas, e.g., finances of a division, others may need less. You will need to make decisions in which areas you will get more involved at what to delegate to others.

Take into account how your activities are perceived by the members of your department or committee. What do they expect, and how does your action relate to their core expectations, activities, and values? For example, a leader of a clinical division or medical school should still participate in clinical activities and teaching. It signals to your faculty and staff that you value their work, and it is an excellent way to share and understand their experiences, which will give you better guidance in decision-making processes. A committee leader or member should have expertise and interest in the task the committee is charged with to be able to make meaningful contributions.

One of the most significant expertise necessary for a leader is his or her organizational knowledge, not only the knowledge of the obvious organizational structure but more importantly the inner workings, i.e., politics. Without a good understanding of the personalities and their

mission and standing within an organization, it is impossible to lead an academic department.

Risk Taking

Transformative leaders are pioneers who innovate and inspire. Thinking big and outside the box and to reach big goals often requires risk taking. It means taking calculated steps into unknown territory beyond our immediate expertise and comfort zone to find new paths that bring us closer to our goal. If you do not feel comfortable making big decisions, consider taking a planned stepwise approach to create change:

- *P*lan: Identify the problem.
- *D*o: Make a change on a small, experimental scale.
- *C*heck: Have the objectives been achieved?
- *A*ct: If successful, implement changes on a larger scale.

Based on the actions taken, it is called a PDCA cycle and can be repeated until you reach your goal. In the meantime, learn from your failures and become more and more "comfortable with the uncomfortable."

Communication

Outstanding interpersonal skills and communication are the hallmarks of inspiring leaders and members of successful teams [3]. When we think about communication, we almost inevitably associate how we actively speak to others. However, listening effectively is the most important skill for everyone. You need to be aware of other people's motivations, interests, thoughts, and feelings. In direct conversations, it helps to paraphrase what somebody is telling you, both to clarify the meaning for yourself and to signal your interest in what the other person is saying. Understanding people is the prerequisite for effective communication of information, providing feedback and communicating your point of view or vision. All academic faculty know from their teaching expe-

rience that the better you know your audience, the better you can address them and get them excited about what you are saying.

Besides the verbal and nonverbal aspects of communication, such as clarity of speaking, eye contact, and body language, communication is about sharing and promoting your values and ideas. If there is no congruence between your values, body language, and what you say verbally, others will inevitably sense insincerity and be wary of you. Again, mastering the tools of communication will not be helpful if your personal self and thinking are not aligned. So be aware of your values, act responsibly, and be accountable. People will judge you by whether your actions follow your communication. If you make a promise, keep it; if you cannot, let the person know immediately. If you do not listen or communicate integrity and reliability in basic interactions, others will not follow and support your grander visions.

Communicating respect and support can create loyalty and support in turn for you as a thought leader in any group—whether you are the appointed leader or the member of a committee or department. Simply thanking and praising others for work well done cannot be overrated. Also never claim all good news for yourself, especially if you are the chair or chief of a department. Let others shine and be the cheerleader for them. They will be more open to your ideas and leadership since they can trust you to recognize their accomplishments and support them. The opposite is true, if you do not listen or even try to compete with your faculty and claim their successes for yourself. Ignored emotions and sensitivities of others due to lack of communication and recognition can be the most significant barriers to your success.

If you are trusted and an expert, people will come to you and ask your advice, and you will probably do the same with your trusted advisors. Access to a network of colleagues or mentors who can be called on for their expertise is most important for your success as an academic faculty and leader. You can get open feedback and reflect your ideas and plans to improve your overall performance.

Organization

Planning and organizational skills are necessary to lead all organizations, big or small. AMCs are particularly complex in their organizational structure since the different missions of teaching, clinical work, and research may be run in parallel administrative silos with separate command structures and complex interactions at different levels. For example, the clinical care organization, i.e., hospital, may be run by the school or be a separate entity and as such can be a part of a larger organizational structure. The academic faculty physicians can be part of a hospital physician group, but the reporting structure lies within the academic department. Staff may be part of a department or the hospital and reporting to either, even though they are physically working in the same space. In such complex organizational structures, it can be very difficult to create seamless operations or adapt to a change.

First of all, an excellent knowledge of the particular organizational structures in your AMC is essential. You will probably recognize that much of the influence and power you can exercise depends on your communication skills, since many of the people you are working with belong to a different reporting structure or will not be susceptible to a directive approach, e.g., faculty. As an academic department chief or chair, you will likely have a small core staff that needs to be carefully chosen with regard to excellence in their field of expertise and also their communication skills since they are in a similar situation and will have to negotiate with their peers, e.g., in the hospital administration.

As we already discussed earlier, you will need to decide which areas of your administrative function you will delegate and assess the resources that are necessary, e.g., to run the residency programs, faculty development, and department finances. Similarly, as a committee chair, you need to discuss with your committee members what the tasks are and how the members can contribute individually. Delegation of

power or better empowerment of your staff and colleagues is probably the most important task you have to fulfill.

Decision-Making

Your task as a leader is in many ways defined by constant decision-making, sometimes under pressure. You should review your process and be open to analyzing not only your successes but also your failures. It often helps to have a structured approach that includes definition of the problem, assessment of the implications, exploring perspectives, advantages and disadvantages, and getting clear on what the ideal outcome would be. For more complex decisions, this can take the form of a strategic planning, as discussed above. Getting input from the people affected by the decision, mentors, and peers in your network will help you to develop a better picture of the ramifications of your decision. Once you consider a decision, make sure to communicate it to all involved and get them on board. Understand when your decision has outcomes that are not acceptable to others and would lay the groundwork to continued and possibly widespread discontent in your group. The most important skill is to know when to follow instead of trying to lead.

Effective Meetings

Leadership of an academic department or committee also comes with the responsibility to master the basic principles of running effective meetings. In the case of committees, it starts with the crucial selection of qualified members. It is usually helpful to have a first "kick-off" meeting to determine the meeting time and frequency and discuss the purpose of the meeting. An agenda needs to be prepared for every meeting and circulated to the members beforehand. Everyone appreciates if meetings start

and end on time and follows the agenda. More formal deliberations should be conducted according to *Robert's Rules of Order* (newly revised). Minutes of the meeting including attendance should be recorded by a staff or committee member and approved by the committee.

Do not dominate the meeting if you are a leader or member, but, rather, encourage or contribute ideas and suggestions while moving the agenda along in a timely fashion. Update the members on news relevant to the committee work. Avoid arguments and encourage positive thinking. Any new items should be specified in the agenda and pertinent material be sent out before the meeting. If you need more time or an issue needs to be addressed on a long-term or short-term basis, initiate standing or ad hoc subcommittees who can work on these issues and report back to the committee.

Leadership Styles

No single leadership style fits every situation. To be a good leader, you have to know your group and your preferred leadership style and be able to adapt your style to the changes in your group. Above all, you have to inspire and motivate your team or committee members to change expectations, perceptions, and motivations to work successfully toward a common goal.

Leadership styles have been described among others as *autocratic* (high level of power over group), *charismatic* (encouragement and enthusiasm, power rests with leader), *bureaucratic* (principled, all initiative from leader), *participatory* (teamwork, only leader knows the task), *transactional* ("carrot and cane" approach), and *transformational* (values team members for their individual potential, leads by example). It is generally believed today that transformational leadership is most effective. Transformational leaders communicate their vision and inspire their team to share the vision. They care for the team members more than for the task at hand and modify the communication style depending on the needs and strength of the individual team member to engage him or her and delegate tasks. The major difference to all other styles of leadership is that it takes into account that every person requires a different kind of leadership and communication to be fully engaged in work of the group or committee.

Situational Leadership

Different theories have been developed through research on effective leadership with groups and organizations to provide guidelines for optimal leadership styles in various environments [4]. One of these frameworks is "situational leadership" that is based on the attitude and readiness of the group for a specific task. This theory provides a suitable framework for AMCs, where committees and organizational structures are built around a specific task or mission and either include members from very diverse backgrounds, e.g., administrators, nursing staff, and physicians, or are highly homogenous, e.g., a faculty search committee.

Hersey and Blanchard [5] recommend four different "optimal" leadership styles based on the assessment of the "willingness and ability" of the group:

- S1: Telling (unable, insecure)
- S2: Selling (unable, willing)
- S3: Participating/supporting (capable, unwilling)
- S4: Delegating (very capable, confident)

Essentially, the model recommends taking a very directed managerial approach in S1 and a more communicative "selling" approach in S2 to get the members or the group on board. S3 and S4 leadership should be focused on coaching and/or supporting the group members as needed in a participative and transformational leadership model.

Words to the Wise

- Listen and understand the values and motivations of other people.
- Be true to your values and promises at all times.
- Know when to follow and when to lead.
- Lead by example.
- Review successes and failures.
- Reassess your goals and aspirations.

Ask Your Mentor or Colleagues

- What is your favorite leadership style?
- What leaders have influenced you in developing your leadership style?
- How do you select committee members?

Appendix: Examples of Leadership Styles

S2 Scenario

Imagine you are the director of your outpatient clinic and you are trying to improve patient satisfaction by educating your staff to use a programmatic approach to engaging with your patients that makes them feel welcomed and valued. The staff in your clinic is very willing to participate, but they do not seem to have the skills to do it. You communicate the value of the new program and coach and engage staff individually by observation and directed positive feedback until they are comfortable with the new protocol.

S4 Scenario

You are the new chief of an academic division, and you are trying to increase the faculty attendance in the faculty meetings and grand rounds. In order to do this, you develop a plan that penalizes the faculty financially on a sliding scale if they do not come to the meetings. They have to sign in to prove that they attended. You present your plan at the next faculty meeting and implement it the following week.

The result? All faculty members resent your plan. They come to the meetings and sign in, but many leave immediately. You have damaged the relationship with your faculty by using an S1 leadership approach to an S4 situation.

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How to Conduct a Faculty Search

Christina F. Chick and Ruth O'Hara

Although the purpose of a faculty search committee—to select and hire the next member of your department—is straightforward, such a search entails considerations that may not be obvious, particularly to junior faculty members. These include requirements for inclusivity, outreach, and documentation. The aim of this chapter is to clarify some of these considerations, to provide a road map for what to expect when serving on your first search committees, and to guide you on how to contribute to a positive outcome.

Who Should Serve on the Committee?

A committee typically consists of a chair, senior and junior faculty members, and, sometimes, graduate students or postdoctoral scholars in the department. The committee may also include faculty members from another department, particularly if the search is for an interdisciplinary candidate or a member of a center, associated with your department. The choice of who should serve on a search committee is usually conducted by the chair of a department, in consultation with

departmental leaders and/or Program Directors whose research is related to the candidate's area of expertise and who will likely be working with the incoming faculty member. However, most search committee members are not selected purely on the basis of their area of scientific focus. A search committee will often include those who represent domains that will be important parts of an incoming faculty member's portfolio, such as teaching, clinical work, mentorship, diversity, and leadership. Search committees typically range from four to eight members but vary according to the type of appointment, the interdisciplinary nature of the appointment, and the rank of the appointment (i.e., assistant, associate, full professor, program leader, or division leader).

Why Would Faculty Be Interested in Serving on a Search Committee?

Serving on any committee provides an opportunity to develop a working relationship with colleagues or to learn more about other domains of practice and research within one's department. Beyond this, however, serving on a search committee gives faculty members an opportunity to help shape the future direction of the department and to select their next colleague. Pololi et al. collected survey data from a stratified random sample of 4578 full-time faculty from 26

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representative medical schools in the United States [1]. The survey included questions about department culture, values, and engagement, with the aim of predicting respondents' intentions to leave either their current institution or academic medicine altogether. Of respondents with complete data, 14% had considered leaving their current institution within the past year, and 21% had considering leaving academic medicine due to dissatisfaction. Reasons for dissatisfaction included low perceived values alignment (low faculty morale, institution not making an effort to include me in decisions), exclusion (my colleagues do not value my contributions; I feel isolated; I feel ignored or invisible; I am reluctant to express my opinion for fear of negative consequences), and ethical distress (others have taken credit for my work; the culture discourages altruism). Although many factors influence workplace culture, the opportunity to steer the direction of the departmental culture by selecting the next colleague is one way to increase engagement among current faculty members.

Who Should Serve as chair?

The committee chair is responsible for managing group dynamics among committee members; adhering to university, state, and federal policy regarding search and recruiting practices; and ultimately attracting and hiring a candidate who will enhance the intellectual and scholarly environment in the department. The chair should therefore hold sufficient authority and goodwill within the department to regulate group dynamics and foster an inclusive environment while adhering to university, state, and federal search and employment policy. It is important for the chair to monitor group dynamics to ensure that all voices are heard, especially those of junior faculty, postdocs, and graduate students, who may be hesitant to speak up since they will depend on senior faculty for career evaluations. The chair should make it clear that junior members may reach out for support from the chair outside of meetings.

When Should the Search Efforts Begin?

The timing of committee meetings should be informed by the principle that the search should be proactive rather than passive. Remember that part of the committee's work will be to reach out to promising candidates and ask them to apply. Candidates will need time to prepare an application and gather recommendations. If application materials will be distributed outside of committee meetings, they should be sent at least a week prior to the meeting so that members have sufficient time to read them.

Job Advertisement Materials

The first order of business is to draft a recruitment flyer that specifies the qualifications of the ideal candidate and the responsibilities of the position. The advertisement should also highlight the strengths of your institution and department and should specify its policy, if any, regarding equal opportunity employment. Ask leaders in your department for flyers from previous searches. This advertisement can be distributed via email to colleagues and academic society listservs. Additionally, it is wise to produce a slide deck or other material that current department faculty can distribute when traveling for invited talks or conferences. Developing this material will help to standardize the message, and it can serve as a template for future searches. Many universities will ask one search committee member to serve as a diversity officer, ensuring that the outreach maximizes diversity and that all candidates, independent of gender or ethnicity, are treated equally during the search process.

Committee Rules

The next order of business is to determine a set of rules surrounding assessment and voting. First, what are the objective criteria on which candidates will be assessed, and how will these be ranked? Creating a rubric is one option that will

ensure that these priorities are kept in mind when assessing each candidate. Most departments will have their own evaluation forms already in place, but typically committee members can add their own questions or criteria.

Next, how will voting be done? Will ballots be submitted secretly in writing or openly in discussion? Is consensus required, or does a majority vote suffice? Is absentee voting allowed? The chair must monitor for any potential conflicts of interest and be aware of departmental and university standards for conflict, as these can vary substantially. Typically, any level of collaboration with a potential candidate constitutes a conflict, and the committee member will need to absent themselves from voting on that candidate (this is one reason why committees often have large numbers of faculty members, so that quorum can be attained for the final votes on candidates). However, with the growth of interdisciplinary research, across and within institutions, it is increasingly the case that some committee members may have published with a candidate, even if they have never met the candidate. As a result institutions and departments have given these issues greater consideration and have modified the rules for what constitutes a conflict. For example, if a committee member has published with a candidate as part of a large genetics consortium but has never interacted with the candidate, and not otherwise collaborated with them, some institutions will not view this as a conflict, and the committee member can vote. Sometimes there is a time limit placed on these interactions, for example, not having published together in the past 5 years or collaborated on a grant within a similar time frame. Importantly, even when committee members do not have overt conflicts, it is important for them to disclose, and for the chair to consider, conflicts that arise from, e.g., being close friends with the candidate despite not having collaborated with them. This is particularly important when the candidate under consideration is an internal candidate. Frequently, postdoctoral fellows, lecturers, clinicians, or instructors already working at an institution and in the department may apply for the position. These are called internal candidates, while appli-

cants from outside the institution are called external candidates. The chair and committee must make it clear throughout the search process that they are not engaging in any activities that could provide a bias, albeit subconsciously, in favor of the internal candidate. Equally, the chair and committee have to be careful that in their efforts to not have a bias in favor of an internal candidate that they do not implement a process that is overly cautious such that the internal candidate suffers a form of subtle inequity throughout the search process. It is a fine balancing act to insure internal and external candidates are treated the same.

Voting

There are several options regarding voting. A committee member may simply not be available to vote, and as such is listed as absent. Given that the committee member can submit their vote via a secure email, this is an unlikely occurrence. However, if the committee member was for any reason unable to meet with the candidate or see their presentation, they may simply feel they do not have enough information to be sufficiently informed to vote. They can then recuse themselves, and the chair will typically write up the reason for the recusal in their report to the department chair and/or Dean. This is why it is important to have sufficient committee members on board to obtain a good vote, despite absentees and recusals.

Confidentiality

Similarly, it is important to establish a code of conduct for the committee members. All discussions should be kept confidential. The committee's evaluation of applications should not be discussed with faculty members outside of the search committee, although outside faculty members can be consulted for suggested candidates and asked to reach out to their own contacts. Additionally, it is often valuable to hear the thoughts of other faculty not serving on the

committee, following the presentations and interviews by the candidates. The committee chair should decide whether application materials will be distributed electronically or will instead be kept in hard copy only. Will materials be distributed as they come in, or will they all be reviewed at the same time? These rules ideally would be put in writing at the start of the search process and signed by all committee members.

Member Responsibilities

Regarding committee member responsibilities, at the end of each meeting, the chair can assign a task to each member. Each member should reach out to his or her professional contacts and solicit suggestions for suitable applicants and then follow up personally with each of these applicants. If a member is planning to attend a conference during the search period, that member should be assigned to attend talks or poster presentations by promising candidates, as well as social gatherings targeting women and minority society members. All members should document all outreach activities in writing and share these with the chair.

What Documentation Should Be Kept?

As the search has the potential to become a legal matter, careful records must be kept to document good faith efforts to meet federal, state, and university laws and guidelines. Related to the criteria for an inclusive search, it is important to document in writing every personal outreach you make to a potential candidate, whether via email, phone, or in person. You must also document advertisements posted to listservs or sent to society members. In addition, the chair should document the percentage of women and underrepresented minorities included in the initial applicant pool as well as the short list. A list of applicants in the initial pool and on the short list, as well as notes about nominees and contact with department faculty, should be kept.

Dossiers of all applicants' submitted materials, as well as notes from formal and informal contact, including interviews and rubrics, must be kept. Software that is safe for personally identifiable information can aid in maintaining confidentiality of sensitive information. One thing never to document over email is a negative evaluation of a potential candidate. If the email were to become public, this could reflect poorly on you, your department, or your university. Although candid and thorough evaluation is important, extremely negative comments should be made in person and kept confidential.

Where Should Recruitment Efforts Occur?

The committee can cast a wide net by asking colleagues at neighboring institutions to distribute the job advertisement and by sharing it with listservs of scholarly societies. However, veterans of the recruitment process insist that direct personal outreach is the most effective method for encouraging a broad range of qualified applicants. A personal email or phone call goes a long way toward encouraging a candidate to apply. Additionally, conferences provide important opportunities to meet potential candidates in person. Committee members should attend talks or posters given by qualified candidates, as well as receptions for affinity groups based on academic subdiscipline or underrepresented minorities. Introducing oneself and sending a follow-up email goes a long way toward encouraging qualified applicants to apply.

Who Should Be Included in the Applicant Pool?

The characteristics of the desired candidate should be described in the job advertisement. When defining the ideal candidate, it is important to consider what qualities or area of academic focus will complement the expertise of current faculty in the department and to think ahead to the direction in which the department will grow

in the future. There may also be criteria for search inclusivity of women and minorities at the university, state, or federal level. As such, it is expected that the outreach efforts generate a candidate pool of applicants that reflect the level of diversity in the field. One way of gauging this is to look at comparable departments in peer institutions, which are publicly available in the form of online rosters. Ask your institution's Office of Faculty Affairs to provide data reflecting the distribution of women and minorities in the relevant national pool; your search pool should approximate this. Additionally, check to see whether your college or university has a diversity officer or guidelines, which will provide further criteria.

What Does "Diversity" Entail, and How Does It Add Value?

Your institution or state might have affirmative action policies that specify nondiscrimination on the basis of gender, race, religion, or disability. Independent of institutional, local, or state policies, are there significant benefits to having a diverse applicant pool? One obvious answer is that the goal is to attract top talent, and if large segments of potential applicants are systematically excluded from the pool, the search is less likely to succeed in finding a strong match. Additionally, students benefit from having role models in the department with diverse backgrounds and which may reflect their own ethnicity, gender, sexual orientation, etc. Having a diverse faculty encourages and supports students to pursue fields of study in which they are a minority, particularly in science, technology, engineering, and math (STEM). For example, one theory is that women are discouraged from pursuing careers in STEM fields due to identity threat—a perceived conflict between the parts of their identity that are feminine, on the one hand, and good at science, on the other [2]. Contact with female STEM professors may help to resolve this conflict by providing a role model so that female students can envision themselves in leadership positions in the field.

How to Increase Diversity of Your Applicant Pool

Research suggests that the beginning of the search process, when the applicant pool is being gathered, is the most effective time to focus efforts on increasing minority applicants. The more women and minorities who are included in the initial pool, the higher the proportion that make it to a short list [3].

Even well-meaning members of search committees are, unfortunately, prone to bias. In a now-infamous study, psychology professors were twice as likely to hire "Brian" than to hire "Karen," despite their identical application materials [4]. One solution is to provide training that increases members' awareness of their own bias.

There is limited, but increasing, data regarding the success of antibias training in the hiring process. Carnes et al. conducted a randomized controlled trial to assess the effectiveness of a 2.5-hour seminar aiming to support intentional changes in cognitive habits associated with gender bias [5]. Three months after the intervention, members of departments in which at least one-quarter of faculty attended the seminar reported increased action to increase gender equity. Intriguingly, faculty in departments that received the seminar intervention also reported perceived improvements in department culture, including feeling that they were a good fit for their department, that their colleagues valued their work, and that they felt comfortable raising professional conflicts. This implies that diversity training benefits current faculty members.

Evidence suggests that such training might also be effective in directly affecting hiring practices. Sheridan et al. tracked the effects of a training workshop administered to members of an academic search committee [6]. They found that workshop attendance was associated with an increase in women hired, as well as a better self-reported hiring experience for women hires.

The ADVANCE initiative is a multi-institution collaboration that tracks the effects of a multifaceted approach to increasing gender and racial minorities in applicant pools [3]. Changes included scenario-based antibias training to

members of the search committee (for pre-training readings, see http://wiseli.engr.wisc.edu/docs/BiasBrochure_2ndEd.pdf). The initiative also encourages proactive outreach (as opposed to waiting for applications after posting a job ad) and extending outreach to an ongoing process (rather than limiting it to a specific search period). A study of 193 faculty searches over 5 years found that the percentage of females on the short list increased from 25.3 to 35.5 and the percentage of female hires increased from 24.5 to 37.5, when programs implemented ADVANCE principles [3].

It may behoove you to request a presentation from your Human Resources and/or diversity office, to the search committee in order to explain legal requirements as well as general information surrounding the importance of diversity. For example, it may come as a surprise to some committee members that gender and race can openly be considered; well-meaning members may otherwise assume "blind" consideration is the ethical standard of such a search.

The Short List

Once a final list of potential candidates has been determined (typically five to three candidates) by the committee, the next step is to invite these candidates for a 2-day visit to the institution to give an in-person presentation which all faculty can attend; to meet with the chair and other departmental leaders; to meet in person with the faculty most relevant to their research, clinical, and teaching; and to participate in more in-depth interviews with the committee (these are often done on an individual basis with each committee member). At this point, the candidate can also request to meet with faculty of their choice as they consider whether the institution, department, and position are a good fit for them. The process now involves evaluation of candidate by the institution but also the candidate's evaluation of whether the position may work for them. Informal dinners or lunches can provide excellent opportunities for the candidate under consider-

ation to ask questions of the committee and other departmental faculty. Senior administrative staff may also be asked to meet with the candidate at this stage.

Just as in the initial search process, it is extremely important that consistent evaluative criteria be established and adhered to by all committee members; that there be consistency in terms of the faculty the candidate will meet; and that there be access to the chair, departmental leaders, Dean, and/or provost (depending on the position and rank being filled). It is the responsibility of the chair to insure that there is no inequity from candidate to candidate in terms of the search process.

The Final Vote and Decision

Following the presentations by the candidates, the committee will reconvene to discuss the candidates and conduct another final vote. Many times, the committee has the ultimate decision on the candidate. However, in some departments and universities, or contingent on the role or rank of the candidate, the committee presents their choice to the chair or Dean for their ultimate decision, with the committee serving dominantly in an advisory capacity. At the other end of the spectrum, in some departments and universities, the complete faculty vote on the candidate or candidates the committee has selected.

Following the identification of the final candidate or candidates of choice, the committee, particularly the committee chair, are typically involved in writing up the search report, which describes the full search process and also the rationale behind the final choice of candidate.

Conclusion

A faculty search requires careful adherence to ethical, social, and legal standards. These standards, as well as guidelines suggested by experienced faculty, are summarized in Table 1 under the framework of "who, what, when, where, why,

and how." Regarding "who," the search committee should consist of junior and senior faculty, graduate students and postdocs, and faculty in related departments. Applicants should include outstanding candidates who meet prespecified search criteria, especially women and minorities. Regarding "what," extensive documentation should be kept throughout the search process. The committee chair should keep records of all recruitment materials, as well as a list of all applicants and a dossier for each. The chair should document the percentage of women and underrepresented minorities at each stage of the search and should monitor that this reflects the percentage in the field at large. Individual Committee members should keep records of their outreach to potential candidates. Regarding "when," the first Committee meeting should occur at least 1 month before application deadline (preferably much sooner), consistent with the notion that the search is a year-round effort.

Regarding "where," qualified candidates should be sought out at conferences and peer institutions. Top journals should be monitored for junior authors who may soon enter the job market. Committee members should reach out to personal contacts, as well as members of the department and of related departments who do not serve on the committee, for suggestions. Regarding "why," faculty may be motivated to serve on a search committee by the opportunity to shape department culture; morale and retention improve with higher perceived influence and values alignment. Diversity is important, particularly in initial stages of recruitment, in order to maximize chances of finding the ideal candidate and to provide role models to underrepresented minority students, especially in STEM. Regarding "how," the search should be proactive (i.e., reaching out to candidates rather than waiting for them to apply) and ongoing (i.e., year-round). Committee members should prepare a slide deck for current faculty members to present at talks or conferences. Consider implementing an intervention to reduce bias and inviting a presentation from your Human Resources department on legal considerations surrounding diversity and inclusion. By adhering to these guidelines, the search committee can increase the likelihood of recruiting the next high-performing member of their department.

Table 1 The who, what, when, where, why, and how of a faculty search

Who:	*Search committee members*: Junior and senior faculty; graduate students and postdocs; faculty in related departments. *Applicants*: Outstanding candidates who meet prespecified search criteria, especially women and minorities
What:	The *committee chair* should keep records of all recruitment materials, as well as a list of all applicants and a dossier for each. The chair should document the percentage of women and underrepresented minorities at each stage of the search and should monitor that this reflects the percentage in the field at large. *Individual committee members* should keep records of their outreach to potential candidates
When:	The first Committee meeting should occur at least 1 month before application deadline (preferably much sooner). Think of the search as an ongoing, year-round effort
Where:	Qualified candidates should be sought out at conferences and peer institutions. Top journals should be monitored for junior authors who may soon enter the job market. Committee members should reach out to personal contacts, as well as members of the department and of related departments who do not serve on the committee, for suggestions
Why:	*Faculty* may be motivated to serve on a search committee by the opportunity to shape department culture; morale and retention improve with higher perceived influence and values alignment. *Diversity* is important, particularly in initial stages of recruitment, in order to maximize chances of finding the ideal candidate and to provide role models to underrepresented minority students, especially in STEM
How:	Think of the search as proactive (i.e., reaching out to candidates rather than waiting for them to apply) and ongoing (i.e., year-round). Prepare a slide deck for current faculty members to present at talks or conferences. Consider implementing an intervention to reduce bias and inviting a presentation from your Human Resources department on legal considerations surrounding diversity and inclusion

Words to the Wise

- Reach out directly to candidates you think should apply; also reach out to your colleagues in other departments or institutions to ask for promising students and postdocs.
- Use conferences as a recruiting pool: Attend talks by promising candidates, and attend affinity group gatherings for women, minorities, or other target groups.
- Use national databases, department data, and comparable peer departments to determine whether your search includes a representative number of women and minority candidates.
- Approach the Search committee chair if you have comments that are of a delicate or political nature; he or she can voice your point anonymously to the group in order to avoid interpersonal conflicts.
- Never send an unflattering evaluation by email; such discussions should be held in person and should be kept confidential.

Ask Your Mentor or Colleagues

- What qualities in your colleagues have been most important to your success?
- How should I phrase a comment that might be offensive to senior faculty?

- Would you be willing to share a template email that you have sent to previous candidates during recruitment efforts?

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How to Participate in Institutional Review Board Activities

Ann Freeman Cook and Helena Hoas

The expectations and challenges discussed in this chapter offer insights as to why the work of institutional review boards (IRBs) is so important and why persons who serve in academic medicine can contribute significantly to that work. Such persons can encourage forthright discussions of the scientific value of the research as well as the needs, values, expectations, and vulnerabilities that participants may bring to the research enterprise. Such discussions in turn support the sustenance of an ethically attuned research environment, one that meets both the letter and the spirit of the regulatory guidance for protecting human subjects.

Institutional review boards serve as research oversight bodies charged with ensuring that risks to human subjects are minimized and reasonable, subject selection is equitable, and the informed consent documents are adequate. The regulations that underlie the protection of human subjects stem from the work of the Belmont Report, issued in 1978. This report was a response to the moral unease arising from revelations of the Tuskegee study and other problems such as the 1973 National Institutes of Health (NIH) recommendation that outlined the use of newly delivered live fetuses for medical research. In 1981, the IRB's responsibilities were codified in the Code of Regulations for Protection of Human Subjects, 45CFR 46, a regulation that covers the ethical conduct of biomedical, behavioral, and social research.

These regulations, referred to as the common rule, were further codified in 1991. Currently 19 federal agencies have adopted the common rule. Regulations from the Federal Drug Administration (FDA) and the Healthcare Insurance Portability Accountability Act (HIPAA) of 1996 added another layer of protection-related responsibilities. Additional expectations were added on January 25, 2018, with the enactment of the *National Institutes of Health (NIH) Final NIH Policy on the Use of a Single Institutional Review Board for Multi-site Research*. Since regulations continually evolve, the Office of Human Research Protections (OHRP), a division within the Department of Health and Human Services (DHHS), offers guidance as a way to indicate the agency's current thinking on issues surrounding the protection of human subjects. Such guidance is viewed as a recommendation unless specific regulatory requirements are cited.

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The Responsibilities of the IRB

The IRB provides review of new research and continuing review of existing studies at intervals appropriate to the degree of risk but not less than once per year. Fulfilling such oversight responsibilities requires that IRBs take into consideration the layers of regulation—including international, federal, sponsor, state, and institution—that govern the protection of human subjects. The work of the IRB is based on three core ethical principles. Respect for persons involves recognition of the personal dignity and autonomy of individuals and special protections for those with diminished autonomy. Beneficence entails an obligation to protect persons from harm by maximizing anticipated benefits and minimizing possible risks. Justice requires that the benefits and burdens of research be distributed fairly.

To fulfill these obligations, the IRB directs considerable efforts toward ensuring the informed and voluntary consent of those who are enrolled in research studies. According to regulations in the *US Department of Health and Human Services IRB Guidebook*, such consent must meet the "reasonable volunteer" standard which requires that "the extent and nature of information should be such that persons, knowing that the procedure is neither necessary for their care nor perhaps fully understood, can decide whether they wish to participate in the furthering of knowledge."

IRBs are required to evaluate a study's research design, risks and benefits, subject selection, informed consent process, assurances of privacy and confidentiality, monitoring and observation, incentives for participation, and other regulations that may apply. An evaluation of each of these topics can entail considerable effort and, at times, controversy. A review of the informed consent process provides a good case in point. Although IRBs are expected to review the entire informed consent process, considerable attention can be focused on the informed consent document. Ideally, the document will be written in a way that truly enlightens the volunteer and so optimizes the likelihood of an informed decision.

It can be difficult, however, to impart information about research especially when enrolling persons who may have diminished cognitive capacities such as persons with Alzheimer disease or mental illness. Studies suggest that it is easy to enumerate the key elements of informed consent—full disclosure on the part of the researcher, adequate comprehension, and voluntary choice on the part of the subject—but difficult to accomplish. While people with recognized vulnerabilities may be disadvantaged when trying to make informed decisions, the authors' studies have shown that even well-educated participants may have little understanding of the research environment and tend to overestimate personal benefit and minimize potential risk. Thus IRB members need to be vigilant in their efforts to discern the kinds of issues that can compromise participants' abilities to make informed and voluntary choices and then ensure that the study's research protocols address and enforce them.

Different Types of IRBS

When the IRB model was first developed, biomedical research was primarily conducted in academic medical centers. Indeed, as recently as 1994, the vast majority of biomedical research, including clinical research, was conducted in such settings. Each center or institution typically supported its own IRB(s), and the federal oversight guidelines and resources were initially developed with that institutional model in mind. Over time, however, the research environment has changed. Most industry-funded clinical research, including disease-specific studies as well as genetics and pharmacogenomics research, has migrated from those academic settings to nonacademic environments such as private physicians' offices, research institutes, hospitals, and clinics. A single study may be simultaneously conducted in hundreds of sites. Federally funded research, such as the Clinical Trials Cooperative Group Program sponsored by the NCI, has also facilitated the involvement of community-based settings.

Oversight for much of this research was provided by independent or central IRBs, hospital IRBs, and community and tribal IRBs. As of January 25, 2018, however, research institutions must *now* comply with the *National Institutes of Health (NIH) Final NIH Policy on the Use of a Single Institutional Review Board for Multi-site Research*. This regulation specifies that a single IRB of record will be used when reviewing NIH-funded research that is carried out at more than one site. The goal of this policy was to enhance and streamline the review process and avoid duplicative review. Advocates of this policy noted that that the new rule accommodates the challenges of a research environment increasingly characterized by multi-site studies. Critics of the policy have argued that nonlocal review can undermine issues such as awareness of vulnerable populations, recognition of conflicts of interest, and appreciation of site-specific practices for recruitment and retention.

The new regulation requires IRBs to discern how they will implement the new policy and whether they will serve as both a reviewing and relying entity. Considerable expertise, understanding, and infrastructure are needed to serve as a reviewing IRB for multi-site studies. Attention must be given to issues such as the adequacy of administrative support, consistency of review, protocols for risk assessment, and quality management. The NIH does not currently require IRBs to be accredited by the Association for the Accreditation of Human Research Protection Programs (AAHRPP). Thus the individual IRB shoulders the burden for analyzing the efficiency and effectiveness of its work.

An academician may be invited to serve on any one of these different types of IRBs. Some IRBs, when faced with challenging research protocols, use the services of consultants. Thus an academician may also be invited to serve as a consultant. When serving as either a member or consultant, it is important to clarify what one needs to know and how one's knowledge and expertise will be reflected in the decisions made by the IRB.

What to Expect

The work that is required by the IRB can be complicated, time-consuming, and at times frustrating. IRB members have reported that many hours, usually unreimbursed, are expended in reading research submissions and attending meetings. Meetings can be challenging as IRBs are required to be interdisciplinary and so draw on many different perspectives. Disagreements can easily arise. Applying ethical principles is not easy, especially because there is no single, overarching, super principle. It helps to expect that questions will be asked and ideas challenged and that differences of opinion may be voiced. When questions arise, it is not unusual to require resubmissions. Such resubmissions can be perceived as essential by the IRB members who are trying to optimize protection of human subjects but as frustrating delays by researchers who are trying to get studies under way.

Tension can arise because the very nature of the work creates challenges for both those who serve as reviewers and those who submit protocols. It is important to be ethically attuned to the kinds of problems that can develop. While IRBs are charged with protecting human subjects, members report that they are also expected to protect the interests of researchers and their institutions and to advance science that benefits humanity. Ideally these goals are convergent, but in the real world, they can easily compete. Research can provide an important income stream for researchers and institutions. It can bring related benefits like fame and tenure and publications. The desire to receive such benefits can undermine efforts to appreciate and disclose risk and fully protect human subjects. Thus IRB members may have to be extremely astute when attempting to recognize and analyze risk.

It can also be difficult for IRBs to determine the extent to which a study truly benefits science and humanity. Many studies, especially those supported by the pharmaceutical industries, have commercial purposes that might be designed to primarily benefit the company rather than society. In a study conducted by the authors, IRB

members lamented the lack of protocols or regulations that help them respond, in an ethical manner, when trying to address or resolve competing goals.

As an added complication, discussions of these competing goals have traditionally been conducted behind a veil of secrecy as current regulations do not require IRBs to transparently disclose their deliberations about approval. IRB minutes may summarize final decisions but not the discussions leading to those decisions. Minority reports are not routinely provided. Thus key stakeholders including researchers, potential research participants, and the general public may have limited knowledge of critical issues such as potential risks, the adequacy of research protocols, or the meritorious nature of the proposed work. Some scholars have noted that the scope of the IRB's work and the potential for conflicts among competing goals—such as protection of the research subject versus adequate support of the researcher or industry—require greater transparency about IRB decisions. Transparency has been accepted and extolled in many other settings such as court decisions and allocation or rationing of healthcare resources, but has not traditionally been an expectation of IRBs. Indeed the deliberations of IRBs are often covered by expectations of confidentiality. It has been difficult to determine who should be the beneficiary of potential transparency about IRB decisions (the researcher, the funder, the potential research subject, and the general public) and difficult to determine what kinds of information should be provided. Should a research subject be informed, for example, about an IRB's assessment regarding issues like a protocol's risk level or the ratio of benefit to risk? Who among the key stakeholders should be given information about how or why a particular decision was made? How should issues like precedent factor into IRB decisions? Given the IRB's overarching responsibilities, it seems likely that issues about transparency will receive growing attention. Without doubt such issues reinforce how important though challenging it can be to serve on an IRB.

Overcoming Tensions

Recognizing and responding to issues that could compromise the protection of human subjects require training, introspection, and practical experience. Traditionally, there has been no uniform agreement about the kind of training in ethics that is needed in order to prepare persons for service on IRBs or for those who seek research careers. Thus ethical attunement often consists of "on-the-job" training. In an effort to institute a more uniform training, the Collaborative IRB Training Initiative (CITI) Human Subjects Training Program was developed in March 2000 through collaboration between the University of Miami and the Fred Hutchinson Cancer Research Center. This web-based ethics training underwent considerable expansion when the US Department of Health and Human Services announced its mandate for human subject protection education. Currently IRB members, investigators, coinvestigators, and coordinators are required to complete the CITI training.

While such training provides a useful baseline, true ethical attunement requires the kind of introspection and reflection that comes from experience and further education. Most IRBs provide ongoing training programs for members and sometimes even for researchers in order to keep abreast of regulatory changes and emerging issues. Still, it can be hard to uphold the spirit of the regulations that underlies the protection of human subjects since regulations change, new challenges emerge, and the protectors (IRB members) and the protected (human subjects) may know little about one another.

Expanding One's Knowledge

The federal regulations identify special classes of people as vulnerable and requiring extra protection when enrolling in research studies. Such populations include, but are not limited to, prisoners, pregnant women, children and minors, persons with diminished capacities, terminally ill patients, and minorities. In addition, persons who may not initially seem to meet federal guidelines

for vulnerability may bring vulnerabilities due to their life circumstances, beliefs, or values. Indeed, the authors' study showed that even well-educated participants based their decisions about participation on a pervasive level of trust—trust of the one who suggests participation (trusted physician), trust in the system (safe and not allowed if dangerous), trust in the product (new gold standard for treatment), and trust in the outcome (personal and humanitarian good). Thus they tended to gloss over or disregard any information in the consent documents that was inconsistent with such trust.

Such trust places a heavy moral burden on the shoulders of IRB members as they strive to protect human subjects but also strive to protect the interests of their own institutions or in the case of independent or central IRBs, the customers. Such burdens became apparent when IRB members who participated in the authors' study described how they approached two increasingly difficult issues: evaluation of the purpose of a study and disclosure and evaluation of researcher/institutional compensation. Members noted, for example, that the full purpose of the study was not always disclosed either to the IRB or to research participants. This occurs because some of the studies under review, mainly industry-funded studies, are designed to answer both scientific and commercial questions. The IRB review generally focuses on the scientific questions: Members noted that they are expected to assess the scientific merit of the study including the design, research protocols, and related issues such as safety, risk, and effectiveness but have less guidance about their role in assessing the nonscientific or commercial purposes of research. Members reported that it was not clear whether the IRB should require transparency about commercial purposes, if or how such purposes should influence the assessment of a study's scientific merits, whether research participants should be informed of commercial purposes, or how commercial purposes should be evaluated when considering the study's potential benefits to society.

Given the lack of guidance, most IRB members reported that information about the commercial purpose of a study was not "on the table" during the review process. Some IRB members reported a nagging sense that certain kinds of studies were not necessarily meritorious or truly beneficial to society; some members also suspected that participants may well want to be informed of commercial purposes before agreeing to enroll in a study. Indeed some members even reported that they themselves would certainly want to be informed of commercial purposes before participating in a study. Most noted, however, that any consideration of commercial purposes would remain "off the table" until regulatory guidance stipulates otherwise. Most IRB members also reported a lack of guidance about disclosure and discussion of researcher and institutional compensation; they noted that it was unclear what should be disclosed, to whom, or how. While all the IRBs vigorously examine and debate the compensation provided to research participants, most of the IRBs represented in this study did not request or receive detailed information about the study budget and so knew little about the amounts of researcher and institutional compensation. In the future, these kinds of issues may require greater transparency.

Special Contributions of Persons with Medical Training

Persons with medical training bring unique perspectives and experiences to the IRB's deliberations about how to assess risk, optimize protection, and achieve enlightened volunteers. Such training is especially helpful when assessing the purpose of the study, the potential for risk, and the potential magnitude of harm posed by participation in a research study. The types of harm that are addressed via the informed consent form include physical, psychological, social, legal, and economic.

All of these areas for potential harm can be difficult for IRB members to assess. Examples of psychological, social, or behavioral harm can include emotional distress, psychological trauma, invasion of privacy, embarrassment, loss of social status, and loss of employment. Evaluating the magnitude of harm requires consideration of the duration, severity, and irreversibility of the

research procedures. The IRB is tasked with performing a complicated risk-benefit analysis whereby risks to participants and the magnitude and probability of harm are balanced with the anticipated benefits to participants and the importance of the knowledge to be gained.

Making a Difference

The expectations and challenges discussed in this chapter offer insights as to why the work of the IRB is so important and why persons who serve in academic medicine can contribute significantly to that work. Such persons can encourage forthright discussions of the scientific value of the research as well as the needs, values, expectations, and vulnerabilities that participants may bring to the research enterprise. Such discussions in turn support the sustenance of an ethically attuned research environment, one that meets both the letter and the spirit of the regulatory guidance for protecting human subjects.

Words to the Wise

- Plan to attend scheduled meetings, and be sure to arrive at the meeting on time.
- Be prepared to participate in "on-the-job" training activities.
- Ask questions that give insight into participant expectations and values and how they may influence decisions to enroll: What does this look like if I am standing in the shoes of the participant? How would I advise my mother or my friend? Would I seek this for myself?
- Look for articles on topics like therapeutic misconception, participant assessment of risk, and strategies for obtaining informed consent to enhance understanding of the ethical problems that can accompany research.
- Explore evolving issues such as those surrounding discussions about transparency of competing goals.
- Membership requires an ongoing commitment to self-reflection: Know what you know and what you do not know.

Ask Your Mentor or Colleagues

- What were your most memorable successes or regrets when serving on an IRB?
- How will the department view my service on the IRB?
- What personal and professional considerations should be "on the table" when deliberating membership on the IRB?
- What additional training might help me make ethically informed decisions?
- What considerations should go into my decisions about joining different types of IRBs or serving as a consultant for an IRB?

How to Participate in Ethics Committees

Ryan Spellecy, Cynthiane J. Morgenweck, and Arthur R. Derse

If you are considering serving on an ethics committee, whether by invitation or your own initiative, it is important that you first understand the role of an ethics committee. Confusion regarding the role of ethics committees, as well as a perception of "uselessness" of ethics committees, stems from a misunderstanding of the committee's basic purpose. The misunderstanding is that ethics committees "tell people what to do" and usurp the autonomy of the caregiving team. It is erroneous to believe that ethics committees direct patient care and that clinicians are obliged to follow the recommendations of the committee. An ethics committee is not the "ethics police." Indeed, nothing could be further from the truth. In typical practice, ethics committee consultations are strictly advisory. This means that the recommendations they might issue are not binding for the attending physician or anyone else. In that regard, an ethics consultation is similar to other requests for consultation. An attending physician might request a consultation from nephrology but is not required to follow the recommendations from the nephrologist.

Also, ethics committees do much more than ethics consultation. Ethics committees have three functions: education, policy development and review, and consultation [1]. Some argue that if an ethics committee excels at the first two functions, ethics consultation might actually decrease as staff become better educated regarding how to approach ethical dilemmas. Moreover, when policies at the institution are clear enough to provide sufficient guidance to resolve many dilemmas, there is lessened need for the involvement of the ethics committee. Paradoxically, though, consults may increase as clinicians may become more aware of issues and the help the ethics committee may give, and patients and families may be more comfortable in requesting a consult. The data on this subject have not established a definitive trend, and in our clinical ethics experience, we have seen both cases occur.

So, to return to the initial question, let's assume you are considering serving on an ethics committee. If you are considering this because you see problems at your institution that you believe have an ethical component and your goal is to serve on the ethics committee in order to "fix" those problems, the ethics committee may not be the right fit for you. Ethics committees should neither desire nor have the authority to force people to choose a particular course of action. As one author notes, members of ethics committees should be well respected not only for their clinical judgment but also for their interpersonal skills [2]. So, if you are the type of person in whom colleagues confide and whose judgment

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is valued when colleagues are wrestling with issues and if you have a passion not for solving problems but for equipping your colleagues with the ethical background to help them resolve problems, participation in an ethics committee can be a meaningful and fruitful mechanism for you to serve your institution and your colleagues.

Composition of an Ethics Committee

Ethics committees are found in most US hospitals as a result of Joint Commission standards that require a mechanism for patients, family members, and employees to resolve ethical issues [3]. Ethics committees are best when they are interdisciplinary and contain representation from a wide range of stakeholders at the institution (e.g., physicians, nursing, social work, administration), and many include representatives from the community as well, such as a former patient, local clergy, or a philosophy professor from a nearby college. Additionally, most ethics committees have a lawyer as a member to assist in navigating the legal framework of cases and policies. Although ethical and legal issues are not the same, they are often intertwined, and ethics committees need to know, for example, the legal requirements for a surrogate decision-maker in order to effectively advise on the creation or revision of a surrogate decision-maker policy. Many ethics committees use an attorney from the community rather than the institution's legal counsel to avoid conflicts between the best ethical resolution of a particular case and the legal counsel's duty to minimize legal risk to the institution.

Ethics committee members are also diverse in terms of ethics training. If one does not have training in clinical ethics, it does not follow that one is not qualified to begin serving on an ethics committee. In fact, the majority of those who conduct ethics consultation do not have any formal ethics training [4]; the American Society for Bioethics and Humanities (ASBH) has established a certification process for ethics consultants (though not all ethics committee members) [5]. It is essential to note that although most people who serve on ethics committees do not have formal clinical ethics training, it does not mean one should become complacent about one's own ethics training. In the resources section below, we recommend numerous educational opportunities, from 1-day conferences to master's degrees in bioethics.

Functions of an Ethics Committee

Education

Education is perhaps the most important function of the ethics committee. The ethics committee is charged with the education of the members throughout the institution and, at times, patients and family members. In fact, if an ethics committee excels at education, it may prevent many ethics problems that would entail consultation requests from ever arising. For instance, if an ethics committee is effective at educating staff regarding the implementation of a power of attorney for healthcare, it may receive fewer requests regarding how to implement a power of attorney for healthcare. Also, if that same ethics committee explains that the person named as agent in the power of attorney for healthcare document is to make decisions as the patient would want them made, guided by the patient's values rather than by the agent's values, then requests for consults about this issue may decrease. Ethics committees also engage in education for the community that the institution serves. Educational outreach might include hosting ethics conferences to which the community is invited or simply providing education about why and how to complete a power of attorney for healthcare.

For the ethics committee to be effective in ethics education, however, it must prioritize education and not treat it as an afterthought. Some institutions have specific funds set aside to bring in an outside ethics expert, and most at least have an annual spot on the grand rounds schedule for a presentation sponsored by the ethics committee. Ethics committees should make the most of such opportunities to provide education to clinicians, patients, and families and also use the recom-

mendations contained in consults as an opportunity to educate.

Another excellent continuing education opportunity for an ethics committee is to "assign" a pertinent article or reference for a discussion to be led by a member of the committee. Not only does this activity facilitate education, but it also invests the member who is presenting in the committee. Keeping records of the subject matter of ethics consultation requests can inform the educational endeavors of the committee. If a committee finds that the majority of requests for consultation focus on decisional capacity, for example, some education in that area would be of great value to the institution. Similarly, if the committee receives a large number of consult requests concerning advance directives, it might consider providing staff education on the institutional policy regarding advance directives. The committee may also consider informal "brown-bag" lunch presentations, local conferences, and activities that might include educational innovations such as the "Reader's Theater" method that assigns various roles with scripts to better understand ethical issues and various personal perspectives [6].

Finally, an ethics committee should engage in regular self-examination as well, to identify any gaps in membership or needs for further education.

Policy Review

Most ethics committees develop, review, and provide advice for institutional policies that have an ethical impact. Common policies that an ethics committee might review include those addressing DNR (do-not-resuscitate) status, surrogate decision-making, and advance directives. When institutions have a separate "institutional" or "organizational" ethics committee that addresses institutional policy issues, the ethics committee at such institutions should still review policies pertaining to such topics as ethics consultation.

Ethics committees need to be careful that they do not exceed their scope in reviewing policy. For example, a neurologist who serves on the ethics committee might disagree with the recommended tests in a brain death/death by neurologic criteria policy under review by the ethics committee. While that feedback might be important for the drafters of the policy, it is not the role of the ethics committee to weigh in on which tests should be used for determining brain death if it lacks the expertise to evaluate those tests.

Consultation

Excellent available resources describe the process of ethics consultation [7], and each ethics committee will have its own approach to conducting ethics consultation. Nonetheless, there are some basic, important points concerning ethics consultation that are worth discussing in this chapter.

Ethics committees typically perform consultation according to four models: the team model, the ethics consultation service model, the full committee model, and the individual consultant model [8] (Table 1).

Table 1 Ethics consultation models

Model	Involvement	Strengths	Weaknesses
Team	Some committee members	Different perspectives, more flexible than full committee, involves more committee members	Not as flexible as individual model, not as many perspectives as full model
Service	Some committee and non-committee members	Includes perspectives outside of the committee	External members may become disconnected from the ethics committee
Full	All available committee members	Broadest possible input	Difficult and slow to convene, large group may intimidate families or patients in a consult setting
Individual	One committee member	Fast and flexible	Lacks diverse viewpoints

In the team model, a team of ethics committee members conducts the consultation and reports back to the committee, usually at the regularly scheduled meeting to keep the committee appraised of the nature of the consult and the recommendations made. In contrast, in the ethics consultation service model, the consult team includes people who are not members of the ethics committee. In both of these models, the entire committee does not weigh in on the recommendations prior to their issuance. For the full committee model, all the committee members (or, at least, those who can attend) participate in the consultation process. In the last model, an individual consultant, usually a member of the committee, performs the consultation and usually reports back to the full committee at the next regularly scheduled meeting. In all of these models, those present at the consult might be selected on an ad hoc basis or from the on-call schedule. We have served in all four models and find that each has unique advantages and disadvantages. The decision regarding which model to employ should be guided by the qualification of the committee members and needs of the institution.

Regardless of the model employed, when a committee receives a request for an ethics consultation, the first question should be "What is the ethical question in the consult request?" This is important not only because it helps clarify and frame the matter of the consult (e.g., are we dealing with a question of decision-making capacity, a surrogate who is not making decisions appropriately, or both?) but also because it can identify consult requests that may not be best addressed by the ethics committee. A common example might be a request for an ethics consultation in an end-of-life case that is better handled by the palliative care team, because the reason for the consult is not an ethical dilemma but, rather, a question surrounding the goals of care. Typically, ethics committee consultation focuses on ethical dilemmas, cases in which there is genuine uncertainty surrounding the ethically appropriate course of action. Ethics committees may also be requested to help in clarification or communication concerning an ethical concern.

Ethics committees do not typically provide consultation for ethical violations, that is, cases in which someone is clearly behaving unethically and the person requesting the consult wishes action to be taken to correct the situation. Such a violation is better addressed elsewhere with the appropriate purview and function, such as the medical executive committee. It is important to be familiar with the spectrum of resources available at your institution because people who request an ethics consultation have genuine concerns and it is far better for everyone if the committee can refer people to the appropriate venue instead of simply stating that a particular case is not a case for the ethics committee.

It is also worth noting that requests for consultation come with varying degrees of complexity. A simple question regarding how to activate a power of attorney for healthcare might be handled over the phone, whereas more complex requests will take more time and interpersonal interaction.

An ethics committee might at times receive consult requests that, although technically not involving ethical dilemmas, may still be appropriate for some level of consultation. An example is the "moral distress" consult. A nurse might feel extreme frustration and moral distress over the way a case is managed. Although the ethics committee will not change the way the case is managed, its members might discuss the ethically relevant aspects of the case and listen to the nurse's concerns. Feeling heard may satisfy the nurse, and the case provides an opportunity for education.

Resources for Ethics Committee Members

An excellent starting place for resources for ethics committees is the ASBH Core Competencies for Healthcare Ethics Consultation, Second Edition [9]. ASBH also has numerous other resources for clinical ethics and ethics committees, as well as an annual conference and other smaller conferences that it sponsors and cosponsors. Additionally, an institution's or region's

bioethics center can be an excellent resource for the ethics committee. Faculty from the bioethics center may already serve on the clinical ethics committee. Even if an institution does not have a bioethics center, it may have resources or training materials for ethics committee members. Additionally, ethics committee members may consider joining an ethics committee network, either as individuals or as an institution. Ethics committee networks, such as the Midwest Ethics Committee Network, the Maryland Healthcare Ethics Committee Network, and the Florida Bioethics Network, offer practical advice, sample policies, and the opportunity to network and learn from other regional ethics committees.

"Casebooks" can be an invaluable educational tool for a committee or individual as well [10, 11]. These books analyze some of the foundational cases in clinical ethics and provide a new ethics committee member with an understanding of those important cases and tools for deliberating about cases. The ethics committee can discuss such cases as a group for education sessions as well.

Consider also furthering your education in clinical ethics through attending a local seminar or a multiday ethics retreat or by earning a certificate or master's degree in bioethics.

Key Concepts

- Ethics committees are multidisciplinary, containing representatives from a number of different fields.
- Ethics committees serve three functions: education, policy development and review, and consultation.
- Education is perhaps the most important of the ethics committee and should never be an afterthought.
- Ethics committees follow different models for consultation, and which model is followed depends on the needs of the institution.
- Ethics consultation recommendations in most institutions are just those recommendations to the medical caregivers, patients, and families.

The medical team makes the clinical decisions with input from the patient and family.
- Service on an ethics committee is enjoyable, thought provoking, meaningful, and often fun!

Words to the Wise

- You may receive "curbside consults" as a member of the ethics committee, that is, requests for advice on a case that are made in the hallway while you are consulting on another case, for example. Be mindful of whether the issue is one that can be answered then and there (e.g., how do I activate a power of attorney for healthcare?) or by a formal ethics consultation.
- When receiving a request for an ethics consultation, prudent first questions to ask are "What is the central ethical question?", "What is the exact reason for the consult?", and "Is this consult request within the scope of the ethics committee?". If it is not, be sure to refer the person to the appropriate venue or committee.
- Sometimes an ethics consult request stems from moral distress, and despite the best efforts of the committee, the situation still ends poorly. At times the best you can offer are encouragement and a helpful ear.
- Commit to continuing ethics education: your own, the committee's, and the institution's.

Ask Your Mentor or Colleagues

- What kind of support is there, monetary and staffing, for the ethics committee?
- What model of ethics consultation does the committee follow? What was the rationale behind that choice?
- How much time does an ethics consult take, and how often will I be involved in consults?
- Which institutional policy, if any, sets out the purpose, scope, and composition of the ethics committee? To whom does the committee

report? Where in the organization structure of the institution does the ethics committee reside?

- Will I have protected time to participate in the ethics committee and its work, and if so, what percentage of my time will be protected? If I do not have protected time, will my efforts be counted toward service to the institution in the promotion and tenure process?

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Part VII

Advancing Your Academic Career

How to Prepare and Strategize for Academic Promotion

Laura Weiss Roberts

Seeking promotion in academic medicine is uncomfortable for so many reasons. First, it is a great deal of work for faculty members who already feel stretched by the demands of their everyday responsibilities. Second, seeking promotion seems self-promoting (read: self-aggrandizing), which is unsettling to clinicians and scientists who see their professional lives as dedicated to serving others or seeking knowledge to help society. To many who feel uncertain of their standing, who are underrepresented, or who feel invalidated or marginalized for whatever reason, promotion review feels like a test intended to reveal impostors rather than a careful process intended to evaluate and recognize academic contributions [1–5]. Even for the majority of academic medical faculty who are satisfied with their careers; enjoy the autonomy, mentoring, and professional interactions in their work; and would choose academia again, there are concerns that criteria for promotion are inconsistently applied and that promotion expectations unclear or unreasonable [6].

Yet seeking academic promotion is important for so many reasons. Academic promotion indicates respect and regard among colleagues who have been entrusted with transforming human health. Academic promotion is meant to honor the work of faculty who serve as leaders, master clinicians, scientists, teachers, and supervisors. Academic promotion helps to bring recognition to different mission areas and disciplines and supports strong role modeling by senior rank faculty. Academic promotion can elevate and signal prioritization of critically important commitments of academic medicine, such as mentorship or community engagement, which have been expected rather than celebrated in many academic environments. If it is difficult to seek promotion for one's self, one must try to overcome the hesitation, if not for one's self than to open the door for one's students in the future.

At the time of this writing, there are over 150 accredited medical schools in the USA with over 170,000 faculty members across specialties. These numbers are growing, with several new medical schools recently established and more than 100,000 more positions over the past four decades. Most faculty members in medical schools are physicians, are at an early stage in their careers, and reside within clinical departments [7, 8]. These data, combined with the fact that medical schools transitioned from majority tenure-track faculty institutions to majority clinician-educator track faculty institutions in the mid-1990s [9], suggest that in the coming years or decades, most academic faculty will be clinicians who will be engaged in patient care, teaching, and clinical or translational research

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Fig. 1 Multiple developing and overlapping professional roles to influence and lead. (Copyright 2017 by Laura Weiss Roberts. Reprinted with permission)

activities and will be eligible for academic promotions. In the future, some academic faculty may not be clinicians but may develop new and specialized roles in science, education, community, administration, and leadership important to the future of academic medicine. All faculty members, over time, will assume important roles as leaders within their institutions, communities, professional disciplines, and across society (Fig. 1).

This chapter provides practical tips for academic faculty across the professional development spectrum to help along the path to promotion. I outline the phases of an academic career path and offer guidance for staying organized, motivated, and prepared along that path.

Understand the Two Phases Along the Academic Career Path

An academic career path has two primary phases (Fig. 2). In the early career phase, the faculty candidate or faculty member must demonstrate "promise," bringing valued training and background to the medical school role. A clinician may have specialty or subspecialty preparation, and a scientist may have distinct training and discipline expertise to bring to the core duties of the institution, which include patient care, teaching, and scientific inquiry. During this early phase, the faculty member's work is focused on establishing a professional identity and reputation. For many faculty members, significant effort will be given to advancing a field while also defining the boundaries of their expertise and/or anticipated areas of contribution. The impact will primarily be felt locally, and the early career faculty member's service responsibilities may be considerable.

In the later career phase, a "senior rank" faculty member – usually associate professor or full professor – will work to consolidate and strengthen his or her expertise and to assume roles that allow for leadership and mentorship. The later career phase is one of influence and generativity in which one's contributions are, by definition, felt well beyond the walls of an individual institution. To attain associate professor status in most institutions, a faculty member will

have demonstrable regional impact, and for a full professor, national or international impact is the sine qua non. Impact is demonstrated through publications, for example, or engagement with national societies, editorial boards, and consultant roles. Senior rank faculty members most often spend much of their time leading laboratories or clinical programs or administrative units, though they may retain many of the same activities from earlier in their career. Recognition of senior rank faculty members is thus tied to regional and national reputation and impact felt across programmatic or leadership and mentorship activities.

Understand the Written Guidelines for Academic Promotion at Your Institution

Guidelines for academic promotion vary greatly by line (e.g., tenure track, clinician educator, research scientist) and by institution, as noted in chapters "How to Understand Criteria for Academic Promotion on 'Traditional' and 'Research' Tracks" and "How to Understand Promotion Criteria for 'Clinician Educator' and 'Teaching' Tracks". Promotion criteria for the clinician educator line at one institution may

place great emphasis on clinical excellence, while another will place greater weight on teaching excellence and will, for instance, require an educator's portfolio (see chapter "How to Develop an Educator's Portfolio"). Some institutions will have unique naming conventions for specific lines, tracks, and positions. And though many institutions no longer have tenure, many will have designations indicating relative permanence within the particular system. All institutions will have guidelines for a time "clock" for promotion, and some will be "up or out," while others will be more forgiving (Fig. 3). All institutions will have provisions related to parental leave policies, but these may differ by academic line. Some institutions will want to know the name of every student taught by the faculty and their ultimate academic outcome, and some institutions will be satisfied with less substantive documentation. Sometimes the guidelines will seem to deviate from common sense or predictions based on past experience at other institutions. In other words, do not make assumptions about a given institution's guidelines for academic promotion. Look them up and figure out how they apply in a specific case.

The written guidelines will indicate the components of a candidate's promotion package,

Fig. 3 Example of reappointment/promotion timeline: professoriate. (Copyright 2019 by Laura Weiss Roberts. Reprinted with permission)

which may differ by line and rank. A promotion package contains a number of elements: a curriculum vitae, candidate statement, descriptions of teaching/mentoring, evaluations of clinical or teaching skills, referee letters, and examples of scholarly works, plus other and tailored elements. Some institutions are very strict about role conflicts in the referee letters, with collaborators and individuals with coauthor, business, or research investigator relationships being excluded.

Most institutions look for qualitative and quantitative evidence in the promotion package demonstrating that faculty members meet the criteria for academic promotion. Qualitative evidence relates to the nature and character of one's professional work. Subspecialty or postdoctoral preparation, attestations of colleagues, high-impact journal publications, grants or scholarly works that have undergone rigorous peer review, and named leadership roles in developing or advancing a field all can convey qualitative excellence. Quantitative evidence relates to effective efforts and contribution and may include numbers of patients seen, numbers of papers published, numbers of courses or students taught, and other metrics that convey the size and scope of institutional service.

The written guidelines will communicate standards regarding the rigor attendant to the qualitative and quantitative evidence needed for promotion. For example, at Institution A, the guidelines for promotion to associate professor on the clinician-educator track may say something like "regional recognition for excellence in the overall mix of contributions that advances clinical care and clinical teaching" plus "regional recognition as a superior clinician and clinical teacher." For this institution, the *mix* of activities will matter, and the indicators of *regional reputation* will matter. In other words, an assistant professor who only sees patients but does not teach, do research, or engage in administrative leadership will not be able to meet the first in the sequential criteria of the promotion guidelines. For Institution B, however, the guidelines for promotion to associate professor on the clinician-educator track may say something different, such as "first-rate teaching of students, residents, and fellows" plus "development of materials that contribute to education" plus "excellence in clinical practice and publication of clinical observations" plus "service to the institution" plus "recognition at the regional level." In this case, Institution B is signaling an emphasis on *educational excellence* as shown in the first two criteria – education is valued greatly and perhaps even more than clinical excellence. Institution B is also making clear that overall evidence of citizenship and service, along with regional reputation, are needed to be elevated to senior rank.

Understand the Unwritten Guidelines, Too

The best ways to understand the unwritten guidelines at an institution are to talk to people and to observe the patterns of who has been promoted and who hasn't (yet) been. Check in with mentors, division chiefs, academic affairs staff members, and chairs or academic deans about how to interpret the institutional guidelines. One example relates to evidence of institutional service. Service on committees that may be substantial but do not occur on the main campus may not be as highly valued. Service on committees on main campus that bring benefit to college students, graduate students, or medical students may be more highly valued than committees that focus on other stakeholders. Even extensive committee service without ever being a committee chair may be less highly valued than chairing a committee. Another example relates to how much grant funding is weighted in the assessment of a promotion package – one institution may see funding as the most important consideration, while another institution may consider citations of scientific articles the most important consideration when assessing scholarly impact.

When assessing the implicit rules in an institution, it is also important to test cultural myths, such as "you won't get promoted without a book" or "you won't get promoted without two grants." Often there may be a grain of truth to these local legends, but academic promotion and tenure committees engage in human decisional processes – they tend to evaluate portfolios holistically, and rarely are there strict threshold criteria.

Be Realistic

In approaching academic promotion, it is vital that the faculty candidate accurately evaluate his or her strengths, accomplishments, opportunities for growth and development, and contributions in support of the institution and colleagues and then compare these dimensions of performance with the written and implicit guidelines. It is best to speak with a mentor or supervisor about the entire professional portfolio and how it might compare with institutional expectations and examples of recent promotions. This can be an uncomfortable exercise, to be sure, but it can help focus one's efforts, particularly in the years just before going up for promotion.

While it is valuable to be accurate in a self-assessment, a robust candidate for promotion does not need to be absolutely perfect in every area. It is understood that faculty members, especially at the earlier phase of their academic career, will have areas of greater strength and accomplishment. It is important, however, that the candidate seek out opportunities for collaboration and contribution in the areas that are needed for promotion.

In some circumstances, the end result of an accurate self-appraisal is the conclusion that the faculty candidate will not be successful; the candidate may not be on the right faculty line, and there may have been new opportunities or challenges that took the candidate in a different direction. It is extremely important to clarify such issues with a trusted mentor or colleague and to determine what options exist in the system. For example, some institutions will allow for a line switch – but often not at the time of a formal "up or out" decision.

Build a Persuasive Narrative About Who You Are and Why You Do What You Do

The candidate statement represents an invaluable opportunity for individuals, in their own voice, to articulate who they are, what their work is, and why they have chosen to dedicate their professional lives to the work. The committee should feel moved by the statement and should understand why the work matters and why the committee should believe in the candidate. Especially if there is a gap or a transition or a pivot point in the work, the candidate must explain what happened and why the change of focus has value to academic medicine. For example, an individual who started out in basic science may have transitioned

to clinical medicine and education, or an individual who started in clinical practice may have been inspired by patients and moved to a role in which it was possible to focus on basic and translational science questions. No one can tell this story – the reasons, the context, the compelling need, the inspiration, and the new opportunities – better than the candidate. The chronology should be laid out so that the committee can see the intrinsic logic and feel the excitement of the momentum of the candidate's work.

Network, Now

Perhaps the biggest obstacle to promotion for most early career faculty members is the need to build a national reputation (see chapter "How to Build a National Reputation for Academic Promotion"). Attending national meetings, getting involved with national committees and editorial boards, giving grand rounds and talks, and engaging in scholarship are the best ways to build such a reputation. Getting started with any of these activities can be a challenge, but networking with colleagues (see chapter "How to Network and Be a Good Colleague") at and outside of one's institution is the best way to begin.

Faculty members should reach out to colleagues, offer to review manuscripts, suggest developing workshops and presentations together, and indicate willingness to help on projects, papers, and policy statements. Academic faculty members should join professional societies and become familiar with special conferences, such as those by the Association of American Medical Colleges, to meet fellow faculty members across fields of medicine. Faculty members should ask their mentors for suggestions on colleagues to meet and should ask for introductions, when appropriate. Through such efforts, faculty candidates can begin to find opportunities to contribute and to help shape scientific, clinical, educational, community, and leadership activities beyond a single institution. This is the process by which a national reputation can be built.

Get Organized

Faculty candidates up for promotion should conscientiously and regularly meet with mentors and supervisors and should develop a habit of sending email messages with good news (e.g., awards, accomplishments). Faculty candidates should attend promotion workshops at their home institution and at national meetings. In addition, faculty candidates should not let good work go by the wayside – it is important to write up good ideas and to complete manuscript revisions requested by journal editors.

Perhaps the most helpful advice is for faculty candidates to keep a careful calendar/timeline, get a box, and maintain two versions of their curriculum vitae. The careful calendar, with promotion timeline, is to ensure that progress is being made toward promotion and, especially, to ensure that no important milestones or deadlines are missed. The box is helpful for keeping personal notes, correspondence, brochures from talks, thank you notes from students and patients, and evaluations from talks at national meetings. Such items are extraordinarily valuable when putting together a promotion package. Finally, I suggest that every faculty member maintain two versions of their CV – a "picture perfect," nicely formatted CV that can be sent on a moment's notice to one's division chief or chair or to a colleague elsewhere *and* a work-in-progress CV that can be used in real time to keep track of everything in a busy professional life (see chapter "How to Prepare the Best Possible Curriculum Vitae").

Don't Shoot Yourself in the Foot

Faculty candidates sometimes feel overwhelmed by the prospect of putting together a promotion package, and they may feel afraid, undeserving, or anxious. These feelings can interfere with accurately self-assessing strengths and gaps in the portfolio and may result in procrastination or poor efforts toward preparation of the package. As promotion time approaches, it is especially helpful to work systematically through the elements of the package with the academic

affairs staff liaison – breaking the tasks down into manageable pieces – and to stay focused and goal-directed.

The one thing that will sink an otherwise excellent academic portfolio and interfere with promotion is an indication of lack of professionalism. The issues may relate to irritability and expressions of disrespect or hostility in the classroom. The issues may relate to interpersonal behaviors that make others uncomfortable. The issues may relate to conflict surrounding authorship or research conduct. These concerns are taken very seriously by every academic promotion and tenure committee, and they should be taken very seriously by every faculty member, including candidates for promotion. Professionalism and good citizenship are considered a priori requirements for senior rank at academic medical institutions, and the emerging standards appear to be much more rigorous than in the past.

Conclusion

Preparing and strategizing for academic promotion can make the process more understandable and doable, even if it still feels a bit overwhelming or intimidating. I encourage faculty candidates for academic promotion to remember that the work of academic medicine transforms human health and that the faculty candidate contributes to this awe-inspiring goal. Other key points are to see how academic promotion honors the contributions of faculty, how academic promotion can signal new and emerging institutional priorities and missions, and how being a good role model in advocating for academic promotion can open the door for future students.

Key Concepts

- Academic promotion indicates respect and regard among colleagues who have been entrusted with transforming human health. Academic promotion has intrinsic value.
- Academic promotion is meant to honor the work of faculty who serve as leaders, master

clinicians, scientists, and teachers and supervisors. Academic promotion helps to bring recognition to different mission areas and disciplines, and promotion supports strong role modeling by senior rank faculty.
- Institutions are very different in their expectations for promotion in different academic lines.
- Best practices in preparing and strategizing for academic promotion can make the process more understandable and doable.

Words to the Wise

- Understand the two main phases of academic professional development.
- Understand the written guidelines for academic promotion for various faculty lines at your institution.
- Talk with people and look for indicators of implicit expectations at your institution.
- Make an effort to assess your strengths, accomplishments, and gaps in your academic portfolio.
- Build a persuasive narrative.
- Network, network, and network to help build a regional and national reputation.
- Get organized – meet and communicate with mentors and supervisors, keep a calendar, get a box, and maintain two versions of your CV.
- Don't shoot yourself in the foot.

Ask Your Mentor or Colleagues

- What advice do you have generally about academic promotion in our field?
- What advice do you have about academic promotion at our institution?
- What mistakes or problems have you seen other faculty candidates experience?
- Am I on the right faculty line to be successfully promoted?
- How can I improve my academic portfolio? What strengths should I emphasize and which gap areas should I address?

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How to Create Your Package for Promotion

Judith P. Cain, David K. Stevenson, and Laura Weiss Roberts

Introduction

Institutions play an important role in providing an environment in which faculty can thrive such that they are recognized and rewarded for achievements through advancement in rank. While institutions have support systems in place to facilitate promotions, it is ultimately the responsibility of faculty to manage their career trajectory. Therefore, faculty need to understand that part of their academic responsibilities is to invest time and effort in preparing their materials for promotion review. The pathway to the promotion review begins with the hiring decision and continues through the early foundational years of appointment, the milestone of the midterm review, and the subsequent years in which the case for promotion is built and presented for consideration. By the time that the promotion package is submitted, the curriculum vitae (CV), candidate's statement, sample publications, educator portfolio, and related materials should reflect a record of achievement in satisfaction of promotion criteria. This chapter focuses on institutional and candidate responsibilities regarding the expectations for promotion, long-term planning for the promotion review, and the effective presentation of the promotion package.

From the perspective of the candidate, the pathways leading to the promotion review—as well as the review itself—are often seen as mysterious and confusing. This observation was confirmed in a 2008 study conducted by the Collaborative on Academic Careers in Higher Education (COACHE) [1] in which pre-tenure faculty at medical schools and health professions gave low ratings to the level of clarity surrounding tenure processes, criteria, standards, and the body of evidence needed for promotion.

Some of this mystery and confusion is complicated by the subjective, evaluative aspect of promotion standards. In that respect, there are no easy answers to questions such as the following: How many peer-reviewed articles do I need? When, what, and where should I publish? What types of grants and how much funding should I have? How many students should I be teaching and mentoring? What ratings do I have to have on my teaching and clinical evaluations? Academic careers tend to be individualized in terms of breadth, depth, and focus, resulting in

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multiple pathways to success. Thus, it is difficult, if not impossible, to draw a specific road map that can be universally applied to all faculty that will predict or guarantee a successful promotion outcome.

Appointment to the position of assistant professor in academic medicine primarily relates to the strengths and promise of the candidate. Specialty or scientific training, early professional identity within one's field, likelihood of becoming highly productive, and likelihood of having significant influence and impact within an organization and the region are critical at this stage of professional development. Senior rank—associate professor and professor levels, typically—is attained when the early promise is fulfilled. During these advanced years of professional development, impact is felt more broadly on a national and perhaps international level. Faculty members at senior rank tend to carry leadership responsibilities and have established reputations for expertise and influence. Senior rank is not simply an indicator of years of service, but a symbol of excellence and broad and enduring contribution.

The application of promotion criteria is usually centered on expectations for excellence in a particular faculty line. For example, in the tenure line, a greater proportional weight may be given to scholarship than in a more clinically oriented line where there may be a balance between clinical care, teaching, and scholarly activities. In some lines, senior-authored, peer-reviewed publications are the *coin of the realm*, while in others there may be more flexibility in considering collaborative work, case reports, invited chapters, textbooks, or conference proceedings. Different tracks may also have different timelines and expectations for progress in rank, evaluation, and formal—such as post-tenure—review.

Chapters "How to Understand Criteria for Academic Promotion on 'Traditional' and 'Research' Tracks" and "How to Understand Promotion Criteria for 'Clinician Educator' and 'Teaching' Tracks" provide guidance in understanding criteria for *traditional*, *research*, *clinical educator*, and *teaching* tracks. In addition to

evaluating achievements against the criteria for a specific line, those reviewing the promotion package will be assessing one's relative placement within a field or subfield nationally; Chapter "How to Build a National Reputation for Academic Promotion" will be helpful in mapping out a plan to build a national reputation.

Given that there is no single prescribed, quantifiable path to promotion, perceptions regarding criteria and standards can be influenced by a variety of experiences, both personal and professional. As a result, different things may be said by different people about what is needed to advance in rank. While it will be important to gather perspectives from a variety of individuals in the years leading up to the promotion review, under most circumstances, because the review will be initiated at the departmental level, the department chair is in the best position to provide guidance and counsel, to confirm current standards, and to interpret how the criteria will be applied in considering a particular case for promotion.

Institutional Responsibility

Institutions share the common goal of creating a culture and building an environment in which their faculty can develop, flourish, and succeed. In response to the COACHE study and as part of a continuing commitment to enhance professional development opportunities for early-career faculty, many institutions have made it a priority to promote accessibility, clarity, and transparency in promotion reviews. Toward that end, efforts have included making policy documents (such as faculty handbooks) widely and easily available; offering university-, school-, or department-sponsored workshops on promotion criteria and processes; developing flexible workplace arrangements that may include extension of the promotion clock; initiating annual pre-promotion discussions between the department chair (or designate) and the early-career faculty member in order to regularly assess the candidate's progress toward promotion; providing training

sessions for departmental, school, and university review committees; and actively protecting and preserving the integrity of the evaluation process by carefully following standardized procedures.

Of course, institutional responsibility is also carried out on a more direct and personal level. Through its decision to hire a new faculty member, the department has expressed its confidence not only in the individual's past and present achievements but also in his or her promise for the future. Because of this investment in the faculty member's success, the department chair, senior colleagues, and mentors will be partners in his or her professional development, providing support and honest assessment of career development and progress as the person moves through the early years of appointment.

Faculty Responsibility

While institutions have certain obligations, it is important for faculty to understand that they must be active in preparing for promotion and take responsibility for their career trajectory. As the primary stakeholder in the process, faculty should actively seek out information that will assist in the promotion process. The investment of time and effort in learning as much as possible about what is expected can pay dividends later. The confidence that comes with understanding the promotion process will enable faculty to put forth a promotion package that makes a compelling case for advancement.

Building a Strong Foundation of Knowledge

It is always a good idea to establish a baseline of information early. Candidates should reread their offer letter for details about faculty line, responsibilities, appointment term, and criteria for reappointment or promotion. They should study their institution's faculty handbook (usually readily available online), which will be an invaluable resource in providing information about the fundamentals of criteria, policies, and procedures. School or departmental websites may also provide useful information, especially with respect to any supplemental practices at those levels. A variety of other information may also be posted on these websites, such as the components of the promotion package (including the candidate's contributions), sample letters used in soliciting evaluations from referees and trainees, sample teaching and clinical evaluation forms, and timelines. If anything is unclear, especially regarding promotion criteria, the candidate should seek out answers from departmental leadership sooner rather than later.

Although the actual promotion review may be years in the future, it is important that the candidate systematically records and tracks relevant achievements as they occur. Faculty at many institutions have access to vendor or in-house web databases for the creation of e-portfolios. This is an efficient and productive way to store and update the CV, annual activity reports, and other information on scholarly, teaching, and clinical activities that will be needed for the midterm and promotion reviews. Understanding the scope of and required formats for these materials will allow the candidate to collect and organize information cumulatively rather than at the last minute.

As mentioned previously, many institutions offer orientations or regular workshops for faculty focusing on such topics as promotion criteria, timing, and dossier preparation. Candidates for promotion should make every effort to participate in such sessions; if they are unable to attend, they should ask for copies of the slides or handouts from the meeting and follow up with questions, if necessary. They should also be alert to other workshops that may be held on such topics as time management, work-life balance, negotiating skills, and networking within and beyond the boundaries of their institution, all of which are aimed at enhancing professional development and success as a member of the academic community.

Annual meetings with the department chair or designate will provide a regular opportunity to

discuss and measure progress against criteria for promotion. If such annual meetings are not common practice in their department, faculty members should initiate them. Annual meetings are particularly important in the early years of the appointment in order to provide ample time to address any issues and, if necessary, make course corrections well in advance of the promotion review. Mentors can also provide guidance and counsel and be good sounding boards as the candidate moves through the first, second, and third years of appointment.

The Midterm Review and Beyond

Typically, candidates will have a formal review of their performance near the midpoint of the appointment. For assistant professors who are on a 7-year appointment track, this review will be conducted in either the third or fourth year of appointment. At many institutions, the midterm evaluation is not as extensive as the promotion review but shares some of the same elements and thus can serve as a useful preview. Feedback from the review should be used to address any concerns and to build momentum that will carry the candidate through promotion review 3 or 4 years hence.

After the midterm review, efforts should be stepped up to gather perspectives that will be of value and benefit as the promotion review draws closer. Those who have invested in the candidate's success, including the department chair or division leader, senior colleagues, and mentors, will all be in a position to provide targeted, strategic counseling and feedback. Departmental or school administrative staff will be able to provide technical advice about the process. Colleagues within or outside the department who have recently been promoted may be willing to share their experiences. Senior faculty who have completed terms of service on school or university review committees may be able to provide insight into what distinguishes a superb promotion dossier from a weak one. It is important to note that under most circumstances, it is considered inappropriate to approach faculty currently serving

Table 1 Sample pathway to the promotion review

Year 1	Re-read offer letter; study faculty handbook; review relevant websites, create an electronic portfolio to record and track achievements systematically
Year 2	Attend promotion workshops; meet frequently with mentor(s); meet with department chair annually to discuss progress toward promotion
Year 3	Understand policies regarding promotion clock extensions; prepare materials for midterm review
Year 4	Midterm review
Year 5	Incorporate and act on feedback from midterm review
Year 6	Continue regular meetings with mentor(s) and annual meetings with department chair; initiate conversations with those recently promoted; seek strategic advice from senior colleagues
Year 7	Begin preparation of promotion package; circulate CV and candidate's statement for feedback; submit promotion package

on review committees and inquire about the disposition of a particular dossier (Table 1).

Timing of the Promotion Review

In order to prepare for the promotion review, candidates need to be familiar with issues surrounding timing. The length of the appointment term—and therefore the timing of the promotion review—may depend on which faculty line the candidate is in. For example, in the School of Medicine at Stanford University, early-career faculty who are in the University Tenure Line (with a primary emphasis on research and teaching) typically have an initial appointment of 4 years followed by reappointment for 3 years; the tenure review is then initiated at the beginning of the seventh year in rank. Faculty in the Medical Center Line (where there is an expectation for excellence in the overall mix of clinical care, research, and teaching) are on a 10-year appointment clock, with an initial appointment of 4 years followed by a 6-year reappointment; the promotion review starts at the beginning of the tenth year.

At many institutions, there is often flexibility around extending the appointment end date for faculty who become new parents. Early on, faculty members should learn about this or any other

circumstances that might result in favorable consideration of such an extension. On the other end of the spectrum, there may be flexibility regarding consideration for early promotion. Coming up early for promotion and extending the timing of the decision both require advance planning and close consultation with the department chair.

Typically, the promotion review will be launched up to 1 year in advance of the candidate's appointment end date. Timelines will vary institution by institution but are influenced by a common set of rate-limiting requirements, including the often lengthy process of soliciting and receiving letters from referees, students, and trainees; gathering, presenting, and evaluating evidence regarding scholarship, teaching, and clinical activities; and undergoing multiple levels of evaluation by departmental, school, and university review committees. All of this can and does take time. A sample timeline of the promotion process is included in Table 2.

One of the topics at the midterm review should be the timing of the promotion review. Candidates will need to know not only the date when their department will formally launch the review but also the approximate deadline for submission of materials, which will allow them to plan accordingly. For example, if candidates are on a 7-year promotion clock, their review could be initiated as early as the *beginning* of the seventh year of appointment. Given the demands on their time, candidates should normally allow between 3 and 6 months to assemble the promotion package. Candidates may need less time, but it is better to provide the luxury of a *cushion*.

Candidates for promotion have the responsibility for designing and pursuing a schedule of research that results in publication in advance of the promotion review. Generally, by the time materials have been submitted, the candidate's dossier should predominantly reflect a record of actual accomplishment (which confirms status in

Table 2 Sample promotion process timeline

Clock	Tasks
14 months before promotion	Dean's office and department confer about the promotion review
13 months before promotion	Dean's Office sends email notifying the faculty member that the review has commenced, copying the department chair. Faculty member provides CV, candidate's statement, list of current and former trainees, suggested referees, teaching evaluations, and sample publications
12 months before promotion	Department identifies the review committee members. Department reviews candidate's materials and requests revisions, if necessary
11 months before promotion	Department compiles referee list and, if appropriate, the comparison peer list. Department solicits evaluations from internal and external referees and trainees. Department chair makes writing assignments for all sections of the promotion file requiring written text (scholarship, clinical duties, teaching duties, etc.)
10 months before promotion	Department awaits receipt of referee and trainee letters and sends reminders, if necessary
9 months before promotion	Department receives most or all of the referee and trainee letters. Sections on scholarship and clinical and teaching activities are finalized
8 months before promotion	Department receives all referee and trainee letters. All written portions of the file are completed. The review committee has met or a meeting is scheduled. Post-review, the review committee provides a written evaluation of the candidate
7 months before promotion	Department concludes its review by any and all voting bodies. Department completes promotion file. Dean's Office reviews file and suggests revisions, if necessary
6 months before promotion	Final version of the departmental file is prepared for review by higher levels
5 months before promotion	School conducts review. This step may involve multiple levels of review (e.g., Appointments and Promotions Committee, Dean)
1–4 months before promotion	University conducts review. (This step may involve multiple levels of review, e.g., university-wide review committee, provost, president). Candidate is informed of the promotion decision
Promotion becomes effective	Formal notification letters are issued. Administrative systems are updated

the field) rather than work that has been submitted or accepted but not yet published (which may speak more to promise). Similarly, the faculty member's career should be managed so that teaching and clinical care records are robust and ready to be evaluated by the time that the promotion package is submitted.

Review committee members will expect expert referees to assess the candidate's impact and influence as a scholar through the lens of work that has been subjected to broad, formal scrutiny and cited by leaders in the field. Although unpublished work cannot be evaluated in the same way, it is important to document works in progress in the CV and personal statement as this will be valuable in confirming momentum and upward trajectory.

Along with understanding the timing of the review, it is also important to be on time in submitting promotion materials. Candidate-driven delays can raise issues of professionalism at a highly inopportune time. If there are compelling reasons why a candidate is unable to meet any deadlines for submission of the dossier, the department chair should be informed immediately.

The Components of the Promotion Package

From evaluations by referees and students to departmental commentary and analysis of a candidate's contributions, there are many interconnected components of the promotion review. Its centerpiece, however, is the candidate's contribution, which provides an opportunity to both showcase accomplishments and to illuminate future plans. Sometimes called a *dossier* or *portfolio*, such contributions will typically include the following:

Curriculum Vitae

Chapter "How to Prepare the Best Possible Curriculum Vitae" of this book focuses on how to prepare the best possible CV when joining a faculty. Building on that strong foundation, here are some things that candidates should consider when preparing a CV for the promotion review:

- Build the CV systematically and over time, using online tools to collect and track accomplishments and contributions.
- If the institution requires a standardized format, use it.
- Review sample CVs on departmental or school websites, or ask recently promoted colleagues if they would be willing to share their CV.
- Distinguish between peer-reviewed and non-peer-reviewed publications and between invited presentations (even those declined) and *call for papers*. Those who will be reviewing the promotion package will be expecting this distinction, and not making it can create confusion or give the impression that the candidate is mischaracterizing his or her contributions.
- Authorship practices in many disciplines follow a traditional pattern in which the first author listed is the primary author and the last author listed is the senior author associated with the work. If practices differ in a discipline, this should be explained in a footnote or in the candidate's statement.
- Note which publications are in press and which have been submitted and to which journal.
- For teaching contributions, use a broad definition that includes the classroom, laboratory or clinical setting, advising, mentoring, program building, and curricular innovation.
- In addition to clinical contributions that are reflected through scholarly and teaching activities, such things as medical consultancies, hospital appointments, and patients should be highlighted.
- There is a fine line between being comprehensive and padding the CV; candidates should learn the difference by concentrating on substantive contributions, and, if uncertain, they should ask the department chair, mentor, or colleagues for advice.
- If responsibility for keeping the CV up to date has been delegated to administrative staff,

candidates should remember that they are ultimately responsible for its content. The document should be read thoroughly and proofread by at least one other person.

With the increasing prevalence of *team science*, it can be challenging for committee reviewers to determine the nature of individual substantive contributions to multi-author works when reviewing a CV. Under such circumstances, candidates might want to consider briefly annotating selected bibliographic entries to highlight individual contributions to collaborative efforts. According to the International Committee of Medical Journal Editors, authorship should be based on the following criteria [2]: "(1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; and (2) Drafting the work or revising it critically for important intellectual content; and (3) Final approval of the version to be published; and (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved" (see also [3]).

Candidates should anticipate that reviewers will notice if there are unusual gaps in the CV and should provide context for any gaps in their candidate's statement. For example, a shift in research direction may have influenced productivity, the rate of publications flowing out of clinical trials may have been slowed due to lengthy periods of design and implementation, or sanctioned periods of protected time for research may have resulted in a reduced number of teaching opportunities. In providing this information, the tone should be explanatory and not defensive.

Candidate's Statement

Sometimes called the *personal* or *self*-statement, this document serves as the candidate's voice in the promotion review and as a rich resource to those evaluating the case for promotion. In this narrative report, candidates will have an opportunity to discuss their accomplishments to date; the intersections of their scholarly, teaching, and clinical care contributions; and their plans for the future. Inclusion of a candidate's statement in the promotion package is sometimes optional but is almost always a good investment of time and effort. More often than not, institutions will have a required format, as well as page limitations. Knowing this well in advance will provide candidates with a framework in which to craft and effectively present their case for promotion.

There will be multiple audiences for the candidate's statement. Some readers, including departmental colleagues and external referees, will have expertise in and an understanding of the evolution of the candidate's discipline. Others, including members of school and university review committees, the dean, and the provost, may have homes in disciplines further removed from or entirely outside of academic medicine (such as physics, economics, or history). Because of this, candidates should take care to describe their accomplishments in lay terms that will be understandable and accessible to those outside their field.

With the caveat that the faculty member's department will be the primary source for information regarding the content and format of the candidate's statement, the following general guidelines may prove useful:

- While it is often appropriate to include contextual information regarding earlier contributions, it is usually important to concentrate on achievements made during the current term of appointment. For example, if the candidate is being reviewed at the beginning of the seventh year of appointment, accomplishments realized over the last 5 or 6 years may prove most relevant for purposes of evaluating satisfaction of criteria for promotion.
- In order to provide evaluators with a sense of career trajectory, it is important to include a discussion of near-term (e.g., works in progress), longer-range plans, and goals for future work.
- Commentary should be included for each area on which the candidate will be evaluated, and the statement should be organized to align

with the relative weight given to promotion criteria. For example, if the candidate will be evaluated primarily on clinical care activities (and, presumably, the highest proportion of time is dedicated to that area), the candidate's statement should begin with that and then, in descending order of weight and contribution, address other areas of contribution.

- The section on scholarly activities might include a general description of the overall investigative program and major contributions and accomplishments. The candidate might emphasize recent achievements, major publications (including those that rank highly on citation indices), and scientific discoveries and discuss how these have impacted knowledge, further research in the field, and/or patient care. The candidate might also emphasize major grants, awards, and future goals, including ongoing research projects, publications planned for submission, and grant applications planned or in review.

- As mentioned previously, if authorship practices in the faculty member's discipline vary from the norm, this should be explained in the candidate's statement.

- The section on teaching might include commentary on clinical *bedside* teaching (e.g., medical students, residents, fellows, ancillary staff, and visiting or community physicians); didactic instruction, including informal lectures in the clinical setting, formal classroom lectures, and continuing education; career mentoring and advising contributions; research mentoring and director supervision (undergraduate students, graduate students, postdoctoral fellows, medical students, residents, clinical fellows); prestigious positions obtained by former trainees; program or curriculum development; teaching awards; and future goals and plans.

- Commentary on clinical care activities could include discussion of the candidate's area of expertise and inpatient/outpatient/procedural contributions, percentages of time spent in clinic or the operating room, interaction with or consultation to other services, outreach contributions, development and/or implemen-

tation of new clinical trials or protocols and their real or potential impact, grand rounds, clinical care awards received, and future goals and plans.

- Some institutions protect early-career faculty from administrative commitments but, if relevant and applicable to promotion criteria, a description of service roles, responsibilities, and accomplishments should be included.

- In cases where promotion criteria include regional or national recognition, service positions (e.g., editorial or grant reviewer), major invited presentations or visiting professorships, organized conferences and symposia, and elected leadership positions or honors and awards from professional societies should be highlighted.

Sample Publications

Many institutions require or encourage submission of work, usually in the form of publications, as part of the promotion package. In some cases, such samples are shared locally, that is, with departmental faculty and/or departmental school and university evaluation committees. In other cases, a candidate's publications will also be sent to external referees. Since the number of publications to be submitted is usually limited, it is important that they be selected with thoughtfulness and care.

Normally, sample publications will be those that have appeared in print. Occasionally, however, there may be compelling reasons to include submitted or accepted manuscripts that are unpublished at the time of the promotion review. Candidates are encouraged to seek guidance from the department chair, mentor, or senior colleagues in this matter.

Educator Portfolio

An *educator* or *teaching* portfolio is sometimes a required component of the promotion package. As with the CV and candidate's statement, there may be a prescribed format, which should be fol-

lowed closely. Chapter "How to Develop an Educator's Portfolio" of this book may be used as a guide in developing an educator portfolio.

Referees

Candidates for promotion are often asked to provide the names of leaders in the field who would be in a position to evaluate their work. The composition of the referee set varies by institution but may include a combination of mentors or collaborators of the candidate as well as those who are at *arm's length* and can provide independent perspectives. Colleagues within the candidate's institution may also be asked to provide a letter of evaluation.

For many reasons, including opportunities for advancement in their career, it is important for faculty members to be active and visible members of their discipline by participating in conferences and symposia, making presentations to national audiences, and serving on review panels and editorial boards. Likewise, it is crucial to establish, build, sustain strong relationships with departmental colleagues, and, given the evolving interdisciplinary nature of many fields, make connections across other departments. Through such networking activities, the candidate will be well positioned to suggest the names of referees who are familiar with his or her work and will be able to provide a substantive and meaningful evaluation.

Post-Submission of the Promotion Package

After materials have been submitted, departmental staff will contact the candidate if questions arise. If significant events—such as grants, publication acceptances, or awards—occur *after* the promotion package has been submitted, candidates should check with their department chair to see if there is a way for this information to become part of the record under review.

In the interest of transparency and clarity, the department chair should be able to provide the candidate with an approximate timeline for the final decision. Depending on an institution's pol-

icies, this could be either weeks or months, although the candidate may be informed at intervals as the review passes from one level to the next. Most institutions take extensive measures to protect the privacy of the candidate by preserving the confidentiality of the information received about him or her. At the same time, institutions expect that candidates will similarly respect the confidentiality of the process. Therefore, under normal circumstances, the candidate should not request or seek to discover confidential information from individuals within or outside the home institution who may be involved in the review process. The department chair will be in the best position to address any ambiguities or concerns the candidate might have in this regard.

Promotion Rates

Promotion rates are tracked in various ways. At Stanford University, data for faculty in the tenure line are organized by 5-year hire cohorts with outcomes across four categories (tenured, denied tenure, resigned, or other [including those who were to be reviewed at a future date]). For example, of the 107 tenure-line assistant professors hired into clinical and basic science departments from 1990 to 1999, 65 were granted tenure, 6 were denied tenure, 18 resigned, and 18 fell into other categories, which resulted, for that hire cohort, in a tenure rate of 60.7%. However, isolating the 71 faculty who came up for tenure, the success rate rises to 92%.

The Association of American Medical Colleges (AAMC) analyzes promotion rates for tenure-track and non-tenure-track assistant and associate professors in a similar manner. The data are collected and analyzed through the Faculty Roster database, which is the only national database on the employment, training, and demographic background of US medical school faculty.

In the past, data gathered by the AAMC revealed relatively low promotion rates of 54.9% for tenure-track and 35.2% for non-tenure-track assistant professors in a 1987–1993 hire cohort. However, these low rates were likely influenced,

as are the Stanford percentages, by the number of faculty who did not come up for promotion. For example, outcomes for a hire cohort of 120 assistant professors could include 70 faculty who were promoted, 20 faculty who were not promoted, and 30 faculty who, due to resignation or other factors, did not come up for promotion. In looking at the entire cohort, the promotion rate would be 58%. The rate would rise to 78% for actions in which a promotion decision was rendered. Generally, promotion rates are higher for those groups of faculty who successfully travel through their first and second terms as assistant professors and undergo the promotion review.

Data on national outcomes and trends are helpful to academic leaders in calibrating promotion rates at their own institutions. However, pathways to individual promotion reviews are as varied and unique as the candidates themselves. Outcomes are dependent upon many factors including, importantly, a strong partnership between the candidate and institution on which a successful case for promotion can be made.

Words to the Wise

- Demystify the promotion process by reading the faculty handbook, studying websites, and reviewing template letters to referees and clinical/teaching evaluation forms. Understand policies regarding promotion clock extensions and early promotions.
- Collect and organize contributions cumulatively through an e-portfolio.
- Gather perspectives from mentors and colleagues, but identify one person—usually the department chair (or designate)—who will serve as the authoritative interpreter of criteria and of the promotion review process.
- Attend and actively participate in career development and promotion workshops.
- Meet annually with the department chair to track progress toward promotion. Incorporate feedback from the midterm review into an action plan, and refine the timeline that leads to a robust body of scholarship, teaching, and

clinical contributions by the time the promotion package is submitted.
- Understand the timing of the promotion review and when candidate materials are due.
- Circulate the promotion package to mentors and colleagues for review and advice.
- Determine which, if any, information can be provided post-submission of the promotion package (e.g., accepted publications, awards, grants).

Ask Your Mentor or Colleagues

- What should you do when the guidance you are receiving from your mentor conflicts with your own sense of what is needed for promotion?
- What was the most important feedback you received from your midterm review?
- How did you find the right voice in writing your candidate's statement for two audiences: experts in your field and faculty from other disciplines?
- What is the most valuable lesson you learned from the promotion process?

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How to Understand Criteria for Academic Promotion on "Traditional" and "Research" Tracks

Cheryl Gore-Felton

Congratulations! You have accepted a job offer and, for many of you, uprooted yourself and your family to pursue your academic career. This is a great achievement that is often accompanied by a mix of emotions, ranging from joy and excitement to fear and anxiety. This is a normal reaction to being in a novel situation where the outcome matters a great deal. We all want to do well in our careers and make a difference for our patients, students, and the communities we serve. However, the blueprint for how to sustain our careers through advancement and promotion is often hard to locate. In part, this difficulty is associated with the unique and diverse positions that each of us holds, making it hard for institutions to develop a single blueprint that will fit all of us. However, there are things that we can do to understand the criteria for successful promotion through the ranks, even for those of us who are "one of a kind." The aim of this chapter is to assist you in locating and understanding the criteria for promotion so that you can build a compelling case for advancement at your institution.

Locating Criteria for Promotion

Believe it or not, the best time to understand the criteria for promotion is before you accept the job offer. You need to know what the time line, patient and education responsibilities, and scholarly productivity are at your rank and faculty track for promotion before you start, so that you will have an idea of what it is going to take to be successful. This information will enable you to plan! It might even impact whether or not you accept a particular job offer.

Every institution has, in writing, criteria for appointment, reappointment, and promotion, and most places have created a *faculty handbook*. It is important to read your institution's faculty handbook and have a good understanding of its contents. You should ask for clarification and explanation of the policies and practices prior to accepting a position. In fact, you might be able to negotiate some of the practices as part of your job offer. For example, you might successfully argue that because you have been an assistant professor elsewhere, you want to expedite the advancement process and be evaluated early for promotion to associate professor in your new position.

The faculty handbook at most places can be located online using common search engines (e.g., Google, Yahoo, Bing, etc.). If you cannot locate it online, then contact the office of academic affairs and request it. If there is no handbook, then request the written criteria for

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reappointments and promotions that pertain to your faculty track from the Chair of your search committee or the department Chair. Once you have read the handbook or written criteria, you need to make sure you understand what it means. This is a conversation you can have with the Chair of the search committee who you have been working with to get your job offer, the department Chair, or some other designee working on behalf of the department Chair's office. For those of you who have already accepted a job, your mentor or supervisor is a person that you will want to discuss the promotion criteria with.

Professional Developmental Perspective

As you begin your career, you should seek mentorship, explore your interests, and develop collaborative relationships with colleagues within and outside of your institution. The early years of an academic career are often marked by specialty or subspecialty training, establishing professional identity, developing a unique role and expertise, high productivity (i.e., scholarship, clinical, teaching, and for some program development), establishing an academic reputation (see tips in Table 1), and providing service to the

Table 1 Tips for building an academic reputation

Publish in peer-review journals.
Obtain extramural funding.
Participate as a reviewer on Scientific Review Panels.
Present papers or symposia at Regional and National Conferences.
Present at grand rounds (near and far).
Learn how to mentor effectively.
Serve on your professional organization committees.
Review peer-reviewed articles for high-impact journals in your field.
Become a member of the editorial board for a journal in your field.
Send your recent publications to individuals with shared interests in your field.
Attend icebreakers and social hours at conferences.
Self-nominate or ask a mentor to nominate you for career awards.
Engage in leadership service (e.g., local, regional, national committees).

department. In contrast, mid- to late-career years are often marked by consolidating and strengthening expertise; assuming leadership responsibilities; enhancing your academic reputation; mentoring junior faculty; maintaining a high level of productivity; expanding contributions and service to local, regional, national/international domains; and seeking generative activities and roles [1] .

Making Sense of the Practices and Guidelines

Now that you have an idea of the developmental process from a 30,000 foot point of view, it is a good idea to understand the specifics that will move you through the promotion process. Often faculty will read the promotion criteria and say, "What does this mean for me and my situation?" Everyone's situation is unique and this is why there is no substitute for regular communication with your department Chair and mentor/supervisor regarding your progress and the time line for your promotion.

Departments and institutions have some form of peer-review process for appointments, reappointments, and promotions. In fact, department appointment and promotions committees are charged with reviewing academic portfolios and render recommendations based on their review and discussion of your materials. Traditional and research positions in academic medical centers typically require excellence in the following key areas: (1) scholarship (i.e., publications), (2) research, (3) clinical service, (4) education, and (5) service. Each of these areas has unique evaluation criteria, and for those of you who have a "mix" of responsibilities, it will be important to understand how you, in particular, are going to be reviewed.

Typically, the amount of effort devoted to any one area will dictate how much influence or "weight" it is given in the review process. For instance, if you are devoting 80% effort to research and 20% to clinical service, the weight of your review will focus on your achievements in research. This means that your research pro-

ductivity (i.e., publications and funding) needs to reflect the fact that you are devoting most of your time to those efforts. Similarly, if you devote 80% to clinical service, the weight of your review will be on the achievements in your clinical practice. In most institutions, faculty devoting most of their time toward clinical service are also required to have high-quality scholarship to advance through the ranks. Understanding the metrics that are used for evaluating each of the areas you will be reviewed on is important because it will serve as a guide, informing you on what you need to achieve to move through the academic ranks. Once you have an idea of what the expectations are for you in your department, there are behaviors that will assist you and your department when it is time to put your materials together for promotion review.

Key Behaviors That Facilitate the Promotion Process

Peer comparisons are used to evaluate your academic success. Understanding how you compare to your peers will help you to move through the promotion process. First, do not try to guess or make assumptions about how you are doing. Departments set the standards for excellence and you can get an idea of what that "looks" like by reviewing the curriculum vitae (CV) of successful peers and colleagues, particularly those that have been promoted recently—standards do change, so what was acceptable 5 years ago might not be sufficient today. So, think about the faculty in your department who have been recently reappointed or promoted and are similar to you in rank and the type of responsibilities they carry in the department. Ask if they are willing to share a copy of their CV that they submitted for promotion review, and conduct a peer comparison in the following five key areas: scholarship, research, clinical service, education, and service. Remember no two careers are exactly the same. While the peer comparison will not provide with you with an exact blueprint, it will provide you with the *level* of excellence required for advancement.

Scholarship

When reviewing scholarship, note the type (i.e., peer review versus non-peer review) and number of publications, the journals where the faculty is publishing, the rate of publications (i.e., on average how many each year), and the program of research. It is important to understand "when the clock starts" for publications. For instance, some institutions may only count publications since your appointment at that particular institution, while others might count all of the publications no matter when you published them. It is also important to understand authorship order. Generally, assistant professors need to establish their reputations so at least half of their publications should be first author. As you move through the ranks, you are expected to mentor others by taking on a more senior or mentor role which for most academic medical centers is represented by the last author position. The expectation of your department or institution regarding authorship order across the ranks is a detail that is important to get clarity on. Once you know what is expected, you can plan your publications and authorship order accordingly.

Research

Funding and impact are metrics that are typically used to evaluate a program of research. Consistent funding from peer-review sources like the National Institutes of Health (NIH) suggests high quality and high impact. This is not to say that private funding or other sources do not have high quality and high impact, it is just often easier for reviewers to judge the quality and importance of funding sources they are familiar with. This simply means you might have to do a little extra work to "educate" the reviewers on your funding sources if they come from atypical sources and are not well known. Once you get an idea of the level of achievement your peer comparisons have, ask yourself "How do I compare with them?" Note the areas you are strong and the areas that you need to grow or build. Discuss your "growth" areas with your supervisor or mentor, and develop a strategy along with a time line for addressing these areas.

Like any good goal, you need to be able to track your progress and hold yourself accountable. Reward systems work better than punishment, so when you meet a goal you set for yourself, find ways to reward the accomplishment. If you did not meet your goal, then try and figure out what the barriers to your success were, and then develop a plan to minimize those barriers. You might find that support from other people or sources is helpful. For instance, if you are having difficulty writing papers, there are plenty of resources (e.g., books, websites) that offer great tools to assist you [2, 3].

Clinical Service

It is important for you to find out how your clinical service will be evaluated so that you can develop a successful clinical practice. Some departments and physician practices use what is called relative value units (RVUs) to evaluate the success of clinical practices. RVUs are based on Medicare reimbursement for a particular service. An algorithm that splits the RVUs into physician work, practice expenses, and malpractice insurance combines these components with an adjustment for geographic practice cost along with a scaling factor that converts RVUs into a dollar amount. The dollar amount is multiplied by what is known as the conversion factor to determine the Medicare payment that clinical practices receive. The conversion factor is calculated by use of a complex formula that considers factors such as the overall US economy and number of Medicare beneficiaries [4]. Find out if you have a billing target. If you do, then it will be your responsibility to develop and maintain a practice that allows you to meet or exceed your billing targets while providing a service to the communities you serve.

Education

The mission of education is the primary reason for pursuing an academic position. The role of a mentor, supervisor, and teacher is integral to the success of academic medical centers. Faculty engage in various types of education that include teaching formal courses, facilitating seminars, supervising clinical cases, and mentoring research activities. Evaluating this role is often difficult because of the nature of the work. Educational activities tend to occur at a specific time with limited people over a period of time, making it difficult to get "real-time" feedback. Therefore, evaluation forms are typically used. The forms are usually given to the evaluators at the end of the education experience. The ratings on these forms, coupled with comments that are provided, form the basis for evaluating your effectiveness as an educator. It is important for you to keep track of your students and their accomplishments, particularly those that result from your mentorship because this provides evidence of your effectiveness as an educator.

Service

A rewarding aspect of faculty life is providing service to community in which you work. Committees such as the Institutional Review Board (IRB), faculty search, appointment and promotion, as well as program development along with councils that include faculty senates enable the missions of an academic institution to be achieved. Too often service is viewed as a burden, getting in the way of research, clinical practice, and teaching. However, a committee where you can use your expertise will make it interesting for you and will contribute to the overall functioning of your department or institution. Committees are also a good way to gain visibility and provide experience for leadership opportunities as you advance in your career. Find a committee that is appropriate in terms of time commitment and value to your department. Your Chair or mentor can provide guidance and may be able to suggest opportunities that enable you to provide an institutional service that is also rewarding to you.

Routines and Habits

No one knows your career and your achievements better than you do. Therefore, it is impor-

tant that you develop routines to consolidate information you will need for promotion (see "Words to the Wise" at the end of this chapter). Routines enable you to develop habits that will help you to keep your information organized. For example, you might want to schedule a half hour each week where you update your CV. Searching for information can take up valuable time and lead to frustration, so put information that needs to be included on your CV in a file. Alternatively, keep a "working" CV. This is an electronic document that has a running list of everything you have accomplished that you update on a regular and consistent schedule. It is a good way to have all of your information in one place on your computer, making it easy to retrieve important career facts. Remember, the CV is the primary document that is used in reviewing your academic accomplishments, so spend some time developing habits that will enable you to capture your work on an ongoing basis. It is also important to be aware that opportunities can arise that require immediate submission of your CV; being prepared will ensure you submit your materials on time.

Keep a copy of all your teaching evaluations in your file folder or box. If you are invited to give a talk, ask the organizer to hand out evaluations and provide you with a copy. Make sure you have contact information for students you supervise or mentor, so that your department can get them to complete evaluations on your behalf. You need to manage your career with the energy and commitment that a CEO manages a company. It takes time and strategic planning—this is not a passive activity [5, 6]. Individuals who manage their data well are at an advantage because they will be able to strategize where to put their effort at any given time so that by the time they are up for promotion, they will meet all the promotion criteria.

After advancing from assistant to associate professor, you might ask yourself "Why should I be concerned about being promoted to full professor, especially if there is no mandate for me to do so at my institution?" There are several reasons why faculty should progress through the ranks.

The first reason is an issue of fairness. The longer you have been on the faculty, the more wisdom you are going to accumulate and you will be called upon to mentor individuals junior to you. You are performing the duties of a full professor, so you should get the recognition through the title along with the compensation.

Second, most top leadership positions in academic medicine require the rank of full professor. As our healthcare system changes and reimbursement is affected, academic medical centers will continue to face enormous fiscal challenges that impact its mission which will require innovative leadership from diverse groups of faculty. An environment that promotes their faculty through the ranks creates a diverse pool of individuals who can assume leadership roles and positions. This is important because an examination of the distribution of US medical school faculty by rank and gender [7] illustrates the need to balance gender in leadership positions (Fig. 1) and underscores the need to retain and promote faculty through the ranks, particularly women.

Finally, a culture of excellence cannot be sustained if faculty are not striving for excellence themselves. Students, fellows, and junior faculty are being challenged to excel, and they are looking for role models among the faculty across all of the ranks. Thus, it is the responsibility of all faculty to be role models of excellence, and one of the best ways to do this is through academic advancement.

In summary, effectively managing your time and planning for your promotion will establish an excellent foundation for meeting the criteria for promotion. Although this chapter focused on the individual effort required for promotion, it is important to note that promotion requires input from your supervisors, mentors, peers, colleagues, experts in your field, and institutional administrators. Every interaction and meeting you have is an opportunity for individuals to get to know you and evaluate your potential as a leader in your field. To function at an optimal level of excellence, an academic environment needs faculty who are collegial and can work together well. To that end, be mindful and respectful of your professional relationships in every interaction.

Fig. 1 U.S. Medical
School Full-Time
Faculty Distribution by
Rank and Gender as of
December 31, 2017.
*Note: A total of 452
individual were
excluded because they
did not report gender.
(Adapted from
Table 9 in [7])

174,118[‡] Medical School Faculty (41% Women & 59% Men)

Words to the Wise

- Get peer comparisons.
- Take stock of where you stand, so you are aware of your strengths and areas you need to build for promotion.
- Publish and update your CV on a regular schedule, using a calendar to stay on track and maintaining a "working" CV that has all of your career activities.
- Keep career-related information in one place (e.g., file folder, box).
- Maintain copies of teaching evaluations.
- Maintain contact information on students that you supervise or mentor, so that your department can get letters and evaluations from them for your promotion portfolio.
- Keep a developmental perspective and engage in activities accordingly. Remember early career activities may not necessarily be appropriate for mid- or late-career progression.

Ask Your Mentor or Department Chair

- Where can I get the criteria for reappointment and promotion?
- When will my material be reviewed for promotion?
- What types of information are used by the department and institution to determine "reputation"?
- Can I get an informal review of my CV and feedback on where I am strong and where I need to focus to be a strong candidate for promotion?

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How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks

Michelle Goldsmith

> My greatest moments as a teacher are when one of my mentees has internalized my belief in them so they can face a patient with the courage of their convictions and say what needs to be said without fear that they will make a fool of themselves [1].
> –Glen O. Gabbard

Clinical educators transmit a body of skills and core values to transform the medical school experience into an apprenticeship by providing face-to-face, immediate teaching—at the bedside, in the clinic, or through formal didactics and informal teaching. There are few professions which offer this rich and varied learning environment. Moreover, clinical educators have a unique opportunity to integrate their knowledge, skills, and beliefs into the institutional curricula, thereby benefiting future generations of clinicians.

The value of the contributions made by clinical educators to their academic health centers is more difficult to quantify than the number of grants and publications produced by their research-focused colleagues. Therefore, clinical educators may worry about their chances for promotion, their ability to thrive in the academic medical environment, and their capacity to deliver high-quality teaching while meeting the demands of clinical productivity [2, 3]. Be reassured that clinical and educational programs are central components of academic medical institutions; retaining motivated, skilled, and dedicated clinical educators is a high priority for most institutions. For clinical educators, thriving in the academic environment requires more than being a skilled clinician and teacher. Knowing how to navigate the academic environment is a sine qua non for professional success and fulfillment [4]. To that end, this chapter provides a framework for the promotion process and offers suggestions on how to find gratification in this diverse role as teacher, clinician, scholar, and leader.

The Clinical Educator: Definition and Expectations

Prior to the mid-1980s, the "triple-threat" faculty member who excelled in research, teaching, and clinical care represented one ideal model for success. Due to increased competition for funding, and the pressures of meeting clinical productivity requirements, some faculty have gravitated toward distinct roles of clinician-educator or clinician-researcher. The ability to successfully carve out a role has disproportionately challenged women [5]. Similarly, academic health centers, in response to trends in academia and to generate funds to support

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medical education [3], distinguished between teaching and research positions by developing specific career paths for clinician educators. Over the last two decades, the number of academic medical institutions with clinical educator promotion and tenure tracks has grown substantially.

Currently, the faculty handbooks of most academic medical centers define clinical educators as an academic educator, teaching scholar, or clinician-teacher. The definition varies widely; consult your faculty handbook to understand how the role is defined within your institution. The information provided in this chapter describes normative definitions. It is important to note that documented expectations for clinical educator role may not cap-

ture the nuances of the dynamic and multifaceted position. Speaking with colleagues within your institution who have successfully attained promotion remains an important source of information.

On the surface, the clinical educator is someone who is primarily engaged in clinical care and teaching that advances the field of clinical medicine. Therefore, clinical educators distinguish themselves in four domains—clinical care, teaching, scholarship, and leadership/administration. These performance areas are the benchmarks commonly used to demonstrate high achievement and form the basis for promotion (see Table 1 for instruments used to assess performance areas).

Table 1 Areas of performance and methods of documentation for the promotion process: (may vary by rank)

General requirements	Current curriculum vitae (CV)
	Letters of reference from colleagues and/or mentors
	Peer evaluations
	Record of additional training to develop expertise
	Documentation of institutional citizenship or contribution to departmental efforts
Clinical care	Record of clinical productivity
	Clinical competency evaluations
	Physician referrals and written recommendations
	Patient feedback
	Development of a program to improve the quality of clinical care, meet an institutional need, or improve clinical outcome with supporting data
Teaching	Teaching awards
	Timely supervisee feedback
	Trainee evaluations of supervisory skills
	Letter of reference from former mentees
	Documentation of learner achievement: residency and fellowship match, job, scholarship
	Educator's portfolio
	Educational philosophy statement
	Short- and long-term goals as an educator
	Lists of supervisees, medical students taught, and time spent
	Educational contributions by category:
	Teaching
	Learner assessment
	Curriculum development
	Mentoring and advising
	Educational leadership and administration
Administration/ leadership	Committee membership, leadership roles, and documentation of completed work
	Documentation of positive change as a result of novel programs benefiting clinical care, teaching, or institutional goals, e.g., quality improvement measures
	Professional society membership, leadership, committee membership, and documentation of accomplishments
Scholarship	List of peer-reviewed publications
	Letters of reference from research mentors
	Peer-reviewed publications cited by others
	Documented use of novel teaching or research tools used by other educators
	Grants or other sources of funding, e.g., your institution or professional society
	Accepted abstracts/presentations/workshops at other institutions, community health-care organizations, professional societies
	Peer reviewer for journal/journal editor

Specific Expectations by Performance Area

Clinical Care

The academic medical community regards successful clinical educators as models of excellence in patient care. An informal guiding principle for who is considered to be an exemplary clinician is often "the doctor to whom you would refer a family member." Above all else, clinical educators demonstrate high proficiency by maintaining an up-to-date knowledge of evidence-based practice and current standards of care, applying sound diagnostic and therapeutic reasoning and judgment, seeking consultation from other colleagues, meeting productivity requirements and documentation deadlines, and demonstrating reliability in meeting clinical commitments.

Teaching

Well-trained and experienced clinical educators teach with carefully developed lectures, newly designed or frequently updated curricula, and innovative teaching modalities and materials. Often, having obtained additional training in effective teaching, these doctors (from *docere*, Latin "to teach") apply criteria from educational scholarship to advance their teaching effectiveness. The key components of excellence in teaching include clear goals, thorough preparation, pedigogical skills, content expertise, understanding the learning needs and styles of the adult audience, significant results, and effective reflection.

Proof of excellence in formal didactics and "bedside" teaching should be inventoried through teaching evaluations from a variety of learners (e.g., visiting and native medical students; residents and fellows from within and external to your department; colleagues who are care providers and learners; audiences members at grand rounds, patient education seminars, and professional societies; and other allied professionals). Strong teaching evaluations serve as a metric to evaluate readiness for promotion.

Administrative and Leadership Roles

Often, accomplished clinical educators step into administrative and leadership roles in clinical care, education, and scholarship within their institution. At times, faculty, who are selected by departmental leadership, find that these additional roles expand their work and influence. The availability of these roles may lack transparency. Pursuing conversations with colleagues, and those in leadership positions, will reveal departmental needs and growth opportunities.

Types of leadership responsibilities vary and might include hospital committee work, trainee recruitment, and co-directorship of a new, or existing, program. The amount of time spent in these pursuits should be carefully documented, so at the time of quarterly review with senior leaders, clinical educators can share their level of commitment and inquire about whether protected time is warranted and/or has been earned. Pursuing leadership positions in service to your institution, a professional society, or the community offers a creative opportunity to develop your professional interests and goals. Simultaneously, these efforts support your promotion application, help others, and improve the quality of clinical care and teaching. The nature of administrative and leadership positions can differ (i.e., not all administrative tasks are characterized by leadership and vice versa). Regardless of how you choose to distinguish yourself, your promotion application should provide evidence that your efforts have met an institutional need and add value to the mission of your academic health center.

Scholarship

Successful clinical educators develop a body of scholarly work to share with others via peer-reviewed journals, leading seminars or teaching lectures, conducting workshops at professional meetings, or public speaking in community settings. In the academic medical literature, the term scholarship, as it applies to the work of clinical educators, has undergone a shift in focus. Writing projects may reach beyond research with original

data to capture scholarly efforts addressing educational methods of teaching, improvements in clinical care, and cross-disciplinary efforts [6].

Scholarship may also refer to work which is readily available to the public, subject to peer review and critique, or considered foundational to other scholars if cited in other published pieces. For example, a publication highlighting a new curriculum for teaching culturally competent clinical skills to medical students that was piloted at one institution and then used at multiple academic centers with proven results in improving clinical care (pre- and post-measures) would meet the criteria at most institutions for high-quality scholarship.

Self-Reflection

Preparation for promotion begins before your first day on the job. Planning your career path based on your interests and goals, and the needs of the institution, requires self-knowledge, strong mentorship, and openness to seeking information and advice from others. At the outset, each candidate should carefully reflect on their accomplishments and also any deficits (see Table 2 for a list of questions to consider). First, begin with self-inquiry about professional goals; all faculty, regardless of their rank, should consider their aspirations and which efforts are most likely to result in professional satisfaction. By documenting these questions and answers in writing (noting that answers may change over time), you will create direction for your career and control your choices rather than finding yourself in an uncharted and undesirable professional circumstance.

Self-reflection can be challenging and may require some informal or professional coaching. As with any other area of your life, your career deserves attention and resources. Although time spent on your professional development is your responsibility, most academic medical centers set aside resources to support your professional growth. Do not give away "free" money earmarked to cultivate your professional skills. Asking your department to invest in you repre-

sents a reasonable request (e.g., sponsoring professional society membership, travel funds to lecture, sponsorship for conferences to improve your teaching or research skills, staff training assistance programs).

Identify "buddies," trusted individuals who offer candid feedback and insight from their own experiences, who will be your sounding board and provide you with guidance. Cultivating one buddy at your home institution, and another at a comparable academic medical center, ensures multiple perspectives with and without the bias of your workplace. Support from others during the promotion process starts with gathering advice and counsel; be thoughtful and careful about what you share and with whom you share it. Over time, nurturing a strong relationship with your division director paves the way for promotion [7] and may also support the quality of your work day (e.g., office space, professional opportunities, optimal networking). Strive to make yourself invaluable by contributing in a unique manner whether clinically, pedigocically, scholarly, administratively, and/or collegially.

Promotion Process

After the decision has been made to proceed with the promotion process, you will typically have contact with the administrator in your department who handles promotion requests. Some institutions require that you request promotion in writing directly to your division chair or supervisor, while other institutions initiate the promotion process on your behalf. A summary memo, or letter of recommendation, is generated by your department for the departmental clinical educator appointment and promotion (A&P) committee to review along with your current CV. The A&P committee will make a decision as to whether or not they recommend promotion. This decision is given to the department chair for review. If your promotion is recommended and approved by the department chair, your file is forwarded to the school of medicine's clinical educator A&P committee to evaluate your entire promotion "package."

Table 2 Questions to ask oneself quarterly and prior to eligibility for promotion by area of performance

Professional goals	*Career path*
	What motivates me?
	What are my strengths and limitations? Do I want to change my limitations and if so how?
	What would I like to be doing in 5 years on a daily basis? How am I making this happen?
	Curriculum vitae (*CV*)
	How is my CV: gaps, format, meeting institutional standards, clarity? Does my CV reflect what I really do?
	Do I update my CV with my accomplishments regularly or just when I need to circulate my CV?
	Do I have different versions of my CV for different purposes: promotion, biosketch, recruitment?
	Networking
	Do I network? Do I think I know what that means and how to do it? To what purpose?
	How do I think I am perceived by others in the workplace? How does this impact me personally and professionally?
	Who are my stakeholders and supporters? How do they help or hurt me?
	What professional organizations can I join, and how can I contribute to them to develop a regional, national, and international reputation regarding clinical care, teaching, leadership, and/or scholarship?
	How can I cultivate relationships extra-departmentally to build my extramural reputation?
	Mentorship
	Who are my mentors?
	How is the fit?
	What are my goals in working with these mentors?
	Do my mentors represent my different areas of interest?
	Whom might I approach to become a mentor?
Clinical care	What is my focus and area of concentration?
	What is my philosophy regarding patient care?
	How do I regularly enhance my areas of expertise or areas in need of training?
	Do I have all of my peer and/or patient evaluations? Do they measure my contribution, and if not what else can I do?
	In what way have I improved clinical care at my institution? How is this improvement measurable?
Teaching	What is my focus and area of concentration?
	What is my philosophy on teaching?
	Do I have all of my teaching evaluations from peers and/or trainees? Do they measure my contribution, and if not what else can I do?
	Have I regularly pursued teaching/mentoring of students and documented those activities and student outcomes?
	What educational programs can I design that will improve current teaching or learning for peers or trainees?
	Have I taken advantage of opportunities to advance my teaching skills?
Scholarship	What are my area(s) of concentration?
	In what areas am I recognized as an expert or highly excelled?
	How have I documented my leadership and eligibility for awards with regard to scholarship?
	What opportunities exist to speak and teach externally (e.g., CME, Grand Rounds, at conferences) and to write in peer-reviewed national contexts?
	What peer-reviewed projects can I collaborate on or initiate? Could any efforts include gathering original data?
	Is my work reproducible and helpful to other educators/scholars? Am I cited by other authors?
	Do I want to apply for funding to support scholarship which may protect my time?
	Have I taken advantage of opportunities to advance my research skills?
Leadership/ admin.	What is my focus and area of concentration?
	Have I sought opportunities to be in a leadership role, to contribute to the institution, and to heighten my visibility?
	Do my goals and contributions meet an institutional need?
	Do I seek opportunities to expand my leadership expertise?
	How is my leadership and contribution recognized and documented?
	How can I improve or broaden my administrative and leadership skills?

The "Package" or Promotion Application

Preparing your pitch for promotion is often a structured process with essential pieces. Within your "package," the A&P committee will find all of your updated activities and accomplishments and supporting documentation (Table 3). A candidate statement is not always a requirement; it may be requested for those pursuing more senior rank and optional for more junior faculty. A candidate statement is approximately two pages, written in the first person, and discusses your contributions and achievements broken down by area of performance. It may also include background on prior accomplishments, highlights of current work, and a summary of goals for future endeavors. A strong candidate statement provides a context for the entire promotion packet and coupled with a teaching portfolio demonstrates examples of your educational contributions.

Key Concepts

- Know the specific criteria and procedures for promotion at your institution.
- If your contribution is not documented, it will not count significantly in the promotion process.
- Continuously develop your CV, promotion package, and essential skills for demonstrating excellence in clinical care and teaching.

Table 3 Components of the appointment and/or promotion application or "package"

Common items:
1. Letter of recommendation from division chief or supervisor
2. Job description/responsibilities
3. Updated and verified curriculum vitae
4. Internal and external letters of references
5. Teaching evaluations
6. Clinical evaluations
Possible items:
1. Candidate statement
2. Educator's teaching portfolio
3. Evaluation of institutional core competencies completed by colleagues, allied health professionals, referring physician, trainees

- Regularly consult with other peers, mentors, and colleagues to assess your professional development.
- Be aware of the departmental and institutional politics that may influence your candidacy for promotion.

When required, teaching portfolios typically include a statement of the clinical educator's teaching philosophy, short- and long-term goals, references from supervisees and mentees, and samples of teaching, learner feedback and assessment, curricula developed, and teaching material such as syllabi, course descriptions, or novel teaching materials. Examples of candidate statements and portfolios can be found online (see "Additional Resources" at the end of this chapter).

In conclusion, consider your application an opportunity to pitch yourself to the A&P committee. Design a thoughtfully prepared "story" (candidate statement) describing your unique blend of skills and accomplishments, and support it with evidence from your portfolio, letters of reference, and evaluations all of which are a testament to your accomplishments (see Table 3).

Considerations and Opportunities

Clinical Productivity

Amidst diminished reimbursements from insurance companies [3], the growing emphasis on clinical productivity presses clinicians to divide their work time between patient care, teaching, scholarship, and leadership roles. Clinical productivity targets have become a measure by which faculty are evaluated and meeting one's productivity requirement is necessary for promotion consideration. Clinical productivity, defined as work performed, or contributions toward the clinical mission, is often measured by relative value units (RVUs) billed per hour, though some institutions may also define clinical productivity as clinical days, call shifts in house (or from home), and services billed. Thus, understanding how productivity is calculated by administration and finance is imperative to any clinician educa-

tor. One possible strategy for those that feel time pressed is to incorporate teaching as much as possible into patient care by having trainees present when seeing patients. Whether the bedside, operating room, or outpatient clinics, these settings afford ample opportunity to teach about evidence-based care to the next generation of doctors. If this sort of teaching is not available to you and you are providing formal didactics on a regular basis, then you may want to carefully consider requesting that your job description be altered and provide support for your request.

Time demands on clinical educators can be significant. The high volume of patients coupled with the complex task of consistently providing high-quality teaching, while remaining current with advances in medicine, can be overwhelming. Moreover, lack of protected time to devote to scholarly work can result in faculty becoming dissatisfied or frustrated. As the clinical educator track evolves, institutions and leaders in medical education are acknowledging the need for different types of clinical educators and ways of defining and achieving success [8]. Most institutions have developed incentive or bonus systems to recognize high achievement in clinical productivity, as well as intiatives to support physician wellness and prevent burn-out [9].

The criteria for obtaining these incentives and how bonuses are calculated are wise questions to pursue in support of institutional transparency and working "smarter." Full knowledge of legitimate optimal billing practices including information about how patient care correlates to RVUs is essential for all clinicians.

Educational Value Units

To recognize and quantify the non-clinical efforts of faculty, many centers of academic medicine have designed systems to capture work not better accounted for by patient productivity [10, 11]. These systems vary widely among institutions, but typically include some focus on mission-based budgeting, which refers to the allocation of resources based on core mission-related priorities. Some academic health centers formally allo-

cate resources to teaching in order to underscore its value and identify it as a core expectation. Other institutions construct schema of educational value units (EVUs) to measure various types of teaching endeavors. EVUs estimate activities such as intra- and extramural didactic conference attendance, completion of trainee evaluations, participation in trainee recruitment, educational presentations, teaching in other departments, mentoring, and involvement in educational committees.

Understanding the EVU system at your institution may take some peer or mentor assistance as models vary widely. Some systems focus on time spent providing an activity versus time spent in preparation of activity versus quality of activity. The purpose of this chapter is to make clinical educators aware that variations exist and the introduction of EVU schema is relatively new to academia.

In response to financial and organizational change in academic health centers, clinical educators will need to be creative by strategizing and working "smarter not harder" to achieve their academic goals. For example, assigning brief presentations to trainees on advancements in clinical care will provide you with new information and an opportunity to teach trainees how to search the literature, present material, and perhaps develop writing projects. In conclusion, having a clear understanding of the promotion criteria for the clinical educator role will support your efforts to advance your career in academic medicine. Gravitate toward those aspects of your work which are the most gratifying. To the best of your ability, design your job to allow yourself opportunities in the areas which you find most meaningful and also serve the mission of your institution. With careful planning, you will optimize joy in your work and simultaneously be recognized and rewarded both personally and professionally.

Words to the Wise: Long-Term View

The clinical educator track at your institution may require demonstration of increasing expertise in clinical care and teaching paired with evidence of

scholarship and leadership. The "rungs" of the promotion "ladder" may differ across institutions (instructor vs. assistant clinical professor) as well as whether the position confers tenure (a secured position if promotion is achieved). Often, the clinical educator track rarely confers tenure, and this detail should be clarified at the time of appointment. Most positions have fixed terms and can be renewed without limit, if an individual is meeting the job requirements. Whichever type of position (tenured or non-tenured), the initial appointment is not a lifetime guarantee; therefore reappointment and promotion require that you continue to develop your skills and demonstrate notable positive achievements.

In summary, developing a rich blend of skills in clinical care, teaching, scholarship, and administration/leadership requires clearly defined professional goals and a systematic plan for academic achievement rooted in an understanding of the criteria for appointment, reappointment, and promotion.

- Consult with other clinical educators who have sought promotion from your department, in other departments at your institution, and at other institutions.
- Consult with your mentors about each aspect of your promotion packet, your candidate statement, selecting your letters of references, and the strengths and vulnerabilities of your promotion application.
- Learn who is on the promotion committee in your department and for the institution. Research their backgrounds and meet with individuals to discuss the promotion process.
- Create a "fit" between you and your employer by understanding the unwritten rules of promotion which requires honest self-reflection, assertiveness, savvy, and professional behavior in all aspects of your work.
- Avail yourself of further developmental opportunities to cultivate your clinical, teaching, scholarly, and leadership skills by advancing your knowledge of adult education practices (e.g. teaching millenials).
- Take responsibility for the distribution and collection of evaluations every time you teach.

- Determine how faculty in your track are valued and recognized at your institution. In addition, learn how you can contribute to the institution's mission of clinical care and teaching.
- Gather a clear understanding of how your clinical productivity targets (RVUs) have been calculated and strategies for reaching them.
- If bonus criteria are based on clinical productivity, ask for the policy in writing.
- If your academic health center utilizes EVUs, ask for the policy in writing, and begin to inventory your eligible activities.

Ask Your Mentor or Colleagues

- What is my timeline for promotion?
- Where do I stand in relation to my peers within the department and institution, and at other comparable academic centers?
- How would I "package" myself at this point in time? What will my "narrative" be?
- How do clinical educators develop a regional and national reputation at my institution?
- How do I understand and reach my clinical productivity targets?

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Suggested Reading

Books

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Roberts LW, Hilty DM. Handbook of career development in academic psychiatry and behavioral sciences. 2nd ed. New York: Springer; 2017.

Walling A. Academic promotion for clinicians: a practical guide to academic promotion and tenure in medical schools. New York: Springer; 2018.

Articles on Being a Mentee and Mentoring

Bertram A, Yeh HC, Bass EB, Brancati F, Levine D, Cofrancesco J Jr. How we developed the GIM clinician–educator mentoring and scholarship program to assist faculty with promotion and scholarly work. Med Teacher. 2015;37(2):131–5.

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Zerzan JT, Hess R, Schur E, Phillips RS, Rigotti N. Making the most of mentors: a guide for mentees. Acad Med. 2009;84(Suppl 1):140–4.

Resources Regarding Educator/ Teaching Portfolios

https://www.bmj.com/content/343/sbmj.d4942

https://www.aamc.org/members/gfa/faculty_vitae/148574/educator_portfolio.html

https://www.aamc.org/members/gfa/faculty_vitae/150038/cv_cv_portfolio.html

https://medicine.uw.edu/faculty/academic-human-resources/teaching-portfolio

How to Develop an Educator's Portfolio

Deborah Simpson

Educators seeking academic promotion must provide documentation that they have achieved the academic standards and expectations for faculty as scholars. Documentation approaches for medical educators are grounded in the concepts and principles framed by scholars at the Carnegie Foundation for the Advancement of Teaching, beginning with Scholarship Reconsidered [1] and Scholarship Assessed [2]. These scholars re-legitimized teaching as one of four functions of the professoriate. Then, using existing standards and criteria recommended by journals, funding agencies, and academic promotion guidelines, Glassick and his colleagues [2] outlined six criteria associated with a scholarly approach: clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique. These criteria have been further refined and adopted for documentation and evaluation of excellence of academic medicine faculty in domains ranging from advocacy [3] and quality improvement [4] to social media [5] and education [6–9]. While there are other resources and portfolio development strategies available [10], this chapter will use these six criteria as a framework for stepwise development and presenta-

tion of an educator's portfolio as it provides a cross-cutting approach independent of specialty [11–13], institution [14], or presentation format [15].

Clear Goals

An educator's portfolio (EP) for academic promotion has one clear and specific goal: to present the *best* evidence of excellence as an educator–scholar. While meeting the education mission requires the efforts of multiple faculty, an individual faculty member's ability to achieve excellence in teaching, curriculum development, learner assessment, advising/ mentoring, and educational leadership [6] is often challenged by other roles, responsibilities, and expertise [16]. Typically, promotion-oriented EPs include two to three educator activity categories and are dependent on the faculty member's role and institution-specific academic promotion guidelines.

Presenting the best evidence of one's role as an educator–scholar can be accomplished using a three-step process:

Step 1 The first objective in creating an EP is to identify educator activity categories in which you spend your time [6]. The easiest approach is to use the worksheet provided in Appendix A of this chapter. Spend 5–10 min writing the

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keywords for each of the activities in which you regularly engage as a teacher/educator in worksheet column #1. As you write, check your calendar to ensure that you include things like teaching, admission committee or Clinical Competency Committee meetings, graduate studies or graduate medical education council, rating a learner's performance, or meeting with a trainee to discuss career plans.

Step 2 Next, connect each activity to the five commonly accepted educator activity categories by placing a checkmark in the column that it best matches: Teach = teaching (e.g., presented grand rounds, attending on wards, small group facilitator, lab instructor, e-learning facilitator); Curr Dev = curriculum development (e.g., a unit of instruction on patient safety, a workshop on professionalism, an interactive e-learning module on scientific principles underlying geriatrics, virtual reality simulation); A/M = advising/mentoring (e.g., guiding selection of fourth year electives, reviewing resident's CV for job application, reviewing graduate student's grant application); Assess = assessment of learners (e.g., authoring multiple-choice questions, a standardized patient checklist, a mobile milestone linked rating form); Leader = leadership and management (e.g., course/clerkship/program director, committee chair, block leader); and Oth = other.

Step 3 Identify your major "value-added" activity categories. Most educators spend time in roles aligned with other institutional missions including clinical care, research, and/or community engagement [16]. Therefore, most EPs demonstrate the continuous record typically needed for promotion in two to three activity categories. Review your entries to ascertain which activity categories demonstrate your major contribution(s) as an educator, and then consider which of those entries are most highly valued by you and your organization. Typically portfolios have page limits (e.g., 6–10 pages). Selecting your best categories as focal points allows you to present evidence of your excellence as an educator–scholar consistent with having a clear goal/focus as an educator.

Adequate Preparation: Before Starting

Each college/university has specific guidelines for academic promotion. As mentioned in previous chapters, prior to beginning the actual development of an EP, the academic faculty member must obtain and follow his or her institution's specific guidelines, procedures, and timelines. While your chair or a senior faculty member should provide guidance about the formal and tacit processes associated with promotion documentation, it is still incumbent on each faculty member to fully understand the guidelines and prepare promotion materials consistent with those standards. If the institution does not have specific guidelines related to documenting contributions as an educator, check with the faculty affairs office and faculty who have been successfully promoted, and ask for their guidance regarding appropriate documentation.

Obtain examples of successful educator portfolios from colleagues locally and nationally. Often institutions post examples on their websites in the same location as the promotion guidelines and can easily be accessed through an Internet or intranet search using terms like "educator's portfolio examples [17]." Other resources with examples are also available through professional societies and medical education organizations.

Adequate preparation allows faculty to demonstrate that they have met the standards of an education scholar. All faculty are expected to demonstrate their abilities as scholars - defined as advancement of their field through teaching, discovery, integration, and application - by drawing from the established body of knowledge in the area of interest [1]. Therefore, the EP must demonstrate how teaching practices, curriculum, assessment tools, and advising/mentoring

approaches have been informed by what is already known in medical education. For example, when you teach, do you select the teaching approach (e.g., participant response system, mobile app, virtual patient, flipped classroom, Twitter chat) and then prepare your instruction informed by the best practices in the field? This preparation is critical as a faculty member seeking promotion is expected to present evidence in the portfolio demonstrating that she/he has met the adequate preparation criteria as an educator–scholar.

The number of education-oriented faculty development programs and graduate degree programs [8], books, journals, peer-reviewed forums, blogs, and websites in medical/health professions education is expanding and is easily accessible to faculty, ensuring that your approach to education is evidence-based [10]. Typically, educators read selected medical education journals sponsored by national and international associations including *Academic Medicine* (Association of American Medical Colleges [AAMC]), *Medical Science Educator* (International Association of Medical Science Educators [IAMSE]), *Medical Education* (Association for the Study of Medical Education [ASME]), and *Medical Teacher* (Association of Medical Education in Europe [AMEE]). In addition, educators often read journals keyed to trainee level (e.g., *Journal of Graduate Medical Education*, *Journal of Continuing Education in the Health Professions*) and specialty/discipline-specific journals addressing education, which are now available in almost every health profession/medical specialty [18]. Often your library has purchased subscriptions to these journals, and/or current issues are available on the web to browse. If curating your medical education-reading list is a challenge, consider using Twitter to follow selected medical education journals or hashtags to keep up on recent publications in your areas of interest [19].

Consistent with the Carnegie Foundation for the Advancement of Teaching's expanded view of scholarship [1], educators have available to them other forms of shared knowledge ranging from curriculum materials and learner assessment instruments to faculty development workshops and advising guides. As with journals, some publication services/repositories house peer-reviewed materials across the continuum of medical education, such as MedEDPORTAL; while others are specialty/topic-specific repositories such as POGOe for geriatrics, CES4Health for health-related community engaged tool, and HEAL for digital images/materials. These repositories are easily accessed through the web using any search engine. Some may require log-in, but most are available at no charge.

In summary, the adequate preparation standard requires that for each educator activity category, the academic physician is able to document how his or her work was informed by and builds on what is already known in medical education and related disciplines.

Appropriate Methods

An EP is considered an *asynchronous instructional material*, enabling faculty to communicate their achievements with others at a time and place that is convenient for them. For instance, academic promotion reviewers—be it at the department, medical school, or university level—usually independently review each promotion packet and then meet as a member of a committee (e.g., A&P committee) in a closed session to discuss the portfolio and make a determination as to the faculty member's readiness for promotion [16]. Therefore, the EP must be designed to effectively "teach" reviewers (e.g., promotion committee, department chairs, future employers) about the roles and impact one has as a teacher, curriculum developer, assessor of learner performance, adviser/mentor, and educational leader.

Building on one's adequate preparation, the method(s) one selects to teach his or her EP audience (e.g., promotion committee members) should be informed by the successful EPs used by colleagues at the institution with whom one

shares common activity categories (e.g., advising/mentoring). Review institution-specific promotion guidelines to ascertain how the activity descriptions within each category are to be listed within the curriculum vitae. Then, use the EP to provide evidence documenting excellence to support and compliment the CV entries.

Typically, the description of an activity within a category begins with the date, educator role, topic, learner audience, and frequency. These activity descriptions are often organized within each activity category by using sub-headers associated with trainee level (e.g., medical student, resident, continuing professional education), trainee specialty/program (e.g., Medicine-Geriatric Fellowship), and school/college (e.g., Graduate School of Biomedical Sciences, College of Nursing, School of Medicine). The use of sub-headers within an activity category helps the reader understand the array of audiences and the topics taught, which emphasizes the breadth and depth of initiatives in each activity category. For example, an entry under the "Teaching" activity category in a CV (if not in CV then in EP) might contain two or three sub-headers: Medical Students, Residents, and Continuing Professional Education. The activity is then succinctly described. If the faculty member repeatedly teaches the same topic in a clerkship or residency program, the entry then has the inclusive dates, the faculty role (e.g., instructor, facilitator, preceptor, attending, lab, presenter), the program (e.g., clerkship, course, CME offering, graduate school), the topic(s), and the number of learners and frequency under two teaching activity sub-header audiences (Table 1).

If institution-specific standards provide limited guidance or are flexible, an alternative is to provide the description of the each category activity along with the evidence using the accepted scholarship standards as the organizing framework (see Appendix B for illustrative examples in learner assessment, mentoring/

Table 1 Example illustrating the use of sub-headers by trainee level in teaching category

Teaching—medical students	
10.2017–present	Presenter: M3 Family Medicine Core Clerkship, Functional Assessment in Older Adult Patients
	1 hour/month/12 month/year; 30–35 students/month
Teaching—residents	
10.2016–present	Simulation Lab Instructor: Integrated Surgery Block Curriculum for PGY1s, post-op paracentesis in geriatric patient
	2 hours/year; 16 residents from general surgery, plastics, urology, and surgery PA students
Teaching—fellows and faculty	
2018 –present	Moderator/Presenter: Podcast on well-being during the clinical years sponsored by the Graduate Medical Education Council
	12 min/12 episodes/year: 170 fellows and >400 clinical faculty

advising, and educational leadership for Drs. George and Efim).

After one has competed an initial draft of the entries associated with each of one's valued educator activity categories, it is helpful to have a colleague familiar with one's work review the portfolio draft. Often the colleague will identify missing activities such as member of the LCME Workgroup on Medical Student Education, chair of the Clinical Competency Committee (educational leadership) and/or guiding a resident through his or her scholarly project requirement (advising/mentoring). Documenting all of one's activities is important to demonstrate excellence as an educator.

Significant Results

An EP provides an opportunity to provide evidence of one's effectiveness as an educator–scholar. This may include presentation of data such as teacher effectiveness ratings compared to one's peer cohort, trainee evaluations of a new

curriculum unit, trainee examination performance benchmarked to the national mean where possible, accreditation site visitor commentary and judgments regarding the overall quality of a program, leadership accomplishments, reliability and validity of an assessment instrument you developed, downloads/followers on your medical education blog, and alternative metrics for a recent journal article [5]. The list will extend as the faculty member thinks about the products and impact of his or her work as an educator.

Where does the academic physician find the evidence to demonstrate his or her excellence as an educator–scholar? Colleges and universities often have an education resource office that manages evaluation data, providing comparative data about courses, clerkships, rotations, advising, and teaching effectiveness. As accreditation organizations often require documentation that faculty teaching is evaluated, this data may be collected using the same online management systems used by faculty to submit grades. If the educator has used social media, robust data on users/utilization is readily available from the platform provider [5]. Often evaluation results are available to faculty, course/program directors, and other stakeholders on an annual basis, along with a comparison to an appropriate cohort (e.g., other teachers in the program/department) from curriculum/learning management systems solutions used for medical or graduate student and resident education. If one has misplaced this data, it may be retrievable by checking with the originating office or program. It is important to maintain this information over time in an e-file or file box that one can readily access as one is preparing for promotion [10]. Trying to locate this information at the last minute introduces avoidable stress that can complicate one's efforts to present one's best work.

It is imperative that the educator–scholar obtain data about the effectiveness of his or her activities through institutional resources or through his or her own initiatives. Sometimes this requires the faculty member to advocate within a department or program that the information be centrally collected so that it is not biased and can be benchmarked. If that is not possible, be entrepreneurial [16] as it is the faculty member's responsibility as an educator–scholar to systematically design an appropriate data collection and tracking approach. The first place to start in designing one's own approach is to review the literature and search the educational repositories for established tools and methods.

Effective Presentation

Attention to the EP's organization, accuracy, and clarity (including the absence of grammatical and spelling errors), along with the appropriate utilization of visual displays, is a hallmark of a strong portfolio. Be sure to select the most effective presentation methods (e.g., graphs, figures, flow diagrams, bulleted narratives) for the type of information you are presenting and appropriate to the targeted reviewers (e.g., level of knowledge about education, time available). Build on your strengths in selecting and preparing written materials that you use in face-to-face, online, and social media applications for education.

Once you have completed your portfolio, ask several colleagues to review [10]. Consider including individuals who are not familiar with your work, who may have experience on your academic promotion committee, and/or who are from a different discipline. The academic promotion committee members who review your EP may not be familiar with your area of educational expertise (e.g., simulation, social media platform, teaching approach) or acronyms used in your specialty/discipline [16]. Often it is best if you meet and ask them to "think out loud" as they read, so that you can determine if they are interpreting your narratives and visual displays as you

intended. They may offer additional activity entries to strengthen one of your categories and/or suggest a data set that you had not considered. Be direct; ask your colleagues to provide constructive feedback to enhance the likelihood that your portfolio will achieve its goal, which is to effectively present best evidence of your excellence as an educator–scholar.

Reflective Critique

John Cotton Dana, the influential American librarian, once wrote "He who dares to teach must never cease to learn." Stephen Brookfield argues that the distinguishing feature of critical reflection for teachers is its focus on "hunting assumptions" about what worked in our educational programs, what students did or did not learn, and how we can improve [20]. Without testing and exploring assumptions about teaching and learning, teachers and learners are at risk as they may cease to learn.

The inclusion of critical reflection as a final standard for judging educator–scholars provides an opportunity to step back and test our assumptions about learner motivations, instructional strategies and advising approaches, educational leadership, and testing and evaluation. Recording what was learned, new questions, and ideas that were sparked by preparing and reviewing the portfolio is an opportunity to contribute to what is known in our field. A faculty member's reflective critiques and testing of assumptions with new and refined goals provide a continuous record of the educator–scholar's approach that is consistent with expectations for academic promotion.

Key Concepts

- Educator's portfolio: A document that presents evidence of excellence as an educator typically organized into five activity catego-

ries – teaching, curriculum development, learner assessment, advising/mentoring, and educational leadership [6].
- Evidence: Data, information, and facts that demonstrate your excellence including judgments by peers who have reviewed your work as an educator.
- Scholarly approach: As defined in the work emerging from the Carnegie Foundation [2], there are six elements that faculty must demonstrate as scholars in their work – clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique. The work of an educator is judged by whether it has achieved the standards of excellence associated with each element.

Celebrate Accomplishments

Every educator with whom I have worked to create a portfolio recognizes that creating an EP is hard work. Inevitability they then reveal that they are astonished and proud of their accomplishments as an educator as the EP is the first place that they have assembled all of their best works in one document. Through the EP development process and reflection, they also report "… I have so many new ideas about how to improve…." Ultimately what is presented in your EP should highlight your value as a teacher and reaffirm your commitment that when you teach others—including promotion committee members about what you do as an educator—you also continue to learn.

Words to the Wise

- *Clear goals*. Your EP has one clear and specific aim: to demonstrate that you are an outstanding educator. Its purpose is to present best evidence of your excellence as an

educator–scholar to inform academic promotion/tenure decisions.

- *Adequate preparation*. Approach the preparation of your EP as you would any other instructional material by first determining your objectives and then selecting how to present the achievement of those objectives.
- *Appropriate methods*. An EP is an *asynchronous instructional material* and must be designed to effectively teach your reviewers (e.g., promotion committee, department chairs, future employer) about the roles and impact you have as a teacher, curriculum developer, assessor of learner performance, adviser/mentor, and educational leader.
- *Significant results*. Do *not* throw evidence away. Often we receive thank you notes from advisees, teaching evaluations, an accreditation notification that highlights a specific activity for which you had responsibility, and/or an invitation to talk with colleagues about an educational approach you designed. This information, when effectively presented in a portfolio, demonstrates that peers have judged your work as an educator to meet standards of excellence as an educator–scholar.
- *Effective presentation*. Give your EP multiple *test runs* before you submit the final version. Circulate the portfolio draft to experienced colleagues for review and critical comment. Revise and recirculate to obtain additional feedback to ensure that it will achieve your goal.
- *Reflective critique*. Celebrate EP submission by taking 20 minutes to write a reflective

critique on your strengths and opportunities for growth as an educator.

Ask Your Mentor or Colleagues

- What are the activities you do as an educator that you value and make a difference to our learners and your institution's educational mission?
- What has informed your work in education (e.g., personal experience, colleagues, literature in the field)?
- What information/evidence would demonstrate your work is high quality? Is this evidence currently available, or could you obtain it in timely fashion?
- Have you shared your work with others (e.g., presented at a medical school meeting, presented at a regional conference, published in a peer review forum, posted a link in a tweet)?
- Have you started your EP? Note: Start the portfolio at the same time you begin to engage in any of the five educator activity categories as the time it takes to create a portfolio equals that associated with writing a manuscript for journal submission. So, get started as early as possible!

Appendix A: Educator's Portfolio Worksheet: Three Steps

Step #1	Step #2						Step #3	
Teacher/educator activities list ↓	Teach	Curr dev	A/M	Assess	Leader	Oth	You value	School values

Appendix B: Illustrative Educator Portfolio Category Examples

Section 1 Learner Assessment, Ronin George, PhD, Assistant Professor Physiology

Role: Director Medical Education Council on Reintegration of Sciences Underlying Medicine into Clinical Clerkships—2017–present

Initiative: develop an examination to provide pre-post data regarding degree to which medical students' link basic science concepts to clinical conditions

Problem	7.2017	Curriculum integration often emphasizes incorporation of clinical applications within basic science courses.
		Students and faculty report little/no reintegration of sciences into required clinical rotation and gaps in geriatric-focused training.
Goal	9.2017	To develop a brief (<30 min) multiple-choice examination to assess third year medical student's application of the basic science concepts underlying geriatric clinical conditions.
Adequate preparation	10.2017	Literature and educational repository review identified college-level geriatric-associated assessment, but no clinical to basic science-related knowledge assessment tools.
		Broad-based review of geriatrics resources (e.g., textbooks on geriatrics, biology of aging) → 5 basic science geriatrics concepts.
		A multi-disciplinary workgroup including geriatricians reviewed the themes and confirmed their utility. Themes included: impaired homeostasis, connective tissue changes, post-mitotic tissue predilection for age changes, and immunosenescence.
Methods	11.2017	Workgroup developed test blueprint: 5 "cross-cutting" geriatric-related basic science themes × 13 common geriatric conditions.
		Examination consisted of 26 multiple-choice questions (MCQs) as 13-item pairs: the first question assessed the clinical condition/disease/illness, and the second question in the pair assessed the associated underlying basic science.
Results	12.2017	50 trainees completed examination <25 min on average.
		Pre-test mean performance was 57.7% correct (range 34–77%).
		Overall exam reliability is in moderate range (≥0.71).
Present	3.2018	Presented to Curriculum Committee who approved with commendation.
		Peer-reviewed abstracts presented at AAMC Central Group on Educational Affairs and American Geriatrics Society.
		Examination accepted in MedEdPORTAL.
Reflect critique	5.2018	A paired clinical and underlying science MCQ-type examination provides a reliable assessment of trainees' ability to apply underlying basic science concepts to clinical geriatrics.

Section 2 Mentor/Advising, Ronin George, PhD, Assistant Professor Physiology

Role: Advisor to medical students enrolled in physician scientist pathway, graduate students, and residents/fellows interested in aging-related clinical translational research studies

Initiative(s): Medical School, Graduate School, and Education Core—NIH Clinical and Translational Science Award (CTSA)

Goal	9.2015 to present	To advance advisees' ability to systematically identify, conduct, analyze, and present research findings for age-related studies.
		To have advisees' accurately identify the translational research level for their study question(s) and then articulate how each question and its findings will inform work at a subsequent translation stage.
Adequate prep	9.2015 to present	Continuously reviewed literature and websites associated with effective research mentoring and translational research; established RSS feed through library to receive updated citations.
		Attend local CTSA-sponsored training sessions on advising/mentoring.
Methods	1.2016 to present	Schedule 1-on-1 meetings with interested trainees to ascertain if appropriate to begin working together.
		Complete an individual learning plan with timelines, roles, and tasks for advisee and advisor.
		Follow-up with advisees at regular intervals (e.g., e-mail, Google docs, FaceTime™) to evaluate progress and outline next steps.
		Review document drafts.
		Post-accepted abstracts and links to provide resources for translational research (in consultation with CTSA).
		Sponsor and invite all advisees and faculty colleagues to attend the monthly *Grr5* (Geriatric Research & Refreshments at 5:00 pm) to facilitate establishment of colleague network in geriatric research.
Results	6.2017 to present	Relationships established: 15 active advisees—3 PhDs, 3 MSs, 4 residents, and 5 pathway students ranging from M1 to 3 years.
		Collaboration: 4/5 pathway students working with grad students.
		Graduates to date: $N = 5$—2 PhDs (now post-docs); 1 resident (in fellowship); 2 pathway students.
		Scholarship: 8 Advisee Publications including 2 in translational science journals; 4 regional/national presentations; student presentation 1/5 outstanding research awards at annual American Geriatric Society annual meeting.
Present	1.2018	*Grr5* presented to NIH-CTSA external advisory board as example of fostering collaborations; cited as institutional strength in follow-up report.
Reflect critique	2.2018	Engaging with trainees interested in translational geriatric research is vital to advancing science and health.
		Sustaining my own vitality and funding as a researcher is challenging when advisee/advisor relationships are <3 years.

Section 3 Educational Leadership Samuel Efim, MD, Associate Professor Emergency Medicine

Initiative: Incentive Environment and Accountability in Medical Student Education

Role: Chair Medical Student Curriculum Committee (2017–19)

Problem	8.2017	Educational resources not optimally aligned with faculty effort needed to achieve educational goals.
		Expectations for Clerkship Directors and protected time varied by department.
		Enterprise activity performance systems (EAPS) do not include teaching or educational leadership metrics.
Goal	9.2017	Establish and incorporate systems to recognize and reward teaching within financial model.
		Establish job expectations including protected time for directors of required clerkships.

Adequate preparation	10.2017	Review local data from clerkship leaders and LCME requirements for teaching and time expectations.
		Reviewed policies from other medical schools, national Clerkship Director standards, and literature on financial structures to support medical student education.
Effective methods	11.2017	Retreat held with campus education leaders to discuss problem and collate recommendations.
		Developed draft document on mandatory clerkship expectations and protected time.
		Worked toward consensus document with the Curriculum Committee, Faculty Governance, Clinical Chairs, and the Dean.
Results and presentation	3.2018	Presented findings to Dean who expressed support for aligning revenue with teaching effort.
		Clinical Chairs and Dean unanimously approved the Clerkship Director job expectation document, which included department support for protected time.
	10.2018	Dean and Faculty Council approve utilizing MCW financial support toward departments as revenue support for departmental clerkship curricular management/leadership.
	1.2019	List of teaching metrics provided to the Chief Financial Officer for the Enterprise Activity Performance System.
Reflect critique	2.2019	Consistent cross department expectations for Clerkship Directors and metrics within EAPS resource allocation.
		Sustaining momentum will be challenging with transitions in leadership and competing resources demands.

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How to "Pitch" a Nontraditional Career Path

Margaret S. Chisolm

Understanding how to turn a nontraditional journey to academic medicine into an asset rather than a liability is essential to academic success and eventual promotion. As you reflect on who you are and where you have been, you will gain insights to guide you closer toward your destination. By claiming your expertise and leveraging your assets as you design a strategy for the future, you will ensure that the time and energy spent on your nontraditional path has not been wasted. Being a curious and observant person will allow you to identify urgent problems and leverage your unique background to come up with innovative solutions. With the support of your institution and department, if you stay focused and are able to communicate clearly the impact of your work, you will achieve success. Your nontraditional path toward academic medicine has the potential not only to bring you promotion but also to make a unique impact on your institution, department, colleagues, students, patients, and the communities you serve.

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Defining a Nontraditional Career Path

Students arrive at medical school via a range of paths, both traditional and nontraditional. Nontraditional medical students might come to medical school following a postbaccalaureate pre-medicine program entered right after college or might come to medical school after a long career in an entirely different field. Once in medical school, these nontraditional students blend with those students fresh from college. Some medical students from both groups—nontraditional and traditional backgrounds—will end up pursuing academic careers.

Physicians also develop academic careers via a range of traditional and nontraditional paths. This chapter focuses on those individuals who came to academic medicine via the "road less traveled." Rather than joining an academic medicine department as a resident or fellow directly after residency, these individuals chose to start a practice in the community, to join a nonacademic hospital practice, to work outside the home part-time or not at all, or to pursue an array of individual passions. And now—for whatever reason—they find themselves returning to an academic medicine environment. If you are one of these physicians, coming back to an academic program, welcome! This chapter is for you.

During the time you spent outside academic medicine, you have accumulated a body of

knowledge, experiences, and skills that are unique to you and distinct from those who have followed more traditional academic paths. This chapter will discuss how best to push off from a nontraditional foundation most efficiently to reach the three markers of academic success: (1) focused productivity, (2) scholarly impact, and (3) nationally and internationally recognized expertise.

Know Thyself

Before getting started, your first task will be to take a self-inventory. What do you know and what do you do best? Since you are the person most invested in your academic success, you will need to assess your strengths honestly. Psychiatrists are trained to assess the temperamental strengths and vulnerabilities of their patients. So, if you are a psychiatrist, this step may come more easily to you than to those trained in other medical specialties. Regardless of your background, if you have not already formally assessed your own temperament via the NEO-PI or Myers-Briggs Type Indicator, now is the time to do it. A free Keirsey Temperament Sorter [1], based on the Myers-Briggs, will help you assess your interests, the kind of data to which you pay attention, how you make decisions, and how you prefer to live your life—all of which can provide insight into your own innate attitudes.

Knowing your temperament will help you gauge how best to manage your time in order to achieve focused productivity. It will also help you answer questions like "Do you enjoy working on your own or in groups?" "Are you by nature detail-oriented or are you more of a 'big picture' person?" "Do you prefer working with objective data, or are you more comfortable in the subjective realm of meaning?" "Are you able to set your own goals and easily remain focused on the task at hand, or do you need more external structure to prevent your curiosity and flexibility to stay focused?" Since you will need to manage your time well to be a successful academic, knowing what energizes you, how attentive you

are to details, what kind of data you like to work with, and how organized and focused you are will be essential for you to make up for "lost" time and efficiently make your own unique scholarly contribution.

Claim Your Expertise

In addition to getting to know yourself, you will need to take an inventory of the knowledge, experiences, and skills you acquired during your unique nontraditional journey to academic medicine. To make an impact in medicine and in the world, you must first think carefully and expansively about what you have learned and why it matters. The experiences and the achievements you had while away from academic medicine has value and is credible. You need first to claim this expertise—to "own" it—before you build on it to become a recognized expert in this area.

The OpEd Project [2]—an organization with the short-term goal of increasing the number of women thought leaders—asks its participants "Do you understand your knowledge and experience in terms of its value to others?" Put more simply "What do you know?" and "Why does it matter?" These core questions are relevant to anyone who has taken a nontraditional career path and is vulnerable, in an academic setting, to feeling underestimated or devalued. Because you are the person most invested in your academic success, it will be up to you to believe in and communicate the value and credibility of your experiences to others. You need to articulate clearly what you know and why it matters.

Leverage Your Assets

Once you know who you are, what you know, and what you do best—and are able to communicate this to others—you need to start thinking about how you are going to leverage those unique assets most effectively. You need to begin thinking strategically about how you are going to demonstrate why and how you are needed. A strategy based on the quality that

already distinguishes you from the rest of the faculty members, i.e., your nontraditional career path, is the place to start.

When everyone else zigged, you zagged, and you can make that difference work to your advantage. In fact, one of "The 100 Best Business Books of All Time" [3]—*Zag* [4]—suggests this exact strategy as a way for businesses "to separate the winners from the clutter…When everybody zigs, zag." You might ask why an academic physician would look to the business world for career tips, but when you think about the three markers of academic success (focused productivity, impact, and recognition), they seem remarkably similar to those of a successful business brand. In developing a brand, *Zag* suggests you first find what makes you different (your "zag") and then "brand" it by asking yourself questions like: "Where do I have the most credibility?" "Where do I have the most experience?" and "Where does your passion lie?" Or as Laura Roberts asks, "What is it that you cannot *not* do?" Sound familiar? They should, because these questions are part of those first steps of knowing thyself and claiming your expertise. Next, you will need to build on those assets by developing a unique vision.

Create an Innovative Vision

Our Iceberg is Melting: *Changing and Succeeding Under Any Conditions* [5] is a fable about a penguin colony in Antarctica. The colony has survived for centuries by relying on various traditions. One day, a particularly curious penguin notices a problem that threatens the entire colony's continued existence. Not only does this observant penguin see the problem and recognize its gravity, he also imagines a creative solution to avert the colony's annihilation. But, when he tries to tell the others, they not only doubt the magnitude of the problem but also resist his innovative plan for survival. The fable proceeds to show the series of tactics this lone penguin uses to persuade the rest of the colony to recognize the gravity of the problem and accept his clever solution. You may now be thinking, "Nice penguin story,

but what exactly does this have to do with my promotion?"

First, the alarmed penguin is different from the other members of the penguin colony. For the penguin, it is his observant and open nature that distinguishes him from his peers; for you, it is your nontraditional background. Second, the penguin has a vision for action that, if implemented, has the potential to make a huge impact on the colony. Likewise, your academic vision should have the potential for societal impact. Third, the penguin needs to persuade others in his colony of the potential impact of his vision just as your ultimate challenge will be to persuade the promotions committee of the impact of your academic work. As you prepare for "pitching" your nontraditional career path to your more traditional colleagues on the promotions committee, you can use the penguin as a model such that you create an innovative vision and develop a strategy that builds on your assets (who you are, what you know, and what you do best).

As part of an overall strategy for achieving impact and recognition in your area of credibility, experience, and passion, both *Zag* and *Our Iceberg is Melting* recommend being focused and productive in an area of innovation. *Zag* offers relevant strategies such as spotting a trend (think NIH funding priorities or new clinical or educational needs) and "riding" it. *Our Iceberg is Melting* stresses the need to be curious and observant. Then, when a problem or need is identified, *Iceberg* says you need to come up with a vision and strategy to solve the problem. Being able to see what is possible and work in an innovative area is a smart strategy for those with a nontraditional career path who are making up for "lost time." Being one of the first to focus on a particular problem will enable you to become a respected expert most efficiently. If, instead, you stay with the herd and pursue what others are already doing, it will take longer to become a recognized thought leader. Coupled with a guiding team of mentors to ensure you are being systematic and careful enough, I would suggest being as fearless as the fabled penguin in creating your vision and strategy.

Stay Focused

Although you always need to remain open to the world of possibilities around you, you ultimately also need to be focused and productive. The need for focus cannot be stressed enough. Academic medicine is an intellectually stimulating environment. It is filled with interesting ideas, opportunities, and people. That is why you have chosen an academic career. Once you have defined your area of innovation, you need to stick to it. You have a lot of work to do. Do not get distracted by too many other great ideas and opportunities. And although relationships will be important to your academic success via advice and guidance, mentorship, job opportunities, networking, and collaboration [6], you cannot spend all your time socializing. Remember, there is work to be done. You cannot let up. Losing focus represents the biggest threat to your academic success. Stay focused!

Tell a Good Story

In addition to claiming and leveraging your expertise, creating your innovative vision, and staying focused, you will need to become an expert communicator if you want to be productive as a scholar and to "pitch" your nontraditional career path. *The OpEd Project* goal is to have more women thought leaders represented in newspapers' opinion and editorial pages. Like *Zag*, which walks its readers through the steps necessary to articulate a purpose and vision, *The OpEd Project* demands its participants claim their expertise and persuasively present an idea about which they are passionate. Through this process, participants hone their verbal and written communication skills and so develop into engaging and persuasive op-ed writers. The OpEd Project motto is "Whoever tells the story writes history!"

Likewise, *Our Iceberg is Melting* teaches you, the reader, to share your story—what is your vision and how will you get there—in a way that is focused, attention-grabbing, concrete, and credible. Choosing your language carefully so that others can see the impact of your work not only is important to writing grants and getting your message out via talks and publications but is crucial to academic promotion. You need to believe in and advocate for yourself. Communicating is your main way of advocating for yourself. You need to tell your story.

Sit at the Table

As Facebook COO Sheryl Sandberg says, "Sit at the table!!" [7] Just make sure you are sitting at the right table—the adults' table, not the kids' table. To help you leverage your expertise in a focused and productive way, you will need to develop a "power base" of supporters—chairs, senior faculty, and mentors—who buy into your vision and will advocate for your success. It will pay to develop professional relationships with each member of this support team, not only so they can get to know your work but also so that they can get to know you. Each person will need to respect your strengths and not try to make you into someone you are not. The members of this support team will need to believe in the impactful innovation of your work and in your ability to communicate this to others. So select your institution, department, and mentors well. If you do not find the support you need from your team, consider other options either inside or outside your institution and department. You will need a respectful and loyal team of leaders to help you leverage your strengths and navigate the academic system. This type of team can provide financial support, time, networking opportunities, and moral support to help you get through some difficult waters. However, the team members need to believe in you and make a place for you at the table.

To sit at the table, you will have to "put on the suit"—literally. In your nontraditional career, you may have been able to come to work in a sweater and slacks or even a bathrobe and slippers. But, academic medical leaders wear suits. Like it or not, the right clothing will help give you the credibility you need for promotion, and you will need to put on the suit. If you are in doubt about your wardrobe, you may consider

seeking out a trusted senior faculty member to tell you whether or not you are dressing professionally. Be observant of your surroundings, and look at what individuals in leadership positions wear at your institution. You may also want to read books on how to dress for success. You may even benefit from working with a professional image consultant. The right clothing is not going to ensure your academic success, but the wrong clothing—especially for women, short men, and minorities—can jeopardize your place at the table [8].

Conclusion

Good leaders know that everyone will benefit from your success. You, as an individual, have unique strengths. Your nontraditional background confers a different set of knowledge, experiences, and skills than more traditional colleagues. If you claim your expertise and leverage it to create an innovative, focused, and productive body of scholarship, everyone will benefit. Your work will enrich not only you and your institution, your department, and your faculty and learners but—ultimately—patients and families. To be sure, some institutions, departments, and leaders will not recognize, acknowledge, or respect your strengths as having a place in academic medicine. But, although some may not see a role for individuals with nontraditional career paths in academic medicine, diversity—including the diversity that comes from having a faculty that includes individuals with nontraditional backgrounds—increases innovation and creativity. Your nontraditional path has the potential to bring you scholarly recognition and allow you to make a unique impact.

Words to the Wise

- Know thyself.
- Claim your expertise.
- Leverage your assets.
- Create an innovative vision.
- Stay focused.

- Tell a good story.
- Sit at the table.
- And know that everyone benefits from diversity.

Ask Your Mentor or Colleagues

- What is your perspective on the strengths and vulnerabilities of my temperament?
- What knowledge, experience, and skills distinguish me favorably from my peers?
- How do you think I can best leverage my assets in the institution and department?
- Do you see an opportunity for innovation in an area within my expertise? If so, who are the thought leaders in this area, locally, nationally, and internationally? How might I get to know them (e.g., organizational committees, journal reviews, collaborations)? Can you introduce me?
- Are there any key leaders in the institution and department who I should get to know? If so, are there tangible ways in which I could get to know them (e.g., shared committees, courses, collaborations)? Can you introduce me?

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How to Build a National Reputation for Academic Promotion

Laura B. Dunn, Alana Iglewicz, and Sidney Zisook

Developing an outstanding local, regional, and ultimately, national or international reputation is an essential component of advancement and promotion in most academic departments. Medical students considering an academic career should try to match at an academically oriented department. Residents interested in academic careers should find mentors who will help them launch a successful academic career. For faculty members, it is important to join (or move to) a department that fosters the career development of its faculty—a department whose faculty attain reputations of excellence and where mentorship is supported and valued. Once faculty members discover their unique academic passions, they are in a better position to focus on activities that will bring them the most satisfaction, which is the foundation necessary for establishing a record of academic excellence that fosters recognition in one's field of interest. This chapter focuses on the following principles to help early-career academicians best position themselves for academic success by fully availing themselves of opportunities while simultaneously avoiding obstacles. Important guiding principles are as follows: strive for excellence, not for reputation; be known as a good friend, classmate, and colleague first and foremost; learn to focus on what is most important to one's academic passions and values, even if it means sometimes saying "no"; publish—often and well; network; volunteer; collaborate; and reach out to others, including to junior faculty, trainees, and the public.

At most academic institutions, promotion from assistant to associate level in clinical, research, or any other academic track requires one to demonstrate that one has developed an outstanding local and regional reputation in an area of expertise (see chapters "How to Understand Criteria for Academic Promotion on "Traditional" and "Research" Tracks" and "How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks"). For the clinician-educator track, typical criteria require that faculty demonstrate having a local or regional reputation for clinical expertise and excellence in teaching. Service, as defined by having an ongoing record of active participation in departmental, hospital, or university committees, is also important. Additionally, some universities also require

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that clinician-educators have made novel contributions to clinical practice, have contributed to clinical research, and/or have a meritorious publication record. See chapter "How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks" for a more in-depth discussion of promotion criteria for "Clinician Educator" and "Teaching" tracks.

Promotion to professor requires developing an excellent national, if not international, reputation. As there is no single best route to achieving a strong academic reputation, this chapter focuses on principles that help early-career academicians best position themselves to seek out and make full use of opportunities that help them attain this goal. Obstacles that can impede achievement of a national reputation also are discussed.

Start Early, if You Can

> If you don't know where you are going, you might wind up someplace else. –Yogi Berra

When selecting a residency or fellowship, consider not only short-term needs to get excellent clinical training in a program where residents appear satisfied and respected, but also longer-term goals of preparing for an academic career. A resident who aspires to a successful academic career that will, by necessity, require the development of an excellent national reputation would be wise to select a program with faculty members who have attained strong national reputations. Some programs are more successful as launching pads for competitive fellowships or academic appointments. The best way to find out is to ask focused questions of training directors, residents, fellows, and junior faculty at residency interviews. Such questions include, but are not limited to: "Do trainees have opportunities, protected time, mentorship, and available resources to develop areas of interest that are most important to them?" "Are residents encouraged to publish during their training and/or present at regional and national meetings?" "What do residents do after graduation?" "How many go into fellowships?" "Where do they go

for fellowships?" "How many graduates attain academic positions?"

For trainees interested in basic, translational, or clinical research, a research-oriented department with federally funded scientists on the faculty bears careful consideration. For the trainee aspiring to develop a reputation as an academic clinician-educator, a program with a clinical scholar or clinical educator track may be especially appealing. For someone who is undecided about post-training plans, a program with a broad range of opportunities and mentors is ideal.

At the faculty level, it may be more difficult to select the ideal program as faculty positions may be more limited. Since the best predictor of the future is the past, it may be wise to visit a program more than once to learn how successful early-career faculty have been in developing their reputations and attaining advancement. Some questions to consider are: "Do junior faculty feel satisfied and valued?" "Do they foresee opportunities for advancement?" "Are adequate resources available—including mentorship, time and encouragement to build their academic portfolios and reputations?"

Do your homework to evaluate whether junior faculty have advanced to senior leadership and academic positions, either at the same institution or elsewhere. It is also important to evaluate the degree to which faculty have developed or are developing regional, national, and international reputations. Some questions to consider are: "Do junior faculty participate actively in national and international organizations?" "Do they attend meetings of these organizations?" "Do they feel that they have colleagues who are looking out for them?" "Do they have mentors who introduce them to others in the field or otherwise help them to become known?"

Other departmental and institutional factors can affect your ability to develop a national reputation, but such factors may take more investigation. These include the overall functioning and stability of the department and the role of the Chair and other senior leadership. A department without a permanent Chair, or one in severe financial difficulty, may not be as conducive for the

development of academic faculty. Some Chairs see the development of early-career faculty—introducing them to key players in their field of interest, facilitating invitations to appropriate national organizations, helping with grant applications, protecting them from too much service—as a core feature of their main mission. In contrast, other Chairs are less focused on or dedicated to faculty development. Therefore, it may be important to know how generative and dedicated to faculty development the Chair and other departmental leaders are when choosing between job offers. Although more challenging, it is certainly feasible to still build a national reputation from within a department that does not have all of these positive attributes. In these situations, one has to advocate for oneself and forge connections, collaborations, and mentorship locally, regionally, and nationally with faculty outside of one's department. Seeking mentorship through national organizations can be especially helpful.

There are several "tracks" available for academic physicians. Navigating each pathway requires knowledge of what is available, the local institutional "culture," and the process and criteria most relevant to the chosen path [1]. The hierarchy of faculty ranks in many academic medical centers include moving up the ladder from Instructor to Assistant Professor to Associate Professor and finally to Professor. In many centers, the qualifiers, "clinical" or "research," or their equivalents, may be attached to the title, for example, Clinical Assistant Professor or Research Professor. Table 1 describes a general overview

of what promotion committees look for in each major academic "track." For the research scholar, for example, the rank of Research Professor (sometimes just called Professor) is the goal, and promotion is based on a strong national and international reputation in research. To a lesser extent, teaching and possibly even clinical skills may be important. The focus is more on publishing manuscripts and obtaining peer-reviewed funding than it is on clinical care.

The educator and clinical scholar generally are required to build a strong reputation as a teacher and clinician, and less so as an independent investigator. As mentioned in chapter "How to Understand Promotion Criteria for "Clinician Educator" and "Teaching" Tracks", clinical educators may be assessed in four domains: clinical care, teaching, scholarship, and leadership/administration. Teaching innovations and creative curricular development may be more important than original research or the number of publications in this track. The clinician is judged primarily on clinical excellence, often less so on teaching and minimally on research, although many departments do expect their clinician-educators to be engaged in scholarly work of some kind and show productivity in this area. The sooner you know the idiosyncrasies of each track at your institution, the more likely you are to take the appropriate steps to ensure success in achieving excellent reputations in the field, leading to timely promotions and the satisfaction, prestige and awards that go with them.

Table 1 Academic tracks

Accomplishments/reputation	Example title	Track		
		Research scholar	Clinical scholar/educator	Clinical
		Research professor or professor of X	Professor of clinical X	Clinical professor
Research (manuscripts/grants)		☑☑☑☑	☑☑	☑
Education/training		☑☑	☑☑☑☑	☑☑
Clinical		☑☑	☑☑	☑☑☑☑

☑☑☑☑ = strong reputation required for promotion

☑☑ = some accomplishments may be required or desired

☑ = not usually required

Follow Your Passion, Once You Find It

> Don't ask what the world needs. Rather ask—what makes you come alive? Then go and do it! Because what the world needs is people who have come alive. –Howard Thurman

Being a physician remains a privileged and honored profession. Few professions offer as many choices—to be a healer, a teacher, a scientist, an expert in medical law, a bioinformatics specialist, to name a few—for a fulfilling and purposeful career. However, it can be challenging to find which among these many possibilities best matches your interests, talents, and temperament. For those who choose careers in academic medicine, the menu can be overwhelming.

While it is important to focus on the areas of academic medicine (e.g., clinical work, teach, research, and community service), it is helpful to understand that whatever early decisions are made, they are not written in stone—people do change directions and adjust their relative emphases on roles over time. It is not unusual for an M.D./Ph.D. to enter a residency fully intent on setting the basic science research world on fire when they graduate, only to find they love caring for patients and shift to a more clinically oriented career. Similarly, it is not unusual for someone with minimal or no background in research to become excited by the world of discovery during their training and ultimately develop into an outstanding investigator. Thus, early-career academicians are faced with the task of discovering their unique academic passions and following them, while being open and flexible to emerging attractions. While this can feel daunting at times, a trusted mentor or mentors—including at least one or two outside of your home department or institution—can help trainees and junior faculty examine their motivations and chart a course that is optimally tailored to their interests and preferences.

Strive for Everyday Excellence

> The best preparation for tomorrow is to do today's work superbly well. –William Osler

If there is one sine qua non for building a national reputation, it is establishing a local reputation as a reliable colleague and a trustworthy team player who always strives toward excellence. The ACGME competencies provide a useful framework: (1) knowledge (in your general discipline and specific field of concentration), (2) clinical skills (for purposes of professional careers in academic medicine, this can be broadened to include also teaching skills and research skills), (3) practice-based learning and improvement (be at the cutting edge and do what is necessary to stay there), (4) interpersonal and communication skills (in day-to-day work with colleagues, students, and the public as well as in disseminating work verbally and in writing), (5) professionalism (a commitment to adhering to ethical principles, respect for others, and personal integrity), and (6) systems-based practice (working within the unique intricacies of available resources and the "culture" of your department, university, and national organizations). Attention to each of these areas is much more fruitful than focusing on the more expansive goal of attaining a "national reputation" and is an effective strategy toward academic success.

> A dream doesn't become reality through magic; it takes sweat, determination and hard work. –Colin Powell

Being an academic physician is hard work. Few academicians begin their careers as fully funded investigators, and no one starts a career as a fully funded teacher or clinician. Thus, academic faculty frequently have several institutional responsibilities and often find themselves with multiple roles including frontline clinical treatment and care. Moreover, faculty often have responsibilities related to patients, students, colleagues, supervisors, mentors, organizations, and communities in addition to their families. They may be surprised to find themselves working even harder as junior faculty than they did as residents. If they want to make their mark as investigators, they may have to write manuscripts and grant applications in the evenings and on weekends. It may be wise to have frank discussions with your life partner about such demands to make sure that

each of you is prepared for the sacrifices. Despite the hard work, when the Chair requests a patient to be seen, or your mentor asks for a review of a manuscript he or she has just written, as junior faculty the answer should almost always be "Happily" or "Of course." For the most part, bargaining and negotiating are skills to use as one moves into mid-career and later.

Say Yes

> I only have "yes" men around me. Who needs "no" men? –Mae West

While it is always an asset to be collegial and a good team player, it is especially important early in your career to take advantage of every possible opportunity. The first step in developing a national reputation is developing a local one, and the trainee or early-career faculty member who is viewed as eagerly doing more than his or her share is well on the way. A resident who wants to be nominated for one of the many scholarships, fellowship, travel awards, and other honors available to residents generally does so by being considered a "good citizen" of the residency and department. Personal qualities are every bit as important, sometimes more so, than native intelligence or even accomplishments in getting recognized and promoted. One of the key personal qualities is being considered a giving team player. For both house staff and faculty, the individual who looks at a request more as an opportunity than a burden has an advantage. Even better is the person who does not wait to be asked, but who volunteers for service such as teaching, seeing a difficult patient, serving on committees, consulting to another service, and covering for a colleague in need. Rarely does a promotion committee's recommendation omit "teamwork." Regardless of how much you lament that too much of your time is spent in front of your computer instead of with patients or students, or that you are too tethered to your cell phone and pager when you would prefer to be free to think, read or, importantly, relax, professionalism demands that you answer pages promptly, return calls, and respond to emails. Part of the reputation you build along the way is directly related to day-to-day communications, electronic or otherwise.

Just Say No (Thanks)

> It comes from saying no to 1,000 things to make sure we don't get on the wrong track or try to do too much. We're always thinking about new markets we could enter, but it's only by saying no that you can concentrate on the things that are really important. –Steve Jobs

There comes a time when "Yes, thank you; more, please" cannot remain the default reply to all requests. No one can do it all, which often requires learning the art of saying "No, thank you." To protect your time and to focus on unique academic passions and career goals, it becomes important to recognize limits and eliminate extraneous pursuits. Books have been written on the gentle art of saying no [2, 3]. Usually a straightforward "Thanks for the offer, but I just have too much on my plate right now" will do. There is no reason to apologize for not being a superhero—none of us are. If someone such as a Chair, the Dean or another important "boss" is asking, and especially if she or he is insistent, it sometimes helps to review with them other commitments and enlist their help in re-prioritizing. You may be able to reach a compromise, and an initial "No, thank you" may turn into "Can I get back to you in a few weeks? or I'll try to get to it next month." But sometimes, it is incumbent on the individual to respect his or her own priorities and time and be more direct with a "No, thank you." For more on "saying no," see chapters "How to Be Organized and Manage Time" and "How to Network and Be a Good Colleague".

Find the Right Mentor

> A self-taught man usually has a poor teacher and a worse student. –Henny Youngman

The right mentor can help pave the road to an outstanding reputation in many ways. The prime responsibility of a mentor is to help guide the mentee to a rewarding and successful career in academic medicine [4]. Research has found that

mentorship in academic medicine has an important influence on personal development and productivity [5], perhaps especially for women [6] and minorities [7] (see chapter "How to Cultivate a Culture of Belonging in Academic Medicine"). Mentorship can take many forms. For the research scientist, this may entail help in developing a research focus, finding grant support, publishing, and presenting findings. Mentors can also help the up-and-coming researcher find ongoing projects to get involved in or datasets to mine while they wait for their own research to be funded or to begin yielding results.

For the educator, a mentor may focus on helping the mentee develop teaching skills and finding opportunities to teach both locally and to broader audiences. Mentors also assist mentees in getting involved in curriculum development, presenting their creative ideas in other settings outside the department and university, and navigating the institutional system to find teaching and administrative positions in the medical school or department.

For the clinical scholar, a mentor might help the mentee learn to turn a clinical conundrum into a researchable question or literature review, and a challenging patient into a publishable case report. Effective mentors are also good role models. They help their mentees learn when to say "Yes" and when to decline. They may also provide advice on difficult topics such as balancing work, family, leisure, and health. An important role mentors have is advocating for and promoting their mentees in the department, medical school, and national organizations. An effective mentor often introduces mentees to other potential mentors, supervisors, and collaborators. Often multiple mentors may provide complimentary roles. Perhaps most importantly, mentors provide guidance on what it takes to develop an outstanding reputation and get promoted.

Sign Up

I don't know what your destiny will be, but one thing I know: the only ones among you who will be really happy are those who have sought and found how to serve. –Albert Schweitzer

Initiating, sustaining, and nurturing connections with others, referred to as "networking," generally require active participation in local and national conferences and organizations (see chapters "How to Network and Be a Good Colleague" and "How to Participate in Professional Societies"). Be proactive. Awards, fellowships, and scholarships are available for residents, fellows, junior residents, and junior faculty. Do not assume, just because your training director, mentor, or Chair has not nominated you, that you are not competitive, or even that they know what opportunities are out there. Ask. If they do not know, ask other faculty members from inside and outside your department, colleagues, and acquaintances from other programs. Be creative about searching for awards and fellowships; check society websites and the NIH website. When you hear about awards or fellowships, let your immediate supervisors know of your interest.

At meetings, it is useful to seek out established investigators and "experts" and introduce yourself to let them know of your interest in their work. Junior scholars are often surprised at how accessible the academic "superstars" are and how willing they are to offer advice and guidance. When possible, mentors can play an important role in making introductions and facilitating these connections. A second way to meet established academicians is to present a talk or poster at national conferences. Some of the most interesting and intense discussions occur during poster sessions—often more so than during more formal presentations or talks. A third way is to participate in workshops and symposia. Not only does this give the presenter a chance to disseminate her or his work, it also fosters connections with other investigators. Also, take the initiative to organize and submit a symposium; asking established experts to join can be a great way to be seen as a leader and to build long-lasting relationships.

Another way to grow a national reputation is through national meeting committee involvement. Many, if not all, national psychiatry organizations have committees that are welcoming of trainee and junior faculty involvement and

membership. Participation in these committees is a wonderful way to meet and learn from colleagues and experts in your field. These relationships, in turn, can lead to collaborations that subsequently lead to publications and national workshop presentations. Similarly, serving on medical school or university-wide committees at your institution affords faculty the opportunity to collaborate on a shared mission, learn from others, network with others, think more broadly, and, in turn, establish a reputation at a local, regional, or national level.

Collaborate Outside of Your Department

> If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas. –George Bernard Shaw

Cross-disciplinary relationships and collaborations are meaningful at any stage in one's career. These relationships are especially important for those in a clinical professor track applying for advancement from the Assistant to the Associate level. Colleagues in other disciplines are often well suited to write you letters of recommendation for advancement that speak to your local or regional clinical expertise (see chapter "How to Write Effective Letters of Recommendation"). Particularly, this is the case when you have provided clinical consultations for such colleagues on a regular basis and/or have been involved in cross-disciplinary teachings. Considering the pervasive nature and the stigma surrounding mental illness, many of our colleagues' most challenging cases involve the interface of psychiatric illness with other medical conditions. As such, we have much to learn from and offer to other disciplines. We encourage you to avail yourself of potential opportunities for which you can bring your clinical or research expertise to an interdisciplinary setting. These include, but are not limited to, case reports, morbidity and mortality conferences, and didactic series. Participation in these experiences sets the ground

for future interdisciplinary publications and conference presentations, even at conferences outside of your own discipline. Moreover, such collaborations are intellectually stimulating and help you stay connected to the overarching field of medicine.

Additionally, fruitful collaborations are encouraged not just outside of one's department, but also outside of one's institution. As depicted above, one can "network" with colleagues and experts at national conferences and through conference committee involvement. Both of these efforts can result in meaningful collaborations. A related and straightforward way to initiate collaborations outside of one's institution is to organize a panel presentation or workshop at a national meeting, ensuring to invite colleagues from another department to co-present. These collaborations can result in future clinical, teaching and research collaborations. From a teaching standpoint, such collaborations can lead to invitations to provide a training, a talk, or a grand rounds presentation at another institution. From a research standpoint, such collaborations can result in publications and funding for multi-site studies.

Fellowships and Training Grants

> Training is everything. The peach was once a bitter almond; cauliflower is nothing but cabbage with a college education. –Mark Twain

Many future academicians find specialty tracks during residency appealing. Some of the more popular ones are research, community, and clinical-scholar tracks. Following residency, fellowships may be a way to obtain additional specialty training and bridge the transition from student to faculty. This may be especially important for those interested in academic research careers.

While clinical positions are often available immediately after residencies, an important intermediary step for the budding research scholars is a research fellowship. The "right" fellowship provides training in necessary research skills and mentorship regarding academic and general career development. It provides you with time to

build your CV, attain research support before applying for academic appointments, and obtain opportunities to network to further develop your academic reputation. It is ideal to attain research support before applying for academic appointments. However, the ideal is not always possible. A large survey of 5604 faculty in departments of medicine, 4200 of whom had postdoctoral research training, found that the average length of time between the end of postdoctoral research training and obtaining the first peer-reviewed research grant was 24 months [8]. The survey results also suggested that to be a successful researcher in academic medicine, research training should include at least 2 years of postdoctoral research training, including formal course work in the fundamental sciences pertinent to biomedical research; 2 to 3 years of full research support from the academic institution until the first extramural grant is obtained; and commitment of at least 33% of time to research activities.

There are a variety of postdoctoral research training programs available to residency training graduates [9, 10]. Among them, NIH-funded institutional T32 Training Grants (http://grants.nih.gov/training/nrsa.htm), which provide stipends and an institutional allowance, are specifically designed to provide young scientists with experience in research methodology and to train the next generation of physician scholars. There also are several VA fellowships as well as research funding from private disorder-focused organizations. Often, one of the key goals in T32 or other research fellowships is for the young investigator to emerge with research funding, such as a K-award. The NIH career development (K series) is a key vehicle for successful progression to independent investigator (http://grants.nih.gov/training/careerdevelopmentawards.htm). A K-award validates for the candidate, professional colleagues, and the funding agency that the recipient has made a serious commitment to life as a researcher [11]. These typically provide a much higher level of salary support than other research grants and require at least a 75% time commitment, which allows junior investigators the necessary protected time to develop their own research programs.

Write

> Either write something worth reading or do something worth writing. –Benjamin Franklin

For many academic physicians, manuscripts and grants are the key currencies for promotion, for building a reputation, and for disseminating creative accomplishments. For clinical scholars and research scientists, the quality and quantity of peer-reviewed manuscripts are important components of building a reputation, and at least some of the publications should be in high-impact journals. In the earliest stages, contributing to manuscripts, even in a limited way in multi-authored papers, represents a good start, but eventually some first-authored papers are necessary, both for promotion and for building a reputation [12]. Sometimes, only the first author is remembered. Later in your career, being last or "senior" author conveys even more status than first authorship, as it communicates being the "leader of the team." Start a writing group of peers who meet regularly to work on their writing and provide each other with both feedback and support (see chapter "How to Write Socially" on writing groups).

Embrace Failure

> I've failed over and over and over again in my life and that is why I succeed. –Michael Jordan

> You miss a 100 percent of the shots you don't take. –Wayne Gretzky

There is no way to succeed in academics without taking risks. When submitting a paper for publication, it is often wise to aim for a journal that is more widely read, or more academically prestigious, than where you think it is likely to get accepted (see chapter "How to Write and Publish an Empirical Report"). One academic we know puts it this way, "If you don't get rejected by the first journal you submit to, you didn't aim high enough." Receiving feedback to improve the quality of the work can be the equivalent of free expert supervisory or mentor advice. Requests for revision or even frank rejections must be seen as opportunities to do better rather than personal

criticisms. Most reviewers do not feel they are doing their jobs if they just praise a submission or accept it outright; therefore, even the most established academicians rarely receive immediate acceptances on their initial submissions. This is even truer for grant applications, where the vast majority of submissions never get funded and those that do achieve funding often do so only after one or two revised applications.

One academic discussed keeping a "shadow" CV, where she tracks all of her rejections. This is a way of fostering her own resilience—reminders that rejection, not success, is what builds our resilience and strength. The only way to forge a path forward is to try, and try again, even in the face of rejection and failure. You will sometimes succeed.

Words to the Wise

- Strive for excellence, not for reputation.
- Be known as a good friend, classmate, and colleague first and foremost.
- Learn to focus on what is most important to one's academic passions and values, even if it means sometimes saying "no."
- Publish—often and well.
- Network.
- Volunteer.
- Collaborate.
- Reach out to others, including to faculty more junior than you and to the public.

Ask Your Mentor or Colleagues

- What should I do to succeed in this department? In this field?
- What are the best ways to develop a national reputation? What is most likely to derail me from developing a national reputation? How can I best avoid those roadblocks?
- How do I ensure ample time to write and for my own research (or teaching)?
- Who should I get to know here? Locally? Nationally? Internationally? Can you help me meet them? If not you, who?

- What organizations should I join?
- What awards, scholarships, and fellowships are available for me?
- How important is it for me to review manuscripts? Research proposals? If important, can you help me let people know I am available?
- How can I succeed in academic medicine and still be a loving parent, spouse, and friend, or what suggestions do you have for balancing academic success with a fulfilling life at home?

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How to Engage with Social Media

Nathaniel P. Morris

You are what you share. –Charles Leadbeater

Social media platforms have changed the ways in which people communicate and connect in the twenty-first century. Both faculty members and trainees in academic medicine would benefit from understanding the potential benefits and risks of engaging with social media. This chapter first describes different types of social media and the growth of these platforms in recent years. Next, this chapter explores how social media use can contribute to a productive and enjoyable career in academic medicine. Finally, this chapter reviews hazards of engaging with social media and provides suggestions for responsibly using such platforms.

Defining Social Media

"Social media" can be defined in various ways; however, this chapter will utilize a broad definition for the purposes of reviewing the role of social media in academic medicine. In particular, one dictionary defines social media as "web-sites and applications that enable users to create and share content or to participate in social networking" [1].

The swift rise of social media has led to a dizzying array of platforms for digital communication. Some social media platforms may emphasize one form of content; for instance, there are platforms that highlight writing (e.g., blogs), photographs (e.g., Instagram), or videos (e.g., YouTube). Nonetheless, many, if not most, social media outlets (e.g., Facebook, LinkedIn, Reddit, Twitter) utilize a combination of digital content for communication among participants.

Billions of people across the planet now turn to social media platforms for daily communication. Facebook reported an average of 1.49 billion daily active users as of September 2018 [2]. On an average day, online users watch over 1 billion hours of video on YouTube [3], send hundreds of millions of tweets on Twitter [4], and share more than 95 million photos and videos on Instagram [5].

Using social media may once have seemed to be within the strict purview of teenagers and other young adults. Yet, as of 2018, these platforms have assumed influential roles within the realm of academic medicine as well. A number of medical organizations now have large followings on social media; approximately 1.7 million users follow *The New England Journal of Medicine*

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[6], 800,000 users follow the Centers for Disease Control and Prevention [7], and 500,000 users follow the American Medical Association [8] on their respective Facebook pages. Similarly, there are individual medical professionals who have attracted substantial audiences through social media profiles. Over 260,000 users follow the Twitter account of author and surgeon Atul Gawande [9], while 140,000 users follow the account of physician-scientist Eric Topol [10], and 96,000 users follow the account of the National Institutes of Health Director Francis Collins [11].

Reasons to Participate

As someone pursuing a career in academic medicine, you might ask yourself, "Why should I care about social media?" You may be focused on patient care, medical education, research, or any combination of the above. The purpose of this section is to review why you might want to engage with social media and how doing so could contribute to a productive and enjoyable career in academic medicine.

The first reason to consider using social media is perhaps the most common one – to maintain connection with friends and family in your personal life. Academic medicine can be a rigorous and often highly specialized career path in which work-life balance suffers. From sending messages to check in with old friends to uploading photos from family events to sharing comments over recent news articles, you may find that social media platforms help you stay in touch with people whom you care about.

There are also a number of professional reasons for considering interacting with social media. For instance, these digital platforms can help rapidly disseminate your academic work to large audiences [12, 13]. Publishing in academic medicine can take months, or even years, to issue a final product, and, in the past, these publications often circulated among small communities of readers, including those who peruse medical journals, con-

ference abstracts, and/or textbooks. Today, as the American Medical Association describes, "the internet has created the ability for medical students and physicians to communicate and share information quickly and to reach millions of people easily" [14]. Whether you work on clinical trials, literature reviews, quality improvement projects, or new teaching methods, you may find that social media outlets can facilitate the spread of ideas from academic medicine toward the broader public.

Social media can make your own work more accessible to the public, but these platforms can also help you discover new content within academic medicine. It is impossible to keep up with all of today's medical literature. Still, social media platforms can not only make it easier to stay up-to-date with the latest medical news, but can also curate content to your specific needs. As an example, a cardiologist might use social media to follow the news feeds of particular journals (e.g., *Circulation*, *JAMA Cardiology*), medical organizations (e.g., American Heart Association, American College of Cardiology), news websites (e.g., New York Times Health Section, Stat), and medical professionals (e.g., Rita Redberg, Eric Topol).

Networking is another reason to consider engaging with social media. Traditionally, medical professionals have met and connected at venues like hospitals, grand rounds, conferences, and department meetings. However, social media platforms have considerably expanded this arena for networking. Through social media, academic medicine faculty and trainees can quickly share ideas and collaborate with not only others at their own medical institutions but also those at other institutions around the world. These platforms also broaden networking opportunities outside of academic medicine for medical professionals, including potential interaction with nonprofit organizations, advocacy groups, industry, and media outlets. Potential collaborators may find it easier to connect with you through social media platforms (e.g., LinkedIn, Twitter), as opposed to digging through academic web-

sites and/or journal publications for contact information.

You can use social media to advocate for issues that matter to you. Medical professionals can make a difference when meeting directly with patients or colleagues; however, social media allows you to expand advocacy outside of medical and/or academic settings. For instance, on a 2016 flight, Dr. Tamika Cross, a black female obstetrician-gynecologist, reportedly offered to assist an ill passenger, and Delta staff did not believe that she was a physician; on Facebook, Dr. Cross published her story, which rapidly spread across the Internet and inspired physicians around the country to fight back against stereotypes with the shared tag #WhatADoctorLooksLike [15]. In another example, the National Rifle Association posted on Twitter that doctors should "stay in their lane" after the American College of Physicians published articles about reducing firearm injuries and deaths; medical professionals responded with dozens of posts about experiences with gun violence and used the tag #ThisIsMyLane [16]. If you want to speak out, stir discussion, and/or educate the public about topics of importance to you, social media platforms can help you accomplish those goals.

In addition, engaging with social media can allow you to play an active role in managing your "digital footprint," which is the information that exists online about you [12, 17]. Patients, colleagues, and others in the public may look you up online, and, if they do, they will learn only from what is there [18–21]. Regardless of whether you create or share content online, people will share information about you with or without your permission. Healthcare professional rating websites may include reviews about your care, skills, and/or personality [18]. Patients and colleagues may write about their experiences with you in blogs and/or articles. Friends, family, and affiliated institutions may publicly share photos, videos, or stories of you. By creating social media accounts and regularly using these platforms, you can not only monitor your digital footprint, but you can also take some control over what others can find online about you.

Reasons to Be Cautious

We have now covered some of the ways in which social media can supplement a career in academic medicine; however, faculty and trainees should remain cautious before jumping into social media. Careless use of social media can bring lasting personal and professional ramifications, often in a public manner. There are a number of risks that come with these digital platforms, and you should understand the hazards of engaging with social media prior to doing so.

First, using social media runs the risk of blurring the line between your personal and professional identities [14, 22, 23]. You may want to use Facebook or Twitter to post publicly about your research and medical topics, but what happens when a friend leaves an inappropriate comment or posts a photograph from a family event for all to see? Or you encounter a patient on a dating application like Tinder [24]? How comfortable are you with sharing personal information (e.g., opinions, photographs, videos, casual conversation) online for patients, colleagues, and others to look at? Do you want members of the public to have access to information about your friends and family? You should consider these questions when engaging with social media, especially in relation to a career in academic medicine. Each person may differ regarding the extent to which she wishes to share personal details online that can be associated with her professional identity. However, guidelines from medical organizations including the American Medical Association [14], the American College of Physicians [22], and the Federation of State Medical Boards [22] suggest that medical professionals should consider separating personal and professional content online in order to maintain professional boundaries. Unless you are comfortable using social media and consciously wish to post publicly, you should ideally use strict privacy settings for any social media accounts for any social media accounts (e.g., restricting visibility of posts to friends or specific networks). In addition, you should likely decline any requests to connect via social media from your own patients and maintain professional avenues for contact

with patients, such as clinic telephone numbers and/or messaging in electronic medical records.

Medical professionals should consider the risks of digital permanence associated with social media. As written in a 2015 article, "a message can be reposted, shared, and disseminated at any future time in other contexts. It is at once fleeting and permanent" [25]. Before posting anything online, you should assume that it will be forever available online and may be associated with you decades from now [12]. The ramifications of a quick online post may not be immediately obvious, but these posts may become relevant to future job applications, patient encounters, consideration for academic promotion, medicolegal proceedings, dating, and a variety of other situations. One strategy that may mitigate these risks of digital permanence is to utilize the "front-page rule"—avoid posting anything online that you would not be comfortable seeing on the front page of a newspaper [12, 26].

While you should take steps to protect your own privacy on social media, you also need to consider the privacy of others when using these platforms. For instance, your colleagues, friends, and/or family may not appreciate it if you publicly post their personal information or anecdotes about them [12]. Inconsiderate posts on social media can also carry serious professional and medicolegal risks. There are numerous public examples of healthcare providers who lost their jobs for sharing inappropriate content online related to their work [23]. In particular, medical professionals should avoid posting content that may disclose protected health information related to patients. The Health Insurance Portability and Accountability Act lists 18 identifiers that constitute protected health information [27]. Most of these identifiers are relatively straightforward (e.g., name, social security number, telephone numbers, birth date), but the last identifier is quite broad: "any other unique identifying number, characteristic, or code, except as permitted [for re-identification] [27]. Barring exceptional circumstances (i.e., patient permission to do so), faculty and trainees, faculty and trainees in academic medicine should avoid posting any infor-mation from patient encounters that might be identifiable by a patient or other members of the public.

Affiliating social media accounts with your professional identity may carry implications for your employment. Certain employers, such as hospitals, clinics, or medical schools, may restrict the degree to which faculty and/or trainees can post specific content online. To illustrate this point, the Hatch Act prohibits US federal employees from utilizing their government positions or workplaces for the purposes of political advocacy [12, 28]; individuals who work at the Department of Veterans Affairs or in similar government roles may break federal law by posting political content on Twitter, Facebook, Instagram, and/or other social media accounts affiliated with their roles. Employees in academic medicine who wish to publicly engage with social media may benefit from reviewing social media policies with their employers first [12].

Social media use in academic medicine can raise thorny ethical issues around financial conflicts of interest. A 2017 article found that 79 percent of a sample of US-based hematologist-oncologists on Twitter had financial conflicts of interests [29]. A follow-up article looked at a subset of these hematologist-oncologist Twitter users—those with at least $1000 in general payments related to these financial conflicts and at least 100 tweets—and found that 81 percent had tweeted about a drug from a company with which they had financial relationships [30]. In a separate example, a 2018 article raised concerns about the trend of medical students and physicians becoming Instagram "influencers" and promoting commercial products to large audiences [31]. If you decide to profit financially from social media, these profits may complicate your roles in academic medicine. Patients and colleagues may question whether your decisions in teaching, research, and/or patient care stem from financial motivations, and you should be aware of these risks before pursuing any financial profits from social media engagement. Disclosing relevant financial relationships when interacting with social media

may be one way to avoid ethics concerns related to conflicts of interest.

Engaging with social media can require a thick skin. In academic medicine, feedback can come in many forms, including letters to the editor in medical journals, student surveys, and regular check-ins with supervisors. Criticism in these settings can be difficult to receive, but these academic approaches to feedback tend to take time, generally have reasonable purposes (i.e., promoting professional growth, correcting errors), and often come from specific individuals and/or groups. However, on social media, harsh feedback can come from anyone without rhyme or reason. Thousands of online users might criticize you, your posts, your academic work, and/or people whom you care about [12, 13]. Social media may be intended to connect people, but its capacity for anonymity and physical distance can sometimes foster cruelty between users. Medical professionals should be cognizant of the potential viciousness of online interactions before utilizing social media.

Finally, though social media can foster connection with people whom you care about, excessive use of these platforms can disrupt work-life balance amid a career in academic medicine. Many social media networks are designed to attract users to keep using these platforms [32], and you may find yourself repeatedly logging into your accounts, whether at work or at home. For instance, you might find yourself browsing Twitter during a department meeting or responding to colleagues on Facebook during vacation. Continuous use of social media without boundaries can make it harder to separate your professional life from your life outside of work. There is growing concern about addictive use of social media [33] and whether social media engagement may be associated with adverse health risks, such as depression and anxiety [34]. Users of social media in academic medicine should remain aware of how much they are using these applications, as well as potential risks of overuse. Setting your own boundaries on how often and where you use social media applications may be one strategy to avoid disruptions in work-life balance.

This section reviewed some of the hazards that can come with social media use within the context of a career in academic medicine and provided several tips for mitigating these risks. Clinicians, educators, and researchers may wish to further review professional guidelines for social media use developed by medical organizations, as discussed above. The section "Words to the Wise" at the end of this chapter also includes suggestions that may help medical professionals avoid several hazards associated with social media use.

Conclusion

Social media presents both opportunities and risks for those pursuing a career in academic medicine. As we've reviewed in this chapter, these platforms can connect you with family and friends, disseminate academic work, introduce you to new content, facilitate networking, allow you to advocate for issues that matter to you, and help you control your digital footprint. However, social media carries a number of hazards, including overlap between your personal and professional identities, digital permanence, privacy concerns, employment considerations, financial conflicts of interests, public criticism, and disruptions to work-life balance. In addition, these technologies are evolving so rapidly that, by the time you read this chapter, new types of social media may have already emerged and further changed the ways in which we communicate online.

Examining some of the complexities of social media may help users in academic medicine engage with these digital platforms in ways that maximize personal, professional, and public benefit while minimizing potential adverse effects from such use. To facilitate these goals, this chapter lays out several practical tips for responsible use of social media platforms by faculty and trainees in academic medicine. We need more voices from the medical community

in the public sphere; however, educating yourself about the risks of social media use and taking some simple precautions may help you successfully integrate social media into a career in academic medicine.

Words to the Wise

- Adjust your accounts to strict privacy settings (i.e.,visibility of posts restricted to close connections and/or specific networks), unless you are comfortable navigating social media and wish to post publicly.
- Monitor your "digital footprint" by searching yourself online at least annually, if not more frequently.
- Do not post anything online that you would not want to see on the front page of a newspaper.
- Maintain boundaries between your personal and professional identities on social media, such as setting up separate accounts and/or declining requests from patients to connect on these platforms.
- Avoid posting any patient information that might be identifiable to a specific patient or other members of the public.
- Actively engage with social media. The public needs to hear more from health professionals who work on the front lines of patient care, research, and medical education.

Ask Your Mentor or Colleagues

- Do you have any social media accounts? If so, how do you use them?
- Have you incorporated social media into your academic career?
- How do you balance your personal and professional identities on social media?
- Have you ever made any mistakes on social media that you learned from?

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How to Interact with Media and Speak in Public

Eugene V. Beresin

Dealing with the media frightened him more than facing loaded weapons – he had training for the latter but not for the former. – Tom Clancy, *Rainbow Six* [1]

Why Reach Out or Respond to the Media?

Personal and family health and the means to receive healthcare are among the most important priorities in our society today [2]. Virtually every news outlet has a health beat and reports on medical problems – from relatively minor and common diseases to severe, chronic illnesses and their treatments. Other coverage includes prevention and maintenance of good health, new research findings such as trends in the incidence and prevalence of illnesses and innovative medical interventions, and public health issues including the impact of environmental changes, possible or current pandemics, and complex problems with healthcare coverage, financing, and access to care.

While television is still the primary news source for the public, the advent of digital media has transformed access to information, and today the Internet surpasses television as a resource for medical news and scientific advances [3]. Unfortunately, the vast array of information sources from blogs, individual and organizational websites, and social media may not always provide the best evidence-based material for public education. The Pew Research Center found that over 80% of health information online begins with search engines [4], and the personal use of searches through optimization may be modified by commercial interests through purchasing advertising to simply following previous trends in a user's searches. Many of the experts on television who promote themselves as experts are not necessarily the best sources of unbiased reporting. And though there are some health reporters who are quite good in their health pieces, many are poorly trained to present the most pertinent material about a particular condition to the public.

Similarly, the public is influenced by special interests, such as pharmaceutical company advertising [5], the use of celebrities who are paid to promote medications [6], or news stories based on corporate releases or conference abstracts [7]. The public is at risk of biased views about their

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health conditions and its treatment rather than from medical experts who rely on evidence and clinical experience, unfettered by conflicts of interest.

Considering these liabilities in health reporting, physicians have the responsibility of participating in media to improve public health education. After all, the derivation of doctor is "to teach."

Thus, we can (and should) reach out to media for a number of reasons:

1. To inform the public about signs and symptoms of illness – what to look for, when to worry, and how to seek appropriate help.
2. To provide guidance on prevention of illness.
3. To dispel myths, correct beliefs (often culturally based), and reduce stigma of various illnesses. This is particularly true for psychiatric disorders, addiction, and sexually transmitted disease, among others.
4. To alert the public to reputable websites and sources for additional evidence-based material.
5. To draw attention to social problems that may generate or exacerbate disease and to suggest solutions, such as better access to care and provision of more services.
6. To provide a forum for patient advocacy, by generating conversations within communities and possibly influencing public health policy.

Problems and Challenges Facing the Media

As academic physicians, we have considerable experience (and often training) in teaching medical students, residents, practicing physicians, and allied health professionals. However, most doctors have no formal training in working with the media or in presenting to the public. There is limited structured or guided practice in working with the many forms of print, broadcast, and online media, and each requires different skills. The range of media outlets include taped vs. live television or radio; talk shows with audience input vs. interviews by reporters; telephone interviews

by reporters that will be included in print or online articles; writing your own blogs or opinion editorials (op eds); and use of your own social media applications.

Most physicians have a poor understanding of the diverse and complex motivations of journalists. While most reporters want to convey accurate and pertinent stories to their audience, they are influenced by many forces, including the interests of their executive producers, their own personal biases and spins on the topic, the extent of their impact (i.e., wide exposure of their piece), and at worst their need for a provocative or sensational depiction of the issue. While journalists are trained to be objective reporters, they cannot avoid the need to please sponsors and their corporate executives.

Since working with the media is foreign to our background and daily practice, for many doctors, the expectations and hopes of making a positive impact on public health are laced with fears of making mistakes or blundering responses to journalists – all leading to feelings of frustration, distrust, disappointment, embarrassment, and anger. This is often due to the fact that in most cases, your interviews are edited by the reporters and producers, and there is little or no room to review or change your responses as we always do when we write academic manuscripts. So, while you may have been interviewed for 30 minutes or longer for an article or a taped television or online broadcast, your finest points may be deleted, and your segment may seem trivial, misguided, or taken out of context. In short, you have limited or no control of your messaging [8].

Many physicians may appear to be self-promoting or arrogant. Conversely, you might feel that you are not coming across as authoritative or knowledgeable. Others, particularly generalists, may feel that they are not specialists in a particular illness or medical problem and thus do not have complete mastery or in-depth knowledge of the subject.

It's important to know what to expect and practice new skills as described below. Regarding the issue of mastery, remember that this is not in any way analogous to an academic medicine presentation in which the gold standard is the

cutting-edge clinician or researcher in a highly specialized area. You know more than 99% of the population in medicine, and thus your standard for expertise is a very low bar compared to the expectations of teaching hospitals or medical schools. The key is learning how to convey the most basic information in a thoughtful, accessible, and understandable manner so that anyone who has virtually no knowledge of pathology would learn something new.

There are new challenges to using social media to promote public health. Most of us who use social media do so for personal opinions, connections with friends, and dissemination of material we think those in our social sphere, including physicians, would find enjoyable. However, using social media for the public is quite a different matter. Physicians need to be mindful that their posts for the public need to be quite different from those to friends; that they require thoughtful and not impulsive posts; that their posts may "go viral" and cast a global reach; and that they last forever. It's not something you can easily take back.

Before Your Media Interview: The Importance of Preparation

Your engagement with a media outlet typically begins with being contacted by a reporter, but occasionally you may have a great idea you want to pitch to a news agency. Most commonly the trigger from a reporter is based on a story she or he is writing for the news. It may be about new research on an illness or its treatment, about issues or problems in the healthcare system, about the epidemiology of a medical problem, or about other new data that have relevance to medical care.

Alternatively, there may be breaking local or national news that journalists want experts to comment. This may be reflecting on the recall of a medication found to have a relationship to cancer, the sequelae of incarcerated immigrant youth, the tragic outcomes of a natural disaster, or perhaps new data on access to care under the Affordable Care Act.

Finally, you might have your own reasons for reaching out to the press, such as discussing new research you have completed, your proposal for tackling a thorny public health policy issue, or even promoting your own clinical services or book.

Typically, you are contacted by a reporter, who found you in one of several ways, such as going online and searching publications or talks at meetings; contacting a national organization in which you play a prominent role; calling the public affairs office of your hospital or medical school; or by word of mouth from other physicians with whom the reporter has interviewed. If you have previously been quoted by other news outlets or appeared in television, radio, or online interviews, it is likely you will be easily discoverable by journalists.

In any case, once you have been contacted, here are some important guidelines you should follow before your media interview including important questions you need to answer [9]:

- What exactly is the name of the publication, podcast, broadcast service, or online platform in which you will be cited? You might decide not to agree to an interview based on the nature of the outlet or its audience; or you might want to know so you can see how they used your material.
- Ask about the specific focus of the story. What do they want you to comment on? This often initiates a discussion, as the request may be beyond what you are willing to do, e.g., provide a diagnosis for a condition of a prominent figure when you have not examined the individual as a patient. Or, perhaps weigh in on an issue that may prove volatile, such as the "causes" of a mass shooting.
- Be sure to ask for specific questions you need to address. It may be that the reporter has a spin that you do not agree with or wants you to answer in a way that is attractive to their audience. Your job is not to entertain or sensationalize. Remember the priority of journalists, while presenting the factual basis for a story, is to create visibility to a wide audience and make a splash. For example, if there is a

particular bias behind the interview such as "violent video games cause aggressive behavior in youth," this may be a decision point for you. Either you will dispel false or naïve views of the reporter or you tend to agree with the premise. In any case it's important to know the producer or reporter's position in advance.

- Once you ascertain the point of view of the reporter, if there is one, you have an opportunity to educate the journalist. Many reporters, though well versed in their field, have a limited knowledge of medicine. Your job then is to try and inform the journalist before the interview about the subject matter, to help refine the questions you might discuss. Sometimes this is incredibly valuable to the reporter as most want to learn as much as they can about the subject matter, and it may change their focus.
- What is the format for your participation? Is this, live interview on camera? Is it taped? Is this for TV, radio, or online viewing? Is this written piece online or in print, and will your responses be integrated with others? This is important, as you need to know so you have a chance to prepare yourself for the type of media interview to which you agree.
- If live, are there other participants? Many times, producers want experts with opposing points of view. If you know that others will be interviewed on a show, try to find out what their position is on the subject.
- Is there a deadline for you to schedule a phone interview with a reporter or an appearance on a show? It's quite valuable to know this, as you should spend time researching the topic before you respond to the media. Your preparation requires reading any current medical literature relevant to the topic and looking at lay publications, to see what debate or positions have been established before you go live.
- Prepare your key talking points, and limit them to one to three key issues you want to raise. There may be specific questions the reporters ask you, but you may want to divert to a topic that is, in your professional view, more relevant for public education. For exam-

ple, if you are discussing new findings in the prevention of cardiovascular disease, such as the quantity and quality of sleep, you may still want to reinforce firmly established prevention measures, such as exercise, weight loss, and a healthy low-fat diet.

- When considering accepting an invitation or reaching out to media, consider what audience you wish to reach. So, if your desire is youth, parents, elderly, or cultural groups, you should be thoughtful of the viewers of the media outlet you choose.

Tips for Interacting with Media

Reverse Your Typical Style of Public Speaking

Now that you have an interview set up with media and know what points you want to emphasize, your presentation has to be in a form that addresses your audience in a way that is effective for a media platform. Speaking for the media is strikingly different than talking to a professional audience. In fact, it uses an inverted approach to the one we typically use for the scientific community [10].

Let's say you are lecturing to a medical audience on the impact of lead poisoning in the drinking water in Flint, Michigan.

You might use the following structure that is familiar to you:

1. Perspective: The epidemiology of lead contamination in young children, its presence in water supplies as well as other sources, and the general risks to children.
2. Underlying principles: Identifying children at risk including the warning signs of lead intoxication, the testing needed for identification, and short- and long-term medical consequences.
3. Primary prevention: What individuals and state or federal agencies can do to prevent future harm of lead poisoning.
4. Intervention: What can be done to treat lead poisoning acutely, and how these children

should be followed and treated in the long term, depending on the clinical sequelae.

5. Anecdotal information: What you have seen in your practice that might put some perspective on the risks and consequences of lead toxicity.

6. Conclusion: Lead poisoning is a serious problem that may have long-term medical and behavioral consequences. It may be treated acutely but needs monitoring over time, and the best medicine for good clinical outcomes is prevention. This means determining the causes of the lead ingestion and eliminating its presence. In the case of Flint, this means getting lead out of the drinking water but also considering other possible sources.

This structure may be appropriate for a professional presentation but is woefully inadequate for a media interview. Let's say that you are asked to participate in a media interview about the impact of high levels of lead in Flint. After giving this thought, you decide that beyond the extreme danger to the children there, you want to let the public know that lead poisoning could occur in other places, and we, as parents and health professionals, should not be complacent. We should not simply respond with outrage to the changing of the water supply in Flint but go beyond that to examine our own communities and protect children at risk.

Talking with a journalist, particularly on TV, radio, or online, requires reversing the order in which you present material and adding color and narrative. Consider this model:

1. Conclusion: Lead is a dangerous and toxic substance that may have serious medical and behavioral consequences for children. Its negative impact could be lifelong. And while we know what happened in Flint, exposure to lead could occur in many other communities around the country.

2. Anecdotal information: Then tell a story: "In my practice in (your community), one boy was brought to me complaining of headaches, abdominal pain, irritability, and increasing behavioral problems. I knew that his neigh-

borhood had many old houses that were filled with old lead paint, and after a blood test, I found that his lead level was off the charts. We hospitalized him and treated his poisoning, but I knew that this may have been going on a long time, and he needed follow-up for lead levels, and we needed to be sure that we stayed on the lookout for behavioral problems, neurological, muscle and kidney problems, and intelligence testing. Lead can negatively affect the brain and other organs in the body. But the scary thing is that most cases of lead poisoning are silent and do not show up in this dramatic way."

3. Identification of children at risk: This would include the many sources of lead poisoning from water supply, paint chips, contaminated soil, and toys. In the case of Flint, Michigan, we have strong evidence that the main problem now is the water supply that recently changed. But beyond modifying that, other sources of lead in the environment need to be monitored. Multiple sources of lead increase the long-term risk.

4. Perspective: This alerts the journalist and audience to appreciate that the Flint story may be unique and dramatic, but that lead is not uncommon. Each year about 300,000 kids ages 1–5 are found to have unsafe levels of lead in their blood.

The point is that you want to "grab" the audience with the serious impact of lead in Flint. Start with your conclusion, and then tell a story. For the sake of public education, while you may be outraged at the Flint story, you want to go beyond this and let your audience know that lead poisoning is not limited to an outlying event that we saw in Flint, Michigan, but is a serious problem may be in their own backyard.

Rehearse

Don't assume that you can just "wing it." After you have decided on your take-home message, and perhaps one or two other major points, find trusted colleagues and ask them to interview you

as a reporter would. Try two or three people, as they will all have different styles of asking you questions.

Be Prepared for Wild Cards

You may be called by a reporter for a media interview. You have a thorough discussion of the topic, questions, and audience, and you have done your research and preparation. But then on the air, you are thrown an unexpected and maybe provocative question.

Let's say you are asked to talk about a school shooting. Your expressed topic was to consider the impact of media coverage and the potential for post-traumatic stress disorder (PTSD) generated from viewers, young and old, around the nation. You may even have prepared bulleted items about the dangers of media-generated PTSD. To your surprise, your interviewer says this: "We know, doctor, that kids that play video games are aggressive and violent – like the one that committed this horrible shooting. What do you think?" Now, you might address the thorny issue of the potential consequences of video game violence, or you might answer the question this way: "Well, Biff, I think many people may assume that violent video games cause violent behavior, but the research does not support this. In my view, what is most important here, is the impact of the media coverage and how it may generate fear and stress, a kind of post-traumatic stress in viewers, and cause kids and parents to become fearful of going to school." In short, you answer like a politician. Answer *your own question* in a polite and clear way, and not necessarily the question of the reporter. In this case you have done two things: You have clarified that the assumption of the reporter is false, and you redirected the conversation to a message you wanted to convey.

The Use of Social Media

Social media has been an increasing means of conveying information about public health. It may bring significant benefits to patients and

physicians and have a large audience. Many millions of followers get their "news" and information from social media, and, as such, it may have huge impact [11].

Social media may be used in a variety of ways:

- To provide reputable sources of evidence-based material on a health-related issue – websites, lay articles, or professional publications.
- To present your opinion about an issue in the news about a medical problem, treatment, or public policy issue. Social media is very effective for advocacy.
- To promote a book, blog, video, podcast, or publication of yours or of a colleague that may have value for a public or professional audience.

While social media may have a broad and rather instant impact, it could have serious professional and ethical consequences that you need to keep in mind [12]:

- Be sure that your professional and personal boundaries do not blur online. It is best to have separate personal and professional accounts for your social media.
- The public's trust of the profession is in your hands. Be careful of what you say using social media, as it not only affects your reputation but the reputation of your institution and of the profession as a whole.
- Insure that the confidentiality of any clinical material is protected.
- Be prepared to manage requests from patients who want to follow you on social media. It is best to reserve this for your professional platform and not personal one.

Ethical Obligations

In our work with media, we need to be vigilant to the possibilities of inadvertent ethical transgressions. As noted above, the public trust of our profession is in our hands. It is incredibly easy to say or write something off handed and then find that it has "gone viral." Often, conversations with

reporters, particularly seasoned ones who make us comfortable, may pave the way for us to let our guard down. After all, the mission of reporters is to help get us to talk and sometimes talk in ways we would at a dinner party. That is their skill.

But talking with the media is not as casual as a social gathering. While we want to come across as friendly, approachable, and understandable, we need to remember that this is a professional activity. It should be no different than the way we present ourselves to patients or presenting at scientific meetings.

Your conversation over the phone, on the radio, or in a broadcast requires a combination of comfort, relaxed, informal presentation, and, at the same time, vigilance. Keep physical or mental notes in mind so you do not lose track of your mission – to provide a professional opinion or explanation of the matter at hand.

There are a couple of examples that exemplify this point. Often, after some horrifying shooting or event, we are asked to comment on the motivation or "diagnosis" of the alleged perpetrator. Or you may be asked to comment on the diagnosis of President Donald Trump. In both situations, we need to be careful to abide by the "Goldwater Rule," the ethical guideline that requires us not to make diagnostic impressions about someone we have not examined. While the American Psychiatric Association's Code of Ethics [13] states that this is unethical, it also states in the same section that we as physicians are required to consult to governmental agencies as well as inform the public about any matters that may be potential dangers or risks to public health. Thus, while we cannot state the diagnosis of President Trump, nor a terrorist shooter, we can speak to some of the issues that are relevant to the behavior of our leaders and their policies, as well as the reasons individuals may resort to terrorist behavior. This arena, most often managed by psychiatrists, is a slippery slope and warrants extreme caution.

Finally, conversations with reporters, particularly ones that make us feel comfortable, may ask about cases we have seen that are similar to some situation in the news. In these situations, it is extremely easy to lose perspective and describe cases in which patients could be identified by some aspects of our care, such as the nature of the illness, family situation, professional position, city, or hospital in which the patient was treated. Even without stating the name of a patient, there may be sufficient information to identify the individual. HIPPA violations are ones that need to be scrupulously protected.

Conclusion

Interacting with the media is a very effective means of providing sound, evidence-based information about medical issues. Through media, we have an ability to reach large numbers of people and foster prevention, early intervention, and explanations of the possible causes and treatments of a wide range of medical problems. However, the way our information is conveyed is quite different from our accustomed scientific presentations, and if we choose to engage with the media, we need to be aware of the intentions of journalists, the format of the media, and tailor our comments in such a manner that they are accessible to the public and remain ethically and professionally responsible.

Words to the Wise

- Before you interact with the media, be sure to ask your media contact the format of the media interview: live TV, taped TV, radio, and print or online publication. And ask about the name of the platform. This way you will know the audience you are addressing.
- Ask the reporter the questions she or he wants you to address. In this way you will appreciate the intent and spin the reporter wishes to take. This may help you decide to accept or decline.
- Identify 2–3 points you want to convey to your audience.
- Conduct some brief background research on your topic to be sure that your statements are backed by evidence.
- If your material is in any way controversial, or an expression of your opinion, be sure to contact your institution's public affairs office.

Ask Your Mentor or Colleague

- Since you may take any angle on a particular topic, run your talking points by a trusted colleague for consultation. You might find that another message may be better for public education.
- Rehearse your presentation, perhaps in a role play, with your colleague and have him or her play the role of reporter. You could even ask the mentor to throw you a curve ball, so you may rehearse answering your own question respectfully.
- Review your talking points with a colleague to be sure that your response maintains the highest ethical and professional standards.

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How to Plan (and Conduct) a Conference

Carlyle H. Chan and Brenda Konczal

Introduction

So, you've been tasked to organize a conference for your department. This meeting could range from a part day to a daylong to a multiday conference or to a regularly scheduled series such as grand rounds. Where do you start? Having a committee can help with the process, as can consulting someone who has done it before. Some institutions have a Continuing Medical Education/Continuing Professional Development (CME/CPD) Office that can assist in the planning and logistics. In approaching your task, keep in mind the old axiom for writing a newspaper article as a starting point: who, what, where, when, and why?

Who, what, and why overlap. Why do you want a program? What is the purpose of the conference, that is, what are your goals and objectives? (You will need those goals and objectives for your accreditation application.) For example, did your Quality Improvement Committee identify a practice gap or a need to change a particular practice? Are your faculty prescribing too many sedative/hypnotics or for too long a period of time? Does your primary care faculty need to better recognize and diagnose depression? Working closely with your Quality Improvement person-

nel can help identify a range of topics to improve patient health. Are there other means of identifying any practice gaps?

Consider who will be your intended audience. Is it just your faculty, residents, and staff, or do you wish to include the broader professional community? Will your audience be restricted to local practitioners, or would you prefer regional or even national attendance?

Is there a particular speaker you and your department would like to hear? Or is there a new treatment you and your colleagues wish to learn? Are there ethical issues that require discussion? Once you've identified the content or subject matter, decide who and how to best convey that information. Would that be one speaker or multiple speakers? Should the format be lectures or panel discussion, or should there be workshops with more active learning activities?

Deadlines and availability of speakers and facilities determine the when and where. Selecting a date for the conference is the next step, although that date may need to be flexible. Nationally recognized speakers often have filled their schedules months in advance. Similarly, meeting venues for your desired space may already have been booked for activities months in advance. You will need to visit potential sites to assess if the space is sufficient to meet your needs. Accreditation determinations (for CME and other continuing professional education credit) typically require submission of application

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materials weeks or months prior to an accreditation committee meeting. Publicity for the event ought to allow sufficient time for registrants to rearrange their schedules.

Let's examine these and other issues in more detail.

Conference Format

Pedagogy is the science and art of teaching. Principles of teaching and learning apply as much to continuing education as it does to residency and undergraduate medical education. Planning a conference should employ these theoretical constructs [1–4].

Although a passive learning methodology, lectures remain the predominant mode of conveying information to a large audience. Depending upon your budget, a conference could feature one speaker, multiple speakers, or a mixed format with smaller breakout groups. Speakers might be national or local or a combination.

One method to increase learning is to use an audience response system (ARS). Interjecting questions for the audience to answer makes a generally passive learning activity into one more active. This will require lecturers to provide in advance, typically, multiple choice questions related to their presentation content. This can then be imbedded into the lecture or used for pre- and post-lecture quizzes. Audiences can respond anonymously with their answers displayed on the screen in group form. See the following section on A/V equipment for more details.

Panel discussions present perspectives from multiple sources and perspectives. Workshops and breakout sessions could offer even more active learning exercises. Using small groups provides an opportunity for attendees to actively participate in discussions. These decisions will result in the program's agenda and length of the program.

Subject or Speaker(s)

Published gaps in clinical treatment or diagnoses or medical knowledge can contribute to determining meeting content decisions. Similarly, new research findings or a needs assessment can add to the planning of new content. A closer relationship to an institution's Quality Improvement Committee can generate important and clinically relevant content areas that can improve patient outcomes and healthcare delivery. Faculty development concerns are yet another subject area.

Conference themes can determine speaker choices, and conversely, choice of speaker(s) could influence content areas. Although nationally recognized speakers typically attract a larger audience, they will also add to your cost. Department faculty can highlight areas of institutional expertise.

When presenters have been selected, speaker agreements should either be signed by the speaker or at least acknowledged in written form (e.g., return email) and should delineate dates and formats, agreed upon honorarium, travel reimbursement, and food expenses,.

Accreditation

While the Accreditation Council for Continuing Medical Education (ACCME) criteria [5] are to be used for determining institutional ability to accredit individual programs, they ought to be reviewed by every event planner. These criteria form the basis for institutional CME and CPD offices for determining whether or not your program will be approved for accreditation. Goals and objectives must be formulated to accompany the accreditation application and should also be part of conference publicity. Accreditation approval must precede distribution of publicity as specific wording for accreditation statements must be used in the publicity materials [6].

Attendees will usually expect continuing education credits for their participation. While there is movement towards a unified accreditation process, not all institutions have this ability. In many instances there will separate accreditations for physicians, psychologists, nurses, social workers, and other allied health professions. Psychiatrists use Continuing Medical Education (CME) category 1 credits, but Family Medicine doctors have their own system and requirements for credits [7] as do psychologists, nurses, pharmacists, and

social workers. This can also vary by state. Allied health profession groups often require a member of their profession be part of the planning committee. The old system of Continuing Education Units (CEUs) for other allied health professionals is now basically reciprocity with CME credits. What may not be fully appreciated by event planners is that while programs must be accredited by ACCME for CME, the actually CME credits are the domain of the American Medical Association [8].

Program Independence

In the not so distant past, many scientific programs were closely aligned with commercial support. For example, pharmaceutical companies would publish lists of their speakers bureau, identifying speakers and their presentation topics. The topics often coincided with products they produced. Companies also provided grants to support both speaker fees and travel. The distinction between scientific presentations and product promotion became blurred.

The ACCME has attempted to place a firewall between industry and CME offerings. With the development of their Standards for Commercial Support [9], the ACCME requires that the provider be independent in their program decision-making, resolve any potential conflicts of interest, use commercial support appropriately, manage any commercial promotions at the conference, ensure that the program is without commercial bias, and properly disclose any potentially relevant conflict or bias.

Funding and Budget

Having a budget will determine the size, length, and location of your conference. The budget should include speaker honoraria and travel expenses, cost of renting conference facility space as well as audio-visual rental costs, accreditation fees, publicity costs, food and refreshments (if that is to be provided), conference materials, and administrative costs (including personnel for registration). Utilizing your Academic Health Center's spaces and AV equipment may lower some of these costs. If a meeting is held off-site and you expect out-of-town attendees, local hotels should be identified. Hotels may negotiate a reduced room rate in exchange for using their meeting facilities. However, their AV rental and catering costs are often quite expensive. Non-hotel meeting sites can provide an alternative.

Even though predicting attendance can be difficult, determining a registration fee will also impact the final budget. Examining the fees of other similar local events can help decide your own fee. Obtaining grant support can also offset costs. However, one must be careful to follow closely the Accreditation Council for Continuing Medical Education's (ACCME) Guidelines for Commercial Support so as to not violate accreditation rules.

If there are to be registration fees, a method for collecting registration fees should be in place. Are checks acceptable? Is there a mechanism for processing credit cards? Will there be an early registration discount? Do you have a refund policy? Many programs charge a nominal cancellation fee to cover administrative costs. Registration fees may be determined by actual projected costs and attendance, arbitrary decisions, or market rates for such events.

Negotiations

Speaker honoraria can vary considerably. Some speakers are in demand and command a high fee. Others simply do not wish to speak as much and set their fee arbitrarily high. Still others are willing to provide discounts to academic institutions or consider the program's budget. A starting point for negotiations is to ask the speaker his or her honorarium requirements. Don't hesitate to ask if the fee is flexible and/or provide a counteroffer if your speaker budget is exceeded. The worst-case scenario is the fee is nonnegotiable, but you won't know until you inquire or make a counteroffer. Sometimes a speaker will accept a lower fee because they wish to visit a specific region of the country or even because they have relatives in the area.

Nearby hotels may already have some agreements/discounts negotiated with your institution, so check with your school first. A block of rooms

should be reserved for your anticipated out-of-town attendees who register by a specific date. Depending upon the number of people utilizing the hotel rooms, complementary rooms can also be negotiated, which can then be used to house your speaker(s) and offset some of your cost. Shuttle transportation to your site can also be part of negotiations.

If the conference is to be held at the hotel, then dates and fees for the conference room and breakout rooms if needed, seating arrangements, audio-visual equipment, food, signage, etc. should all be included in the negotiated contract. It is not atypical that any outside contract must be signed by an administrator in your school's finance or business office, so allot sufficient time to obtain that signature.

Regardless of location, you will need to determine the seating arrangement you require. Do you wish auditorium style with no tables, or do you wish classroom style where each attendee can sit at a table to write notes? If classroom style, do you want the tables set up at an angle to the speaker with the center aisle open, or do you wish the tables perpendicular to the speaker with or without an open center aisle? Does your speaker need a podium or lavalier microphone or his own table and chair? Should chairs in the breakout rooms be in a circle, or should they be auditorium style? Will any breakout rooms need AV equipment? All this should be spelled out in your hotel contract or written instructions to your school's setup staff. The more specifics completed in advance of the day of the conference, the fewer the surprises when the program opens.

Publicity

Attendance could be determined by how and how well you publicize your event. Is your intended audience reachable by email? This is the least expensive option. Will you need to conduct a direct snail mailing announcement? Mailing lists by specialty are available from commercial enterprises and from state licensing bureaus for a fee. Advertising decisions include which journal(s) or newsletters to use, large ads versus classified listings, frequency of ads, and budgeted costs.

Maintaining a CME/CPD web site can augment publicity campaigns as can social media ads.

Evaluation

Program evaluation is a requirement for meeting accreditation standards. Evaluations are also useful for improving future programs. Points to be included: Did the meeting met the stated objectives? How useful was the information conveyed? Were there areas for improvement? Were the facilities and equipment adequate for the presentation? Are there content or speaker recommendations for future conferences?

AV Equipment

Audio-visual equipment is typically available at most rental venues. When providing your own equipment, check for adequate illumination. LCD projectors should provide a minimum of 2500 lumen in order to be viewed in both dark and lighted rooms. For speakers bringing or sending their presentations in a digital format such as a thumb drive or via cloud download, a computer is required. For speakers who prefer using their own computers, connecting cables for the projector are necessary. It is not uncommon for a speaker to forget or not have the proper connector.

Most computers will require either a cable connecting via VGA or HDMI. Newer models require a USB-C connector. Similarly, depending upon which year a Mac was produced, Apple's Mac computers can further vary at the computer end of the cable. Hence, different models will require different connectors. As Macs frequently change their connections, it is safer to possess multiple cable connectors (a.k.a. dongles) for the various computer models. Better to spend some dollars on several dongles than to have a presenter unable to connect to your projector. A wireless slide advancer is another piece of necessary equipment.

Experienced speakers will often bring their own necessary equipment. Since this is not predictable, having available backup connectors, etc. is useful to anticipate any unforeseen malfunctions.

Adequate sound amplification is another prerequisite. In contrast to a stationary microphone, some speakers prefer using a lavalier microphone in order to free themselves from a podium. Presenters may also present a video which will require an audio connection to their computer as well. The sound system must be adequately powered to match the size of the room. The connection to the audio system may be hardwired or wireless using the computer's Bluetooth system. Other speakers may request a white board or flip chart.

Will the session(s) be recorded or teleconferenced? Appropriate capture equipment will need to be set up, including camera placement and the ability to screen capture presentation materials. CME credit for live teleconferences follows the same rules for in-person attendance. However, presentations viewed asynchronously fall under the category of enduring materials and have a different set of accreditation rules, which must also be approved in advance of dissemination.

Hardware (ARS) to integrate live audience responses can be purchased or rented and may already be available from an institution's CME/CPD office. There are now software/internet solutions that utilize registrants' smartphones. There are several polling apps on the market [10]. Some are able to also input text that can be grouped into word collages. Many have free use for a limited number of participants with site licenses required for larger audiences and multiple presenters. Licenses for their use can be less expensive than purchasing an ARS system. Some speakers have been known to use Twitter for audience input and feedback.

Occasionally a speaker will require Internet connectivity for her/his presentation. This capability needs to be determined in advance and checked again on the day of the conference. Having the cell phone number of whomever is the AV backup/support is also essential. Invariably, some type of AV glitch may appear.

Conference Handouts

Handouts are customarily distributed at the conference. Materials generally include announcements, printed copies of the presenter's slides, printed speaker conflict of interest statements, and program evaluation forms (although some institutions use online forms). Some institutions have distributed digital slides which can be downloaded from the Internet or distributed via a flash drive.

Large conferences and institutions are migrating towards mobile event and conference apps. These programs permit digital sharing of conference materials, floor plans, customized meeting schedules, social media interactions, photo sharing, and more. An Internet search for "event and conference apps" will reveal reviews of current options. There are several such apps, and due diligence is necessary as possible mergers and market consolidations are always possible.

Food

A half-day program that begins in the morning will typically provide a continental breakfast (or heartier if the budget permits) and a coffee/tea break mid-morning. A half-day program in the afternoon could start after lunch and just provide a snack and coffee/tea at a mid-afternoon break. A full-day conference would usually provide all of the above and may or may not provide lunch. If there are sufficient dining facilities nearby, and these facilities are capable of providing lunch options within the time period available and for the numbers expected to attend, then lunch might not be included in the registration fee. If lunch is to be provided at, e.g., a hotel, be prepared to budget $20–$30 or more per person for lunch as simple as cold-cut sandwiches. In your registration materials, ask about dietary restrictions. If you are serving meals, vegetarian and gluten free options should be considered.

Parking

Check to see that sufficient guest parking is available at your institution (if that's the venue), and make sure to include that information in your publicity materials. If out of town registrants are staying at a nearby hotel, check to see if that hotel can provide a shuttle service to the conference site.

Staffing

Make sure you have sufficient administrative support staff from the very beginning of your planning. Unless you anticipate doing it all yourself, you will need assistance in documenting your planning meeting, filling out accreditation materials, contacting speakers about collecting their federal income reporting W-9 forms and conflict of interest forms, collating biographies for publicity, arranging travel flight plans and local accommodations and pickups, preparing speaker slides for handouts, reserving conference rooms and room arrangements, collecting registration fees and sending receipt notifications, making food arrangements, and registering attendees on the day of the conference and handing out conference materials.

Depending upon the size of the meeting, more than one assistant may be helpful, particularly at registration. After the meeting is over, there are additional tasks to be completed, including collating and summarizing program evaluations, paying bills, reimbursing speakers' travel, and possibly documenting credit certificates.

Introductions

As a courtesy, ask your speaker(s) if there is anything they would like to include in their introduction(s). Prepare either written for distribution or oral disclosures of any potential speaker(s) conflict(s) of interest related to the presentation(s). Do your best to keep the conference on schedule, reminding speaker(s) of time limits when necessary.

Key Concepts

- Conference planning: steps necessary to ensure a quality program
- Accreditation: authorization for providing CME credits
- Pedagogy: teaching methods to improve learning
- Commercial support: identifying the relationship between industry and continuing education to avoid conflicts of interest

- Negotiation: discussions to arrive at a mutually beneficial result, e.g., honoraria, conference site and costs, etc.

Timeline

6–12 months or more before event Plan content, determine speakers and negotiate speaker agreements, determine date and reserve location of conference (site visit if necessary), sign site contracts and speaker agreements, and submit reservation deposits where needed.

4–6 months prior Complete accreditation submission, and prepare publicity. Send a "Save the Date" notice of your meeting? Start social media campaign?

3 months ahead Make food arrangements (meals, snacks, coffee), confirm transportation and housing for external speakers, and collect necessary speaker documentation (W-9 and COI forms).

2 months or earlier Finalize and distribute publicity announcements/brochure, begin registration, and collect fees.

1 month or earlier Collect speaker slides for conference handouts, and order honorarium checks.

Week before Prepare conference handouts, name tags and participant sign-in sheets, and honoraria checks.

Day before If feasible, revisit site to check seating arrangements, and check AV equipment, space for registration, etc. Otherwise, arrive early on the day of conference to check setup. Confirm arrival of out-of-town speakers and any needs they might have.

Day of conference Arrive sufficiently early to address any unexpected events.

Post conference Tabulate evaluations. Collect, reconcile, and pay conference bills and speaker travel expenses. Begin planning next year's conference.

Conclusion

If you have successfully completed all these tasks, probably no one will have noticed. Hopefully, your conference will have successfully taken place without a major hitch. Good luck. Now you may need to begin planning your next conference.

Additional resources may be found at the Society for Academic Continuing Medical Education (SACME) web site at www.sacme.org and the ACCME web site at www.accme.org.

Words to the Wise

1. Don't be afraid to cold-call a nationally known speaker.
2. Similarly, don't be afraid to initiate negotiations with a speaker about his/her honorarium.
3. Develop a relationship with a Quality Improvement Committee to identify treatment gaps in order to improve patient health through better treatment outcomes and systems procedures.
4. If you accept responsibility for planning a conference, make sure you are also provided with adequate administrative support.

Ask Your Mentor or Colleagues

1. What has been the experience of other conference planners?
2. What are local site options?
3. How important is it to address the professional development needs of allied health professionals?
4. How might I best identify practice gaps?
5. What are the best sources to teach me pedagogy?

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Academic Medicine Faculty and Entrepreneurship

Ryan K. Louie

Introduction

Entrepreneurship can be an exciting and rewarding part of an academic medicine career. The road of the entrepreneur contains many challenges and opportunities, and there are many nuggets of insight along the way that can help guide the academic medicine faculty member who is considering "starting up." The concepts of identifying a need, conceiving an idea, developing a plan, gathering resources, creating, and launching something new are all components often seen at one point or another during an academic faculty member's career pathway. To gain the full power of one's entrepreneurial aspirations and to convert from potential to reality, a concrete set of purposeful knowledge and actions need to be embraced and placed into action. This chapter introduces some key points that are important for an academic medical faculty member to consider as they embark on their entrepreneurial ventures. Several resources and books on startup venture formation, writing business plans, funding mechanisms, and other topics related to entrepreneurship are widely available. This chapter serves as a guide for academic medicine faculty to get started, from that first inkling of the idea of entrepreneurship, understanding how entrepreneurship will fit into their academic life, to the stage of where to go next to proceed. Entrepreneurship is not only a journey with a destination, but it is also a state of mind. By understanding the steps and the components of entrepreneurship and how they can fit into an academic medicine faculty pathway, the two endeavors will become synergistic and bring forth the startup of the individual as an innovator making an impact in their field.

Entrepreneurship: A State of Mind

> Your time is limited, so don't waste it living someone else's life... Have the courage to follow your heart and intuition. They somehow already know what you truly want to become. –Steve Jobs

Entrepreneurship can be an exciting and rewarding endeavor for the academic faculty member. Academic medicine faculty in their daily work already share some qualities common in entrepreneurs: both envision a future state and condition and gather knowledge, skills, and resources with the purposeful effort of making that future condition a reality. While the road of entrepreneurship provides many new opportunities, the endeavor also requires a deep commitment of discipline, time, effort, resources, and choices. The most important question to always keep in mind for the academic medicine faculty member

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thinking about entrepreneurship is to ask, "What am I trying to solve? What does entrepreneurship mean to me? What is it that I want to accomplish? Why do I want to be an entrepreneur?" Having the clarity and focus on one's purpose and role in entrepreneurship is a foundation upon which to build one's endeavors. A faculty member can participate directly or indirectly with entrepreneurship, and the pathways can take on several forms. Is it starting a new company on your own? Is it mentoring and advising people who do startups? Is it launching a project within your own organization as an "intrapreneur"? Is it the desire to use startup entrepreneurial thinking as part of your daily work? In whichever way the academic faculty member wishes to include entrepreneurship as a personal endeavor, the change will permeate professional and personal life. Entrepreneurship requires a new mindset that demands focus and determination to make the daily choices that lean toward the realization of a dream. Indeed, entrepreneurship is more than just a career choice. Entrepreneurship is a state of mind. The following components in this chapter describe some of the forces playing active roles in the entrepreneurship endeavor and for which the academic medicine faculty member should incorporate into daily life.

Balancing Responsibilities

> The price of greatness is responsibility. –Winston Churchill

Balancing all the responsibilities in academic life is already a challenge for faculty members. The traditional idea of the "triple threat" of clinical duties, research, and teaching has now expanded to other spheres including entrepreneurship. When considering entrepreneurship, one of the earliest planning steps is to map out your various duties and responsibilities. Take the time to review your employment contract and the policies at your organization. Questions to ask might include: How is entrepreneurship seen by your employer, and what is allowed and what is not allowed? Given your current responsibilities and duties, how do you plan to fit in entrepreneur-

ship? Will your organization provide "protected time" for you to pursue the venture? Is there some type of arrangement that is made for you to balance or rebalance your other responsibilities and duties? How will you be compensated, and where would the funding come from if you do entrepreneurship? Will there be any participation with others affiliated with the organization or perhaps participation and interests held by the organization itself? If you are receiving federal grants, and grants from other sources, how will your entrepreneurship fit into that landscape, including rules and regulations? How will your pursuit of entrepreneurship impact performance evaluations and promotion? These are some of the many "hard" rules that should be checked prior to proceeding with entrepreneurship. In addition, there are "soft" rules that are unwritten but which are generally accepted among work colleagues, and these should also be taken into consideration. For example, how will your pursuit of entrepreneurship be perceived and regarded by your colleagues? Is it welcome and supported? Or is it seen as "interesting" or a novelty, but otherwise not actively supported? Or is it frowned upon with social pressures not to pursue entrepreneurship? How is the culture of the organization in regards to pursuing entrepreneurship? None of these soft rules is a definite showstopper for a faculty member's entrepreneurship endeavors. But they should be taken into consideration to understand how one's entrepreneurship will impact one's daily work and daily interactions and relations with colleagues. One will need to weigh one's level of passion and grit for pursuing entrepreneurship, compared against counterbalancing forces that one places value on in a workplace setting. And overall, picture entrepreneurship in the context of how it fits in right now into the faculty member's overall professional goals and trajectories.

Also, in addition to your duties and responsibilities to your employer, also chart out how your entrepreneurship will impact the other dimensions of a personal nature. Have a continuing conversation about your entrepreneurship aspirations with people important in your life and who will be impacted by your decision to

pursue entrepreneurship. For example, a faculty member might discuss entrepreneurship with a life partner and family. How will this impact time commitments for other duties and tasks and personal time with family? How will the pursuit of entrepreneurship impact finances and the overall financial plan for the faculty member and the family? What are the personal and family milestones for which the entrepreneurship venture will be measured, and how does one know whether one is succeeding or failing? Is there a defined point at which entrepreneurship will be abandoned? These are all important questions to discuss with the people who are close to the faculty member and trusted and who will be directly and personally affected by entrepreneurship endeavors by the faculty member. Across all dimensions of one's duties and responsibilities – professional, family, and personal – always check the pluses and the minuses of entrepreneurship and understand how these forces behave, as you chart your way forward and make daily choices.

Building Your Team

> You are the average of the five people you spend the most time with. –Jim Rohn

Most startups are formed from two or three people. Each of them has a unique skillset and expertise, and each complements the other. The academic faculty member entrepreneur is likely to follow a similar pattern. The key is to find a partner for your startup in a way that is actually quite similar to how one searches for a life partner. The road of entrepreneurship will undoubtedly have ups and downs, and the strength of chemistry between co-founders is often the characteristic that will help the startup and personal endeavors gain resilience and strength to thrive. Entrepreneurship can be a lonely journey, so it is good to have another person or two with whom to take this journey, to help bounce ideas off of and to provide another viewpoint and perspective. Entrepreneurship is often a series of choices and decisions, and having someone to help think

about those challenges together is valuable and essential to well-being and success.

Imagine that you yourself are your own company inside and that you are governed by a "personal board of directors." Who would you like to have a seat at the table? Surround yourself with people who inspire you, whom you can depend on for giving candid honest feedback, who can provide insights and actionable advice from experience, and who can support you in your entrepreneurial journey. Each person whom you select is likely selected for a set of specific reasons that make that person stand out in your mind and for whom you would like to receive their guidance.

Find a mentor. Mentors can come from both inside and outside of your field, and each mentor helps you to become a better person in a unique and complementary way. In your department or institution, find a mentor who will be a champion for your personal endeavors and who takes an interest in your career development, which includes entrepreneurship. This mentor can help provide insights and advice from the academia side. Also find someone who can mentor you from the startup venture side. These mentors might be people who have been involved in the startup community either as investors, community supporters, or entrepreneurs themselves. Do not limit yourself to just mentors who are more senior to you or who are more experienced than you. You can also pick mentors who have something to teach you and whom you would like to follow for guidance and advice.

Funding

> Money does not buy you experiential happiness but lack of money certainly buys you misery. – Daniel Kahneman

Although ideas and thoughts are exciting to think about and are a key part of the entrepreneurship process, one could argue that every idea and individual and organization has to justify its existence in the entrepreneurship space. And any initiative and project requires a funding source. The academic faculty entrepreneur should

identify and have an understanding of what it is they would like to do and an understanding of how much funding they will need for their endeavor and why it is they need that money and for what purpose it will help to achieve. Information about funding mechanisms and sources and topics related to finances and business plans are widely covered in numerous other works. But for the academic faculty entrepreneur, places to start looking for funding opportunities are various. For example, departments and institutions might have mini-grants for special projects; there are often business plan competitions that provide opportunities to receive funding and opportunities to present ideas and to receive real-world feedback. Medical associations also have events where participants pitch their ideas in front of a panel of judges, and these events are great ways to gain exposure, gain experience, meet other people, and possibly gain financial backing either from the event itself or from others who hear about your project and who would like to provide funding. Government grants from various funding agencies often have grants targeted to entrepreneurial endeavors. Universities and startup communities often have startup accelerators that can provide opportunities to receive seed funding and support to launch a startup. Other funding sources include angel investors, venture capital, and corporate investors.

Managing Conflicts of Interest and Staying Ethical

No conflict, no interest. –John Doerr

With every professional pursuit, and even in the activities of daily life, the academic medicine faculty member is constantly presented with challenges and questions that require choices to be made. Many of these challenges include questions regarding professional boundaries, the distinction of personal interests vs. interests of others and of organizations, and the development and practice of ethical standards and values. While there can be stigma in academia against private industry, with differing missions of "gen-

erating knowledge for the public" vs. "making profit for personal gain," the fact is that academia and private industry need each other and share very similar qualities to each other. It is clear that for medicine and innovation to make progress, partnerships between academia, industry, government, nonprofits, and individuals are needed. The important skill and practice needed during entrepreneurship are to always be aware of instances of sources of conflict both real and/or perceived and to discuss the matter and to bring it forward so that the topic is an active continuing conversation and instead of something relegated to just a simple static one-slide mention of the conflict of interest disclosures during a presentation. Conflicts of interest are not simply measured in terms of financial and physical benefits but also extend into other domains of value to people that might be more difficult to measure but which are definitely there: for example, conflicts of time commitment, conflicts of attention, conflicts of passion and energy, and conflicts of mindspace. The academic medicine faculty entrepreneur must be mindful of oneself at each stage of their career and venture, to understand the forces that often pull in different directions. Being open and transparent, being comfortable and confident to speak about the topic, and being genuinely motivated and vigilant to always keep track of where various interests exist and to execute actions which reflect ones' own core values are all ways that can help one to build an ethical foundation of managing conflicts of interest.

Keep Your Antennae Up, and Keep Learning

Not all those who wander are lost. –J.R.R. Tolkien

Just as physicians need to keep up their knowledge and skills with continuing medical education (CME), faculty-entrepreneurs needs to keep up their "continuing entrepreneurial education (CEE)." This activity serves several purposes: keeps your thinking and knowledge current, enables you to build a daily habit for continuous learning, diversifies your awareness of topics

outside your own domain, and builds your foundation towards becoming the expert in your chosen field. Ideas that seem unrelated initially might very well turn out to be very much related in a future application. With the already busy schedules of physicians in academia, the challenge is to focus and maintain the discipline for reading and learning. There are many different methods, and each person will find the best medium and style, whether it is reading print media, on their laptops, or on mobile devices. Selecting a small manageable set of information platforms that you can stick to your daily routine is better than a large dispersed list that is overwhelming and non-focused. Intersperse core topic material on things that you are personally interested in, and combine this with topics that you might have procrastinated from reading but which you know inside of yourself to be important for what you want to do.

Social media such as Twitter is a rich source of information and articles and news about entrepreneurship. You can follow the innovators and thought leaders who most interest you and can learn from their postings. Furthermore, Twitter is also a platform for which to exchange ideas with a truly global audience across all fields and disciplines and backgrounds. Analytics built into the platform can give you some measurements as to which of your tweets have been most popular and shared, and you can "test out" different ideas and viewpoints with posts on Twitter. The use of Twitter and the academic medicine faculty member has its own set of professional guidelines and ethics, and much is written on that topic elsewhere. As a guiding principle, treat social media such as Twitter as a professional extension of yourself, and maintain consistency. In addition, treat every posting you make on social media to be public, and feel comfortable with the information you select to post, to be made accessible to a vast audience and which is archived.

The academic faculty member pursuing entrepreneurship should also maintain and keep on track with a reading list. This might include business books, business magazines, and blogs. Books are widely available, with titles at your local public library or institutional library, at bookstores brick-and-mortar and also online. And convenient for the busy academic faculty member are electronic versions of books that one can keep in their phones with access anytime. And there are audio books for people who would like to listen to their books. The most important thing is to keep reading, both within and outside of your field. Reading refreshes your perspectives, gives you new insights, and helps you to be a better communicator and writer.

Besides connecting with ideas and concepts via social media, the Internet, and printed media, communication with people is best done by meeting actual people in person. Keep track of events that attract attendees from both inside and outside of your field. Seminars, lectures, and presentations often include opportunities to meet others and to network. Social events and mixers are also venues to meet new people. Meeting people allows you to exchange thoughts and ideas, learn from others, and meet others who share your interests. And with each new person that you meet who asks you what do you do, you will be able to practice and hone your introduction and your pitch.

And as you keep your antennae up, find a medium that works for you and that you will actually use for jotting down your ideas and what you learn. This can be a physical notebook and pen. Or it can be a note-taking app on a smartphone. Or it can be many other methods and media. Find the option that feels most natural and useful for you, and stick with that method.

Intellectual Property

If I had asked people what they wanted, they would have said faster horses. –Henry Ford

In academic life, the measurement of scholarly output is always measured. Emphasis is placed on activities such as publications in academic journals and presentations at conferences. There is constant evaluation of a faculty member's level of "impact in the field." These continue to be important factors used in performance evaluations, compensation, promotions, and grants. But

besides these traditional measurements of academic productivity, the generation of knowledge also includes other elements important to entrepreneurship: making discoveries, inventing, and commercializing new technologies. This newer dimension and measurement of impact is gaining traction and recognition in academic medicine. These elements are all a part of intellectual property. Intellectual property includes patents, trademarks, copyrights, and trade secrets.

For the faculty member, intellectual property is always something to keep in the front of one's mind in the process of knowledge generation and invention. An important hurdle to overcome is the stigma often found in academia against protecting intellectual property and patenting discoveries. Academia often places emphasis and value on publications and can often view intellectual property protecting activities such as patenting to be somehow "greedy" and "selfish." Patenting can sometimes be regarded by academia to be the opposite of disseminating new knowledge to the public domain. The fact is intellectual property is neither the adjectives mentioned above when managed well and managed in a way that is consistent with one's own ethical values. Intellectual property is an important and vital part of an academic faculty member's daily activities and is very compatible with academic publishing. And as individuals generating new knowledge, academic faculty have the obligation to let the parties which have provided funding and support of their work, to know about the implications and potential of this work, commercial or otherwise. During the inventing process, the timeline of events and the use of good record-keeping and documentation are important throughout. For example, the academic faculty member should know the dates at which an invention idea was first conceived and when it was put into a form that would be understandable for another person to re-create the invention. The faculty member should ideally develop and articulate a general framework for how intellectual property will be handled, prior to starting a project and formation of a team. The purposeful and mindful integration of intellectual property generation and protection, while pursing research and development, is key. If possible, the faculty member should work with their institution's technology transfer office during the inventing process and to provide updates along the way, so that intellectual property assets can be protected before making any public disclosures and publications. While patenting and protection of intellectual property are not a requirement for entrepreneurship, having patents builds strength and freedom to operate in a given technology space and in general builds more value for the entrepreneur's endeavor. And in particular, given the technical and medical nature of the daily profession of the academic medicine faculty member, patents would be a common component of an entrepreneurial venture. And the understanding and purposeful management and care of intellectual property is a key skill and habit for any faculty member pursuing entrepreneurship.

Conclusion

After reading this chapter, the academic medicine faculty member thinking about entrepreneurship will have an understanding about some of the components involved in the launch of a startup endeavor. Each component will undoubtedly expand to volumes in itself, but with this chapter the reader can build the awareness and framework for which to fill in more information as it is received. Entrepreneurship is a way of life. Aristotle said, "We are what we repeatedly do. Excellence, then, is not an act, but a habit." With the items described in this chapter, the academic medicine faculty member can put the items into daily action. Start today.

Words to the Wise

- Always check in with yourself: "what kind of entrepreneur do I want to be, and where am I now?"

- Keep an open mind: for knowledge, for people, for opportunities.
- Understand: It's not just a sprint. It's not just a marathon. It's a state of mind.

Ask Your Mentor or Colleagues

- What are you reading now, and why?
- Looking back, what would you have done differently?
- What's the most important thing I should be doing right now?

Suggested Reading

Kawasaki G, Filby L. The art of the start 2.0: the time-tested, battle-hardened guide for anyone starting anything. New York: Portfolio; 2015.

Osterwalder A, Pigneur Y. Business model generation: a handbook for visionaries, game changers, and challengers. Hoboken: Wiley; 2010.

Twitter. https://twitter.com

United States Patent and Trademark Office. https://www.uspto.gov

Part VIII

Balancing Professional and Personal Life

Supporting Academic Physician Well-Being: Individual and Organizational Strategies

Christine Moutier and Maggie G. Mortali

Introduction

The well-being of physicians has personal, professional, and public health ramifications. A physician's personal health and well-being are not only vital to the individual physician and their family members and community, but may also affect that physician's life professionally. Moreover, on a larger societal scale, physician wellness serves a critical role in the delivery of high-quality healthcare. When physicians are unwell, the performance of healthcare systems can be negatively affected [1]. Good health and mental well-being contribute to the solid foundation on which physicians can be resilient in the face of challenge and optimally address the many stresses of professional life and clinical work. But even for those physicians who understand this connection and are motivated to improve their situation, the real rub comes in practical obstacles of time and energy. Limitations of time and energy are very real, and after the essential tasks of one's work and personal responsibilities are fulfilled, physicians may feel there is little energy left for the proactivity required to create change that could lead to improvement in health

and well-being. This chapter will provide strategies to address ways academic physicians can optimally balance work and personal life as well as the role of the workplace in supporting physician well-being.

Physician Distress and Suicide Risk

The literature on physician and trainee distress has shown an association between distress and a range of professional outcomes from empathy, professionalism, sustainability, medical errors, and clinical performance. The predicted shortfall of physicians in the workforce is compounded by continued concerns about job satisfaction and intention to leave the profession [2]. Burnout, depressive symptoms, and low quality of life are all too common among resident and practicing physicians and have been associated with negative effects on patient care including major medical and medication errors, suboptimal care practices, and decreased patient satisfaction with medical care [3]. A large meta-analysis of the prevalence estimates of depression or depressive symptoms among resident physicians found that 28% of residents (50,000 residents, spanning over 50 years) experience significant depressive symptoms that may have met criteria for major depression during training [4]. In addition to obvious contributors like stress and sleep deprivation on top of pre-exist-

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ing risk factors, such as genetic loading and early adversity, trainees and physicians also face institutional and self stigma regarding their own mental health needs. High rates of depression, burnout, addiction, anxiety, and working in settings that tolerate toxic behaviors and discourage help-seeking, combined with access to lethal means and a greater knowledge of lethality of drugs than the general population, likely contribute to the high rate of suicide among physicians. Unfortunately, physicians have higher rates of completed suicide than their age-matched nonphysician peers [5]. While suicide comprises a narrow and very extreme sequelae of underrecognized, untreated, or undertreated psychiatric illness and distress, it is an important and tragic outcome along the continuum of physician distress. One study on physician suicide by Gold et al. utilized information from the National Violent Death Reporting System, which in drawing from multiple data sources allows for a richer analysis of risk factors contributing to the suicide, including death certificates, coroner data, medical examiner information, toxicology information, family interviews, and law enforcement reports [6]. Using what is known as the psychological autopsy method, researchers found that the risk factors for physicians who died by suicide differ from those of the general population. While the prevalence of mental health problems was on par with that of the general population, fewer physicians who died by suicide were in treatment for their mental health problems. Physicians who died by suicide were less likely to have had a recent death of a friend or family member and were three times more likely to have experienced a job-related problem than the suicide decedents from the general population group. Among the physicians who died by suicide, the presence of measurable levels of antipsychotics, benzodiazepines and barbiturates occurred at rather shocking rates of 20 to 40 times that of nonphysicians. The study concluded that major barriers to help-seeking exist in the medical community and that these barriers result in less frequent diagnosis and treatment of physicians with mental health conditions

and raised the possibility of concerning practices of self-medicating during times of risk [6].

There are several factors that contribute to unattended physician distress and suicide risk. While long hours, a heavy workload, and burdensome changes within health systems are obvious setups for burnout and cynicism, the stoic culture of self-sufficiency alongside real and perceived barriers to help-seeking allows for the deterioration in well-being to go unaddressed and to potentially spiral into more severe, entrenched mental health problems. One major addressable factor stems from widespread perceptions concerning discriminatory practices related to mental health by state medical boards and hospital privileging procedures, which has driven mental health problems within the medical community underground. The outcome is that physicians commonly disregard experiences of anxiety, worry, and shame, rationalizing significant feelings of distress as part of their identity as physicians. Concerns about the potential for negative ramifications on their reputation, licensure, or hospital privileging, combined with a multitude of other barriers – such as time constraints, uncertainty about whether treatment would help, and concerns about confidentiality – keep those in need of help from reaching out [7, 8].

Conceptual Framework for Wellness

For a given individual, how does an everyday mishap (e.g., spilt milk) lead to a calm, even compassionate response on one day but provoke an irritable outburst on another? Imagine that the myriad of internal human factors (physiologic, psychological, spiritual) that culminate in the most mature intellectual, emotional, and behavioral response in the face of stress can be condensed into one substance, a fuel source if you will, which, if used fully by the mind and heart, lead to the most healthy, optimal, and likely ethical responses to the plethora of stressors that come up in everyday personal and professional life of physicians. In a dynamic way, the day-to-day and even moment-to-moment thoughts,

Fig. 1 Conceptual model of a coping reservoir. (Adapted from [9])

ideas, and responses to stress may be viewed in a model akin to a complex mechanical system. This system relies on an adequate fuel source to perform its functions in a streamlined way. In a similar way, an individual's responses are affected by the amount and quality of "reserve fuel" from which to draw. The human coping reservoir depends on positive input (inflow of fuel), negative input (outflow or loss of fuel), and the structure and characteristics of the reservoir itself [9] (Fig. 1). The inputs and drains on an individual's fuel reservoir are functions of both individual factors and environmental factors, such as workplace culture – implicit and explicit messages that impact sense of one's self, work, and relationships to others. The safer and more supportive the work environment, the more the healthy inputs to the reservoir can be facilitated.

Key Concepts

Flourishing Optimal state of human existence and functioning, cultivated over a period of time, that encompasses a sense of goodness, generativity, growth, and resilience. An area of study in the field of positive psychology.

Burnout A response to chronic occupational stress. Tends to occur when workload is high and sense of autonomy, control, and meaning in one's

work is low. Consists of a triad of experiences: (1) emotional depletion, (2) sense of detachment, and (3) low sense of achievement.

Internal Structure and Characteristics of the Coping Reservoir

Academic physicians come to the profession of medicine with unique personal characteristics and therefore different strengths and weaknesses. Some are more intrinsically resilient than others, and some are more prone to anxiety and depression. This intrinsic "sturdiness" versus "leakiness" of the reservoir is based on a variety of factors including genetics, early childhood events, and current environmental factors and temperament, such as optimism and neuroticism. Physicians tend to be highly driven, conscientious to obsessive, and relatively stoic. While these traits can be positive qualities in a physician, they can also lead to personal suffering.

Depleting Factors (Negative Inputs)

The following areas are common sources of depletion of the coping reservoir, but naturally there are as many unique drains on well-being and resilience as there are individuals:

1. *Stress*: The topic of stress encompasses a vast area and is an unavoidable reality of life for all. Early in medical training, curricular and academic rigors of medical school and residency are easily identified stressors; however, neither education nor stress ends with formal training. Physicians in practice must keep abreast of an ever-enlarging body of skills and knowledge while performing all of the tasks and responsibilities of a busy clinical practice. The struggle for some physicians to keep up-to-date may be squashed by the overwhelming demands of practice. This may be especially true for high-volume, solo, clinical practice environments. This struggle can lead to fears about one's competence on the one hand or rationalization or even denial of one's deficiencies on the other. There are also common personal psychosocial events physicians may experience at any age or stage of career. These include personal or family illness, divorce or the breakup of a relationship, death of a loved one, and/or financial problems. The convergence of personal crisis with the steady level of professional stress may lead to a decrement in overall well-being, and in this relatively decompensated state, coping strategies may then deteriorate into less adaptive ones. Maladaptive attempts to cope like using alcohol or drugs (prescription or illicit) obviously pose further risk such as loss of judgment and legal and/or clinical ramifications. Another pathway that can challenge homeostatic well-being is the occurrence of professional crisis such as a particularly difficult malpractice suit, interpersonal problems in the workplace, or the jarring experience of having one's clinical competence called into question by a hospital's peer review process or by a licensing board. All of these potential sources of increased stress in the life of a physician can drain the coping reservoir and lead to further distress and/or maladaptive coping. Organizations that take these impactful stressors into consideration when developing policies and practices can help steer the impact of stress toward a healthier, less toxic outcome. In other words, when physicians feel sup-

ported in their workplace and have deeper connections to peers and mentors, the negative impact of stress can be mitigated.

2. *Anxiety or internal conflict*: The experience of doubt or conflicting emotions about aspects of life and one's own decisions is commonplace, germane to a normal neurotic personality structure, and essential to a self-reflective process – important in the practice of medicine. However, if doubt and worry grow into excessive, pathological anxiety, the effect of the anxiety itself can be an extreme drain on fuel/energy. (Ironically, excessive worrying is rarely recognized as such by the worrier, perhaps due to the tendency to focus on the perceived problem.) Some physicians may question their choice of specialty or commitment to medicine. If distress deepens, a snowballing process may occur whereby symptoms of anxiety and depression can lead the individual to conclude that medicine and one's choice of specialty were wrong decisions. Reasoning based on negative emotions can result in distorted perceptions and a downward spiral leading to poor performance and worsening depression. Another source of internal conflict comes in the form of the keeping of a personal secret, for example, a physician who has made a major medical error, but not acted in accordance with their conscience or ethical guidelines. These secrets tend to weigh heavily as invisible sources of stress, which, when processed and worked through with a mentor or therapist, can lead to the release of an enormous emotional burden.

3. *Demands on time and energy*: There is probably not a single academic physician who has not experienced the challenge of juggling many responsibilities in a finite amount of time: professional responsibilities (clinical, administrative, and/or academic), family, partner, household, friends, and self (e.g., exercise, relaxation/recreation, spiritual practice). Over time, these demands, coupled with fatigue and guilt over unmet obligations, can result in burnout, which is characterized by three criteria: emotional exhaustion ("just

going through the motions"); a diminished sense of achievement; and depersonalization (sense of detachment). While time is certainly a finite commodity, and energy may seem to fall into the same category, the energy that fuels resilience can be proactively monitored and replenished. Physicians can learn how to prevent the phenomenon of "running on empty" by understanding the signs of depletion, ideally learning to see it coming in advance and modifying accordingly, and knowing which activities provide the highest level of replenishment. In this way, and counter to the prevailing societal view that "life happens to you," individuals can actually exert a reasonable level of influence over the outcome of one's own well-being.

Replenishing Factors (Positive Inputs)

Some activities are essential to the basic human needs for rest and replenishment: sleep, good nutrition, and exercise. Perhaps surprisingly though, physicians, who have high levels of clinical and scientific knowledge to apply to patient care and other professional activities, often need reminders that their own health will be negatively impacted if they shortchange sleep, healthy food, or exercise for long. Other potentially high-impact replenishing factors are included below:

1. *Psychosocial support*: Support can come from many sources within and outside the profession: spouse/partner, family, friends, peers/colleagues, and spiritual support. Psychosocial support can be more formal and provided by counselors, psychotherapists, or executive coaches. Specific groups, such as facilitated process groups, regional or local professional associations, can provide important support and practical information about how to balance the multiple demands of professional life.
2. *Mentoring*: Mentoring should not stop with the completion of medical training. Of the many important roles that mentors fulfill, among the most vital are role modeling and supporting the art of balancing many roles and recognizing the need for rest and replenishing one's own reservoir. The ideal situation at any given time is to have a mentor or, more likely, mentors who can advise and consult on a regular or as-needed basis and also to be a mentor to more junior colleagues or trainees.
3. *Experiencing meaning and purpose*: Hard work and fatigue are far more satisfying and positive when they come as a result of investing oneself in something the practitioner finds meaningful and interesting. One challenge is to figure out which activities bring the greatest sense of meaning and purpose. For some physicians, a moment of connection or the act of helping a patient or student is extremely meaningful; for others, building or improving a healthcare system brings a greater sense of purpose. Self-awareness of which activities provide the greatest sense of wholeness, in professional or personal life, does not necessarily come automatically or intuitively but, rather, benefits from introspection and an attempt to objectively be a student of oneself and one's own life. The experiences that had the highest emotional impact or clarified a particular career direction are probably still the types of activities that would serve as fuel for optimal coping in the present day. For many in academic medicine, the "meaning" of medicine is amplified through work as a clinician or teacher. Additionally, the arts and humanities significantly enhance life, and, more specifically, advancing knowledge in the history of medicine or bioethics can be especially rewarding.

The Nature of the Coping Reservoir

The coping reservoir, like all human systems, is dynamic: ebbing and flowing and rising and falling over time. The goal is to keep the reservoir replenished. Given the burdens placed upon physicians and the inherent variability of individuals' resilience, it is probably unreasonable to expect the reservoir to be continuously full, brimming

with high-octane fuel. Still, we must strive to keep the reservoir full *enough*.

Failure to keep the coping reservoir full enough can lead to cynicism, pessimism, frustration, burnout, and, eventually, depression or other mental health sequelae. While the topic of suicide prevention in physicians warrants much greater focus, the prevention of depression and recognition and treatment of mental health conditions are known to be the best ways to prevent suicide. By finding ways to most effectively replenish the coping reservoir, resilience can flourish, and, to the degree that is possible, suffering and disability can be prevented.

How to Keep the Reservoir Full (Enough)

Might it be possible to increase well-being, to diminish dysphoria, and to feel more whole and present in the moment? And in a dynamic way over time, is it possible to adjust the positive and negative inputs to prevent burnout or crisis and optimize overall flourishing? If so, without necessarily changing the external circumstances of one's life, can an individual impact these outcomes? It *is* possible, even in the life of a physician, which tends to be tilted heavily in the direction of professional time and energy demands.

A proactive approach to keeping one's coping reservoir full is optimal if not required. Left unattended, most will find that as a matter of time and life's natural demands, the reservoir will drain, and the experience of running on empty leads to real consequences. Proactive approaches include the following:

- Use a calendar as a tool to proactively plan healthy activities. While simple, scheduling health-promoting "nonnegotiables," e.g., sleep, exercise, quality time for important relationships, and other high-impact activity outside of medicine, may allow professional demands and scheduling to be more balanced.
- Have an inner circle of 1–3 trusted individuals with whom you can safely disclose concerns,

e.g., partner, friend, mentor, colleague, therapist, and pastor.
- Establish care with a physician if you don't have one.
- Pay attention to red flags: irritability and losing one's temper are often the first signs of imbalance; short-term memory slips are another sign of increased stress. Big red flags include increasing alcohol consumption or self-prescribing.
- Take at least one real vacation each year.
- Develop a list of priorities. This can be used to shape your decisions about how to approach which activities/relationships can be diminished versus increased. After creating your list, you may realize that a particular activity is actually lower on the list than it used to be, e.g., research or a relationship, and the acknowledgment of that change or revelation of an erroneous assumption may be instructive, allowing you to spend less time doing, or even take out, an activity.
- Embrace the truth that you don't have to do and be everything at all times. In other words, career and life have natural phases, and with each changing phase, you can decide which set of roles is most important, appropriate, and feasible.
- Be as compassionate with yourself as you would be with a loved one. This includes forgiving and being gracious with your own mistakes and shortcomings.
- Support your colleagues in these same ways. The act of helping others can augment one's own sense of purpose and can deepen the sophistication of self-care practices by sharing new ideas in an ongoing way over time. These conversations also deepen collegial sense of trust, and the experience of connecting on this deeper way at work can be extremely protective for physician's well-being. In general population samples, a body of suicide prevention research finds that proactively strengthening connectivity is a known protective mechanism for mitigating suicide risk as well [10, 11, 12].

Creating a Healthy Workplace Culture

Several national initiatives have recently begun to address the issues of physician well-being, burnout, and suicide prevention [13]. In 2003, the American Medical Association (AMA) released a consensus statement recognizing the lack of priority given to physician mental health within the culture of medicine, identifying for the first time barriers to treatment, including discrimination and licensing [14]. In 2016 the National Academy of Medicine convened a collaborative initiative with the goal of making clinician well-being a national priority. The Association of American Medical Colleges (AAMC) and the Accreditation Council for Graduate Medical Education (ACGME) have launched ongoing initiatives dedicated to physician/trainee well-being. In late 2016, the American Foundation for Suicide Prevention (AFSP) collaborated with the Mayo Clinic to produce a 4-minute educational video on physician suicide prevention as well as an online handbook, *After a Suicide: A Toolkit for Physician Residency/Fellowship Programs*, which contains best practices for preventing suicide and for supporting the aftermath of a suicide within a physician residency or fellowship program [15]. Critical to these efforts' success are safe and accessible avenues for physicians to address mental health concerns, confidential and timely follow-up, and stigma reduction [16]. Specifically, it is important that programs and hospital leaders provide opportunities for those experiencing distress to follow up with a mental health professional without fear of punitive consequences. Programs and activities directed toward physicians include encouraging help-seeking for persons exhibiting signs of distress or suicidality, supporting efforts to reduce stigma associated with help-seeking and mental health conditions, and enhancing connectedness in the workplace and in the healthcare community.

To overcome physician barriers to accessing treatment, proactive approaches in identifying and managing mental health problems should be considered. These efforts, however, must be supported by a workplace culture that is supportive of physicians engaging in treatment for mental health conditions. In order for mental health service utilization to take place, workplaces should consider taking a more comprehensive approach to health that may include changes to the work environment to encourage healthy behaviors in multiple domains of health but particularly related to mental health:

1. *Addressing stigma*: Stigma reduction is a core component in successful wellness and suicide prevention programming [17]. Education plays a key role, but policies and procedures that make it safe for individuals to seek support, including formal mental healthcare, must be created and enforced to allow physicians to get the help they need when first experiencing distress. This combination of education and policy change is critically important to address fears about mental health and treatment.

2. *Employee assistance programs (EAPs)*: EAPs for physicians can play a critical role in supporting mental health. EAPs are designed to offer confidential short-term counseling and information for work and personal concerns that may affect workplace performance [18]. In addition to services and support for mental health concerns, EAPs offer resources and information on child and elder care services, support groups, stress reduction classes, alcohol and substance misuse treatment, and marital counseling for employees and their family members. Regular communication about available mental health services and the importance of mental wellness help promote a climate of acceptance that reduces stigma and discrimination in the workplace [19].

3. *Educational/curricular programs*: Education and curriculum-based programs are designed to give individuals the knowledge and skills needed to achieve greater quality of life and an enhanced sense of well-being. Developed by the Benson Henry Institute in collaboration with Harvard Medical School and Mass General Hospital, the Stress Management and

Resiliency Training for Residents (SMART-R) is an 8-week, multimodal resiliency program that targets stress through four main components: mind-body skills, traditional stress management techniques, healthy lifestyle behaviors, and cognitive reappraisal and adaptive coping skills [20]. A 2011 randomized clinical trial of the SMART program for Department of Medicine physicians at a tertiary care medical center found significant improvement in resiliency, perceived stress, anxiety, and overall quality of life compared to the control group [21].

4. *Facilitated groups*: Programs that seek to enhance relationships and communication among healthcare teams present effective strategies for providing support to physicians and other healthcare professionals and help to enhance relationships among them and with their patients. One such program, the Schwartz Center Rounds (SCR), has been found beneficial, particularly as it relates to culture change, emotion exposure, and influence of rules and boundaries. Furthermore, research has found that institutional culture can be positively influenced through SCR [22]. In addition to the Schwartz Center Rounds program, resident process groups and Balint groups show promise for improving culture related to physician mental health and help-seeking [13].

5. *Interventions*: Research on the effectiveness of a web-based cognitive behavioral therapy (wCBT) program has shown a reduction in the likelihood of suicidal ideation among medical interns [23]. Online intervention programs show promise in reducing symptoms of depression and burnout and can be easily disseminated to organizations for use by academic physicians across the country. A program at the University of California San Diego (UCSD) School of Medicine, which was developed after the loss of more than ten physicians and trainees to suicide over a period of 15 years, aimed to reduce suicide risk and enhance wellness via education and the implementation of AFSP's online Interactive Screening Program (ISP) [24] which together created a successful safety net to recognize risk and prevent suicides [25, 26]. The UCSD program, which began in 2009, has met with tremendous success and is still in operation 9 years later. To date, more than 350 physicians, staff, and trainees have accepted referrals for mental health treatment through the program; the majority report that they would not have done so on their own. One key to this program's success lies in the *anonymity* ISP affords individuals to be screened and to dialogue with a counselor to work through their concerns about next steps, in a way that feels safe and comfortable especially during periods of highest risk.

6. *Policy change*: Undergraduate medical education promotes the concept of self-care as a physician's professional responsibility, teaches wellness strategies, attempts to destigmatize mental healthcare, and encourages help-seeking at appropriate times. In 2002 the accrediting body for US medical schools, the Liaison Committee on Medical Education, mandated that medical schools prioritize student wellness by providing education related to well-being and stress management and regular opportunities to participate in activities that promote resilience and optimal physical and mental health. Graduate medical education similarly has made significant changes in the area of resident well-being, originally driven by the need to protect patient safety but more recently with an integrated concern for both resident well-being and its interconnection with patient care. These efforts have specifically addressed resident sleep and fatigue with changes in the ACGME regulations in 2003 and 2011 not only limiting work hours but also requiring the monitoring of resident well-being. Medical education and training may be a time when young physicians learn early habits (for good or for bad) and may be particularly sensitive to the informal curriculum of the profession, which has not always promoted the prioritizing of one's own well-being.

7. *Targeted programs*: Professional coaching programs can provide a results-oriented and stigma-free method of addressing burnout. By focusing on individual strengths, coaching can help to enhance self-awareness by examining new perspectives while working to align personal values with professional responsibilities [27]. Although an evidence-based approach to professional coaching for physicians has not yet been established, the theoretical basis that has long been utilized in the corporate business world demonstrates the potential of professional coaching to address physician burnout [27]. In addition to professional coaching, peer mentoring programs can play a key role in enhancing personal and professional development, including career guidance, career choice, and physician retention [28].

8. *Integrated multipronged institutional programs*: Development of comprehensive mental health promotion and intervention models have proven as effective approaches to increase well-being and reduce suicide risk in physicians [29, 25, 26]. Modeled after the UCSD School of Medicine's HEAR program (described above), the Oregon Health & Science University's Resident and Faculty Wellness Program (RFWP) combined educational outreach with direct care and consultation, including individual coaching and psychological counseling approaches. The program, specifically designed to support physicians, was accessed by a significant number of academic physicians, was highly rated, and can be easily adopted or adapted by other institutions [29].

Conclusion

An important challenge to each physician and trainee is to be as serious a student of oneself as they are in other aspects of professional training. Most individuals are not inherently aware of the sources of "high-octane fuel" for their coping reservoir, and many assume that the drains are immutable. The knowledge and implementation of the regular practice of one's best replenishing input sources and diminishing the drains on one's coping reservoir require a process of reflection, awareness, planning, and intention. Critical to supporting physician well-being is the role of organizational leadership to support safe, supportive work environments. Key features of workplace initiatives include reducing stigma associated with mental health distress and help-seeking, improving access to peer or social support and to healthcare, and making policy changes related to healthcare access and fitness for duty evaluation. The good news is that mental health conditions can be managed effectively, and the vast majority of physicians with mental health conditions continue functioning well especially when care is taken. These efforts not only provide a pathway to elevate overall physician mental health, but these efforts have the added potential to contribute to greater physician engagement and to improving healthcare overall.

Examples of Positive Inputs

- Right amount of sleep on a regular basis
- Favorite types of exercise, e.g., running, yoga, dance, martial arts
- Mentoring trainees and witnessing their growth
- Connection and support from loved ones
- Processing conflict/challenging situation with mentor or trusted peer
- Other meaningful activities outside of medicine, e.g., arts, music, theater, literature
- Seeing your work make a difference
- Humor
- Flexible approach to problems
- Getting consultation on a difficult patient case
- Psychotherapy

Examples of Negative Inputs

- Anxiety that doesn't lead to a solution-oriented plan
- Fatigue especially if not addressed promptly
- Problematic, conflictual personal relationship
- Excess alcohol
- Sense of incompetence
- Sense of victimization by schedule, patient demands, flawed system
- Feeling rushed in patient care, decision-making
- Lack of connection with patients
- Secret keeping (not patient-related)
- Maintaining rigid approach to problems
- Being unwilling to admit vulnerability and imperfection

Words to the Wise

- Schedule health-promoting activities outside of medicine.
- Have an inner circle of trusted individuals with whom you can safely disclose concerns.
- Beware of irritability and losing your temper, which are often the first signs of imbalance, as well as short-term memory slips, increasing alcohol consumption, and self-prescribing.
- Embrace the truth that you do not have to do and be everything at all times.
- Be as compassionate with yourself as you would be with a loved one.
- Professionalism, work output, and optimal patient care rely on a foundation of solid (enough) well-being.
- Well-being can most effectively be optimized by shared commitment on the part of individual physicians/trainees and organizational leadership.
- Mental health exists along a full continuum and can be optimized by developing self-awareness of the individual and possible unique drains and positive inputs for one's resilience. A model that demonstrates the dynamic nature of this concept is provided.
- Stigma and fears of negative ramifications are common barriers to support seeking and mental health treatment for physician.

- Workplace culture, implicit and explicit messages, and the learning environment for trainees have great potential to impact physician well-being, and there are initiatives and strategies workplace leaders can take to improve this important contributor.

Ask Your Mentor or Colleagues

- What activity or part of life brings me the most sense of fulfillment? Can I reasonably increase the regularity or frequency of that activity? Conversely, which areas (people, activities) are the most draining?
- Are there problem/draining areas in my life that can be modified? Some things can't be removed from life completely but can be modified. For example, a demanding administrative role you took on last year has become increasingly challenging and certain parts may be outside your areas of strength/expertise; are there any aspects that can be delegated, or are actually not truly encompassed by that role? Another example: a demanding relative is part of your life, but you decide that it is possible to limit the amount or frequency of time spent with that person.
- Examine motivation: Am I doing certain activities because they seem important for academic promotion or to my mentors? Do I allow a conflictual relationship to continue because it is in fact a high-priority relationship or out of a sense of helplessness or obligation? If it is a high-priority relationship, are there areas that could be improved via communication?

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How to Care for the Basics: Sleep, Nutrition, Exercise, and Health

Christopher Guest, Dolores Doane Guest, and Rebecca Smith-Coggins

> The best doctors in the world are Doctor Diet, Doctor Quiet, and Doctor Merryman. –Jonathan Swift

Balancing the demands of a life in academic medicine provides a unique challenge. We often find ourselves concentrating our efforts and energy on directly measurable outcomes like grants and tenure. Interestingly, we often neglect some of the most important factors sustaining our efforts. Faculty members are a driven group accustomed to sacrificing sleep, food, and physical activity to achieve their goals. Everyone can recall pulling the "all-nighter" before a big exam, usually accompanied by high-calorie snacks and lots of coffee. This tradition reinvented itself in residency despite duty hour suggestions. Unfortunately, the tradition continues with manuscript deadlines and grant proposals. Paradoxically, by doing this we may be under-mining our own efforts. A balanced diet, ample sleep, and physical activity are essential for peak performance. These three fundamental needs are not independent entities but interconnected and interactive. Historically, we have understood this on an intuitive level, but recent advances in molecular biology and psychoneuroimmunology have begun to elucidate the mechanistic principles guiding these interactions. With proper understanding of a few principles, it is possible to utilize these interactions to form positive feedback loops which reinforce each other rather than detracting from one another. Additionally, these findings provide quantitative measures to guide our qualitative relationship to food, sleep, and exercise.

In this chapter we will discuss the importance of sleep, nutrition, and physical activity for optimal performance for academic faculty members. Each section will focus on the impact on overall health, metabolism, neuroimmune function, and tips for improving performance.

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Sleep

> A condition of body and mind such as that which typically recurs for several hours every night, in which the nervous system is relatively inactive, the eyes closed, the postural muscles relaxed, and consciousness practically suspended. –Oxford English Dictionary

During the last 30 years, there has been an explosion of research into sleep. The drive for sleep is regulated by two processes. The first is a homeostatic process that dictates that the longer a person stays awake, the more a person needs to sleep. This process is coupled with our natural circadian rhythms, which set our natural threshold for initiating sleep or terminating it [1]. Another interesting finding is that although all humans have a requirement for sleep, the amount of sleep needed for optimal health varies from person to person and throughout the course of one's lifetime [2].

One of the fundamental elements of this research [3] has been to define sleep. With the invention of the electroencephalogram, Alfred Loomis was able to define several distinct stages of sleep [4]. One of the widely accepted paradigms for defining sleep comes from the American Academy of Sleep Medicine (AASM), and it divides sleep into a slow-wave component with three phases and a rapid wave state characterized by rapid eye movements (REM). The ratio of these phases changes over one's lifespan [3].

Sleep Patterns

Sleep patterns vary according to climate and local customs. In the USA, people typically work during the day and sleep at night. In climates with warm weather, it is not uncommon to take a midday nap lasting a few hours. This Mediterranean model takes advantage of the natural dip in alertness that is part of the circadian rhythm. The nature of our work has also changed with the shift away from a largely agrarian society with a heavy demand on physical labor to one that is predominantly based on providing services and manipulating and interpreting information. One factor that has greatly influenced our sleep cycle is the availability of cheap and reliable electricity. Not only does electricity allow us to extend the number of hours we work, but it also provides us with numerous other distractions like TV, computers, digital music players, and video games. Recent studies have shown that over the past 50 years, the average duration of sleep per night has decreased by 1.5–2 hours [5]. Several studies have been conducted in the USA to examine sleeping patterns during the last 50 years. A survey conducted in 2007 by Gallup found that the average sleep duration was 6.8 hours on weekdays and 7.4 hours on weekends [3]. Two of the largest were surveys conducted by the American Cancer Society. One of the surveys done in 1959–1960 of more than a million Americans found that only 2% of those surveyed reported sleeping less than 6 hours per night. Interestingly a follow-up survey conducted in 1982 showed that nearly 20% of adults reported sleeping less than 6 hours [6]. An additional challenge that many physicians and scientists have to contend with is working shifts that do not coincide with our natural patterns of sleep and have been found to be associated with obesity, diabetes, and cardiovascular disease (CVD) [7]. Sleep deprivation can be categorized into acute and chronic. Acute deprivation is generally studied in people who have been awake for 24–72 hours. This type of deprivation can have profound and dangerous effects including hallucinations and psychosis [8]. Chronic deprivation is characterized by limiting the amount of sleep a person gets each night over a period of time, usually around 4–6 hours. This type of sleep deprivation is a more accurate representation of what we are more likely to encounter in our daily lives. With chronic sleep deprivation, a number of interesting phenomena occur. Not only are there metabolic, immune, and cognitive changes, but the person's perception of his or her deficits also changes [9]. These changes vary from person to person and with the degree of sleep deprivation but are generally well conserved within the same person, much like a personality trait [10]. Additionally, with chronic sleep deprivation, a sleep debt builds up over time, and the debt can act like an episode of acute sleep deprivation if it goes on long enough [11]. Fortunately, this debt can be paid back by getting extra sleep.

Why Is Sleep Important?

One of the most powerful observations about sleep from an evolutionary perspective is that all mammals must sleep. Although we do not fully

understand why, there must be a substantial survival benefit to sleep. Indeed, there have been a number of studies that look at the relationship of sleep duration on survival, and they have found that sleep duration of less than 7 hours is associated with an increased mortality risk [12, 13]. Interestingly, this relationship is not linear. The benefit begins to decrease as sleep duration exceeds 8.5 hours, and increased sleep is actually associated with a higher mortality. Additionally, this finding is also mirrored when analyzing coronary heart disease [14]. One study showed that when sleep is limited to less than 5 hours per night, subjects were 2–3 times more likely to have an adverse cardiovascular event [15]. This area is actively being investigated, and interesting metabolic and immune alterations found in the sleep deprived are likely culprits; however, establishing a causal relationship is difficult, given the multitude of factors at work [16]. These general findings are disturbing but offer potential opportunities for interventions.

In addition to the general increased risk of mortality and cardiovascular disease, recent evidence also has shown a role for sleep as key modifier of endocrine and immune function. Sleep restriction has been shown to have a number of deleterious effects on glucose tolerance, activation of the sympathetic nervous system, and thyrotropin. Additionally, decreased sleep is associated with an increase in obesity and dysregulation of two important hormones that regulate appetite and satiety. These changes are also associated with an increase in proinflammatory cytokines [17], which have been shown to increase insulin resistance [18]. These proinflammatory cytokines have been shown to increase depressive-like behavior and reduce social activity [19]. Taken together, this evidence suggests an important role for sleep and the regulation of our endocrine function.

Along with the physiological changes found with sleep deprivation, another important impact of sleep deprivation is a decrease in cognitive performance. Although acute sleep deprivation has been more thoroughly studied, chronic sleep deprivation is more applicable to our daily lives and will be focused on here. Sleep deprivation has been shown to have deleterious effects on working memory, long-term memory, attention, and decision-making [20]. Many of the changes in cognition found with sleep deprivation can be ascribed to decreased attention or vigilance. This decreased attention has a cascade function, decreasing one's ability to integrate new information and respond appropriately to a variety of stimuli and tasks. Additionally, recent work has shown that sleep-deprived people actually periodically undergo moments of microsleep, which can last anywhere from a fraction of a second to 10 s in duration [21]. As one can imagine, these events are especially dangerous when driving, operating heavy machinery, or conducting any other tasks where irreversible mistakes can easily be made. Interestingly, as sleep deprivation increases, one's insight of performance becomes worse [22]. These effects have been shown with chronic sleep deprivation of less than 7 hours per night and increase as the sleep interval decreases [3]. Fortunately, brief naps of only 10 min have been shown to significantly improve alertness and performance [23] and may play an important role for restoring function to appropriate levels for individuals with demanding lifestyles subject to chronic sleep deprivation.

Getting the Most from Sleep

Adequate Time

Perhaps one of the most obvious and difficult variables to control for getting the most from sleep is finding adequate time. Research has shown that physicians are more likely than the general population to be sleep deprived, which can contribute to poor outcomes for our patients and for our well-being [24]. One way to help alleviate this shortage is to view adequate sleep as a necessity like food, water, or air and make it a priority that is not subject to cuts. There are always going to be occasions when we have to shave a little time off our regular sleep schedule, but it should not become common, and the sleep debt should be repaid as quickly as possible to ensure peak performance. The amount of time

one needs varies from individual to individual; however, most studies indicate that performance, satisfaction, and overall wellness are higher with between 6.5 and 9 hours of sleep [3].

Sleep Hygiene (Table 1)

A number of components contribute to sleep hygiene. One way to understand sleep hygiene is to break it into two components—environmental and non-environmental. The environmental factors include comfortable bedding and a dark, cool, and quite space dedicated to sleep. The space should not include a TV or digital distractions. For shift workers, blackout curtains are important so that alterations in the influence of the circadian rhythm can be minimized. Some people even find it useful to use artificial light sources to initiate the waking part of the sleep cycle. White noise can be provided by a fan or a white noise machine or earplugs can be used.

Non-environmental factors include exercise, diet, pharmacological agents like sleep aids, and stimulants like caffeine. Exercise can be an important sleep aid if timed correctly. Exercise can act to reduce muscular tension that builds throughout a stressful day. This muscular tension can contribute to less restful sleep. Additionally, exercise can have an anxiolytic effect [25], reducing yet another non-environmental factor contributing to poor sleep. Rigorous exercise should be avoided about 2 hours before sleep in order to allow the stimulation of the exercise to wane and the body to fully relax. Similarly, eating a light snack may aid in sleep, while having a large meal within 4 hours may cause sleep disturbances [26]. Additionally, there are many pharmacological agents that can affect sleep. Two of the most common are alcohol and caffeine. Initially, alcohol has a sedative effect and promotes sleep initiation; however, alcohol use can cause disruption to our natural sleep cycle and can change the proportion of slow-wave sleep [27]. Caffeine can plan an important role of promoting attention and vigilance even while sleep deprived [28], but there is a difficult balance that must be struck in order to ensure that we are still able to achieve adequate and restful sleep after using caffeine [29]. Abstaining from caffeine for 4 hours prior to sleep is prudent to avoid some of the sleep disruptions found by using caffeine to increase wakefulness [30]. Some other popular sleep aids include diphenhydramine and melatonin. Diphenhydramine is thought to act by antagonizing the histamine and its alertness-promoting properties. Unfortunately, diphenhydramine has a number of side effects and limited efficacy. Newer prescription medications include zolpidem and zaleplon. These medications are thought to have fewer side effects, but some of their unique side effects include sleep eating [31, 32]. Interestingly, melatonin is an endogenous hormone produced by the pineal gland that is an important regulator of the sleep–wake cycle. Melatonin has been shown to help with some sleep disorders [33]. It does not have the same potential for habituation, and it works to normalize internal circadian drives rather than to suppress alertness like other sleep aids.

Table 1 Dos and don'ts of good sleep hygiene

Do	Do not
Limit screen time within 2 hours of bedtime	Keep a TV in your room
Sleep in a dark room	Drink caffeine within 4 hours of bedtime
Sleep in a cool room	Exercise an hour before sleep time
Sleep in a quiet environment	Drink too much alcohol
Use some white noise like a fan	
Take a warm bath 30 min before sleep	

Sleep Summary

Sleep has held a place of mystery and reverence for humankind. The ancient Greeks believed that our sleeping life was an important time for rejuvenation and revelations from the gods. The purpose of sleep is still largely a mystery. Some evidence suggests that it is important for wound healing. Animals subjected to sleep deprivation have shown substantial healing deficits when compared to controls. Additionally, sleep pro-

vides an opportunity for energy conservation, decreasing energy demands by 5–15%. Interestingly energy conservation does not seem to be the chief benefit of sleep. Hibernating animals will periodically shift from a low energy state into a higher energy demand sleep to fulfill some other vital functions [34]. Sleep is also an important regulator of endocrine, immune, and cognitive function. As physicians we face unique challenges to maintaining a healthy balance between sleep and the rest of our activities, but we are now different than others in our absolute need for sleep. Sleep must remain a priority for us in order to ensure our optimal health and the safety of our patients.

Nutrition and Physical Activity

> If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health. –Hippocrates

Nutritional Balance: Body Composition as an Indicator of Health

We often think of nutrition as a dirty word. It can make us feel guilty for the food choices we have made or are going to make. But, like other health components, the most important thing in diet is balance. One way to assess dietary balance in an individual is by evaluating body composition. Body composition is often more meaningful than simply measuring weight or using body mass index (BMI) values because it provides more individualized information. Simply put, body composition can be divided into three components: fat, bone, and muscle mass, which provide an easy-to-use framework to evaluate general health or risk for chronic diseases.

The fat mass component of body composition is an important and complicated one. Adipose is metabolically active and key for storage of lipid-soluble vitamins and energy as well as healthy production of an array of hormones, among other functions. On the other hand, excessive fat, which may be uncomfortable or unsightly, is also unhealthy for a number of reasons. Extra weight puts additional strain and stress on joints and pressure on internal organs. Adipose around the midsection has been linked to increased risk for a number of diseases including various cancers, cardiovascular disease, prediabetes, and diabetes [35–37]. Additionally, high adiposity increases risk for sleep apnea disrupting sleep and adding a number of health risk factors associated with sleep deprivation.

It is well established that adults reach their peak muscle and bone mass by the fourth decade of life (or their early 30s) [38–40]. As a result, it is of utmost importance to spend the teen and young adult years building a solid foundation in regard to these composites. Additionally, it is important to establish good habits in these formative years, so that upon middle age one can continue to mitigate these losses. Reduction in skeletal muscle mass can be associated with declines in strength, endurance, and muscle power. Reduction in bone mass tends to be a slower process that can be even more devastating to overall health and function later in life.

Strategies for Adults to Obtain a Healthy Body Composition

Healthy body composition at any age is influenced by three main factors: hormones, nutrition, and physical activity. Hormones remain fairly steady through young adulthood and middle age, with major exceptions being pregnancy and lactation—which is beyond the scope of this chapter. For this reason, we will focus on nutrition and physical activity.

Nutrition

Nutrition is a relatively young science that, like sleep, is actively being studied. Because it affects all people, there are a number of bodies that govern the study and supply of food in the USA. These groups include the Food and Nutrition Board (FNB) of the Institute of Medicine (IOM), the Department of Health and Human Services

(HHS), and the US Department of Agriculture (USDA). They are responsible for nutrition recommendations and have established nutrient intake recommendations across the lifespan. For the purposes of these recommendations, the dietary plans are divided by calorie level (which is variable depending on individual needs). These recommendations are further divided into food groups within calorie levels for both men (average calorie range: 1800–2600) and women (average calorie range: 1400–2200) to ensure meeting various nutrient needs [41]. It is important to note that these recommendations are for healthy adults. For those with specific nutritional needs (e.g., people who take certain medications, those with diabetes), consultation with a registered dietitian would be most appropriate to receive specific diet advice.

Energy (Calorie) Needs

Calorie needs remain fairly steady following adolescence through middle age. Most important is matching energy intake with energy expenditure. As expected, the more active a person is, the higher caloric needs will be—at any stage of life. It is important to balance nutrients (carbohydrate, protein, fat, vitamins, and minerals) within the appropriate calorie level and focus on nutrient dense foods (high nutrients/g) to ensure maximal health and weight management [41].

Carbohydrates

Carbohydrate sources include grains (rice, breads, pasta, etc.), fruits, and some vegetables. In mid-life and older adults, insulin resistance may start to become an issue, leading to people becoming "carb-conscious." While balancing carbohydrate intake with insulin is important, it is not generally recommended that people eliminate carbohydrates from their diet under normal circumstances because of their use by the body (and especially the brain) as fuel. Nor is it necessary to increase carbohydrate intake in relation to the rest of the diet [41]. An important subgroup of carbohydrates is fiber. Fiber is important for maintaining proper stomach and intestinal health (e.g., providing nourishment to some of the cells that line the gut as well as preventing constipation), and higher intakes have been associated with lower incidence of colon cancer and lower levels of circulating cholesterol as well as for triggering feelings of fullness [42].

Fats

Dietary fat (lipids) is also a key element as it not only provides flavor and texture to foods but also carries fat-soluble vitamins, acts as an important building block for many hormones, and performs other essential functions throughout the body. Fat does not make a person fat. However, excessive intake of fat (more than 30% of calories from fat), which is calorically dense, can contribute to obesity. Not all fats are created equal. It is important to focus on higher intake of the healthy fats, monounsaturated fatty acids (MUFAs; olive oil, avocados, etc.), polyunsaturated fatty acids (PUFAs; nuts, seeds, etc.), and specifically omega-3 and -6 oils (found in fatty fish and nuts), and lower intake of saturated fats (found in red meat, butter, etc.) and trans fats (found in processed foods like shortening and prepackaged crackers, cookies, etc.).

Protein

Protein is the key macronutrient for muscle building and maintenance. The mantra of many dietitians when it comes to protein is "lean, high-quality protein." Sources like fish, poultry (skin removed), dairy (low or no fat), and soy should be a major focus in the diet because they provide the nourishment without the added calories of fat. There is evidence that high-protein meals increase feelings of fullness without the feelings of sluggishness that fatty meals provide. However, moderation is important here too. While protein provides many benefits, like the other macronutrients, too much can result in weight gain.

Weight Management

Generally, it is recommended that healthy adults maintain a BMI of 18–24.9. Interestingly, a BMI under 18 is associated with an increased mortality, while a BMI of 25–29.9 was found to be associated with a decrease in noncancer and noncardiac death. As expected, an elevated BMI is associated with increased cardiac mortality [43]. Preventing weight gain is much easier than losing weight, but in this age of calorically dense, easy-to-get food, it is often easier said than done. The primary approach is to achieve a sustainable healthy lifestyle that includes a varied diet and plenty of physical activity.

Consuming fewer calories through dietary changes appears to promote weight loss more effectively than does exercise and physical activity. But physical activity is also important in weight control. The key to weight loss is burning more calories than are consumed. Exercise plus calorie restriction can help provide the weight loss edge. Exercise can help burn off the excess calories one cannot cut through diet alone. Exercise also offers numerous health benefits, including boosting mood, strengthening the cardiovascular system, reducing blood pressure, and improving sleep [44–46].

Exercise can also help in *maintaining* weight loss. Studies show that people who maintain their weight loss over the long term get regular physical activity [42]. In contrast, people who lose weight by crash dieting or by drastically reducing their calories to 400–800 a day are likely to regain weight quickly, often within 6 months after they stop dieting. If there is a great amount of weight to be lost, the expertise of a registered dietitian may be needed to provide appropriate nutritional counseling.

Weight Loss Calculation Because 3500 cal equals about 1 lb (0.45 kg) of fat, one needs to burn 3500 cal more than one takes in to lose 1 lb. So, if one cuts 500 cal from his or her typical diet each day, one would lose about 1 lb a week (500 cal × 7 days = 3500 cal).

Physical Activity

Regarding maintenance of general health, energy, stamina, and a proportional body composition, physical activity is just as important as a balanced diet. Physical *inactivity* is directly linked to reduced muscle mass and quality and associated reductions in physical functional ability, and habitual physical activity has been consistently associated with improvements in physical function [47]. The four main guidelines for activity are as follows: (1) avoid inactivity; (2) substantial health benefits can be gained from medium amounts of aerobic activity; (3) more health benefits can be gained from high amounts of aerobic activity; and (4) muscle-strengthening activities provide additional health benefits.

Current exercise recommendations are based on levels where substantial health benefits are achieved. For these benefits, each week adults should do at least 150 min of moderate-intensity aerobic physical activity or 75 min of vigorous-intensity aerobic activity or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Ideally, this activity is performed in episodes of at least 10 min and preferably spread throughout the week [48].

For young and middle-aged adults, a well-rounded exercise program will include training for muscle strength, endurance, and power. Additionally, programs that include flexibility and balance training are important to include for maximal functionality throughout the lifespan.

In addition to the "physical" benefits of exercise for function, it is important to recognize the psychological aspects as well. Reduced muscle mass and strength decreases the capacity to perform physical work and the relative workload of a given task and increases fatigue. An adult who is more physically active will find that fatigue can be reduced.

How to Meet These Guidelines Easily Throughout the Week

Take a brisk 10-min walk two times a day. This can include a walk outside, a walk to the car

(parked a little farther away), or taking the stairs instead of the elevator—anything that elevates the heart rate for 10 min at a time. However, one decides to spend those walks each day; these bouts add up to 120 min. To get that additional 30 min, try playing with kids or pets outside two to three times each week, or add three 10-min walks. Another way to meet or exceed these guidelines is to take 15-min walks instead.

Too hard to keep track of all those 10-min bouts? Become a weekend warrior! Physical activity guidelines were adjusted a few years back because there was evidence that even if one meets these guidelines in a single timeframe, health benefits were still achieved. This may actually work better for the busy schedule of a physician. The point is to stay active.

How do you tell the difference between "moderate" and "vigorous" activity? Take the *talk test*. Can you still carry on a conversation but not sing—your activity is moderate. Can't get more than a couple words out? That's vigorous activity!

Nutrition and Physical Activity Summary

This section highlighted the importance of physical activity and nutrition behaviors to maintain the health of the three main components of body composition (fat, bone, and lean mass), in adults. Good nutrition and physical activity practices are of primary importance in overall health and well-being. Additionally, a healthy body composition can also enhance psychological well-being, by providing improvements in sleep, self-esteem, and productivity at work and at home as well as reductions in anxiety and stress.

Consulting with nutrition and exercise experts is essential when attempting changes with regard to physical activity and nutrition behaviors, particularly if you are unfamiliar with how to get started with a healthy lifestyle. The human body remains remarkably adaptable to change even well into old age, and it is never too early or too late to experience the physical and psychological benefits of healthy lifestyle choices.

Conclusion

You cannot take care of other people if you do not take care of yourself. Ample sleep, a balanced diet, and physical activity are three fundamental needs. They are not independent entities but interconnected and interactive.

Words to the Wise

- View adequate sleep as a necessity like food, water, or air, and make it a priority that is not subject to cuts.
- The most important thing in diet is balance.
- Exercise may be easier to fit in using 10-min increments throughout the day or longer weekend sessions to total 120 min.

Ask Your Mentor or Colleagues

- How do you find the time to eat well and/or exercise regularly?
- How do you recommend I manage my time?

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How to Recognize and Avoid Burnout

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Academic physicians face tremendous daily stressors, related to being both health-care providers and educators and working in a fast-paced environment. Chronic work-related stress may lead to burnout, a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment [1]. Burnout is circumscribed to the work sphere, as opposed to depression, which typically has more pervasive effects on one's personal and professional life. Over half of medical students, residents, and practicing physicians may experience burnout at any given time [2, 3]. Several specialties are at higher risk due to the intense intrinsic emotional burden: neurology, oncology, palliative care, and psychiatry, along with those who practice on the front lines – emergency medicine, family medicine, and general internal medicine [1, 2, 4]. Burnout has an insidious onset and is often recognized too late. Sadly, faculty members may leave institutions, misuse substances, lose relationships, or become depressed or suicidal as a result of unaddressed psychological strain. Lower productivity, decreased empathy, perceived medical errors, high turnover, malpractice suits, and early retirement have been associated with burnout [5]. Physicians who experience burnout also report lower patient satisfaction and adherence to treatment plans. In a survey of 7905 US surgeons, burnout and depression were independently associated with suicidal ideation [6]. Dr. Ron Epstein, leader in the field of mindfulness for health-care providers, also posits that burned-out physicians are more rigid, are less inclined toward change, and feel cynical, hopeless, and ineffective [7].

The research discussed in this chapter generally refers to physicians; however, it is also applicable to faculty in other health professions. The strategies discussed here are intended to benefit all faculty in academic health centers (AHCs). In the following paragraphs, we will discuss factors that contribute to burnout and strategies to recognize, prevent, and address burnout.

Contributory Factors

Excessive Workload

Most physicians work very hard, and when things do not seem to be going well, they tend to work even harder. However, working longer hours will not make an individual happier or more productive; on the contrary, it increases the risk of medical errors and may take a huge toll on his/her physical and mental health. Burnout has been correlated with working over 60 hours/week and

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Fig. 1 The work-burnout cycle

more than one call night per week [8]. Additionally, long hours may result in work-home conflicts which contribute to role strain, reduced spousal/partner support, and feeling less engaged with one's family. This, in turn, fosters guilt and leads to more time spent at work, which may become the only place where one feels competent and appreciated. Over time, burned-out individuals may also experience interpersonal conflict at work, creating a ripple effect of negativity and demoralization around them. Lack of support from coworkers, especially supervisors, further deepens burnout and feelings of isolation, thus creating a vicious cycle (Fig. 1).

Effort-Reward Imbalance

Academic physicians' stress level is generally very high since they are ultimately responsible for the direct care they deliver to their own patients and the care provided by their team to many more patients. Building and maintaining a successful learning environment require great dedication and attention to ineffable factors, such as professionalism role modeling. Time spent in planning educational activities and teaching is seldom compensated; more importantly, if one's

hard work is ignored or not appreciated by others, social rewards are also lacking. All the effort required to grow our next generation of health-care providers may thus yield little reward besides altruistic satisfaction.

Lack of Control

Burnout is higher among those who have an external locus of control and tend to attribute events to powerful others or to chance, as opposed to feeling empowered to influence outcomes [1]. As such, lack of control over aspects of one's work compounds burnout risk. For example, if physicians have no flexibility with regard to clinical assignments or overnight call schedule, or feel their input is not taken into consideration and decisions are made in a top-down manner, they are more likely to become disengaged and plan to leave. Additionally, regulatory constraints and health insurance barriers to offering most appropriate treatments for patients exacerbate pressures on academic health-care providers, leading to disillusionment.

Misalignment

A major reason for faculty dissatisfaction and eventual departure from academic medicine is misalignment of their vision with that of their department or institution. Faculty members' vitality is strongly linked to finding meaning in their work; loss of meaning contributes to burnout. Faculty who are able to spend at least 1 day/week on the activity that is most meaningful to them have lower rates of burnout than those who spend less than 20% time on their preferred activity [9]. In the current AHC climate, it is difficult to balance all clinical and educational responsibilities while also protecting time for creative endeavors. However, doing so provides intrinsic rewards and enhances feelings of personal accomplishment, which are protective against burnout.

Demographic and Career-Level Factors

Female US surgeons reported higher rates of burnout and depression, in part due to more family responsibilities, despite working as many hours as their male colleagues [2]. This gender difference was mirrored in a survey of approximately 2000 French hospital physicians, highlighting the cross-cultural pervasiveness of this disparity [10]. Age and experience have been shown to be inversely correlated with burnout, placing early-career faculty members at high risk, especially in the first 3 years after fellowship [11, 12].

Middle career physicians have the highest rates of burnout because they typically manage clinical and educational programs, have mid-level administrative roles which are rarely rewarding, carry heavy mentoring loads (especially women and underrepresented minority faculty), and may still not have achieved tenure and/or job security, while at home they often have young families and/or elderly parents. Dyrbye and colleagues [11] found that mid-career physicians worked more hours, took more overnight calls, and had the lowest satisfaction with their specialty choice and work-life balance, as well as the highest rates of emotional exhaustion and burnout, when compared to early- or late-career colleagues. Mid-career physicians were also most likely to plan to leave medicine in the next 2 years and not because of retirement [11]. Senior faculty members such as department chairs, medical school deans, and AHC executive leaders also face budget constraints, staffing challenges, strict requirements for educational program accreditation, and dwindling research support. In a survey of anesthesia chairs, more than half met criteria for moderate or high burnout; risk factors included low job satisfaction and diminished self-reported spousal support [13].

Recognizing Burnout

A very important step in avoiding burnout is learning to recognize its signs. Being an academic requires immense patience to accommo-date the trainees' slower work pace and decision process. If faculty members are being less tolerant with students, residents, or staff, feeling "slowed down" or burdened with teaching, they are probably starting to experience burnout. Similarly, if physicians usually enjoy spending time with their patients, but they have become cynical or inadvertently forget to return calls or check labs, it is time to assess the situation honestly. Poor sleep, irritable or labile mood (when different from one's baseline), or minor accidental injuries might indicate either fatigue or emotional exhaustion. More serious signs of burnout include clinical judgment errors, professionalism lapses, wishing that some external event would occur and prevent one from having to go into work every morning, or thinking often about retirement (even though that time is years away). If faculty members are making daily efforts to remind themselves why they even joined academia, something is probably not going well in their professional life. Ultimately, mental health difficulties can occur, such as anxiety, depression, substance use, and suicidal ideation or behavior. Faculty members should seek help as soon as they recognize these signs in themselves and encourage colleagues to do the same, if necessary (see section "Managing Burnout").

The most widely used instrument for exploring burnout in health practitioners is the Maslach Burnout Inventory (MBI). The MBI Human Services version has three scales: emotional exhaustion, depersonalization, and personal accomplishment (scored in opposite direction, as higher scores of personal accomplishment indicate lower burnout). The MBI can be administered and scored online (http://www.mindgarden.com/products/mbi.htm).

Preventing Burnout

The following strategies are derived from expert opinions, best practices in business and medicine, and our experience in developing AHC wellness programs for medical students and physicians [4, 5, 14–19].We will describe strategies for individual faculty members, for institutions, and for professional associations and regulatory

Table 1 Strategies for burnout prevention

Faculty	Academic health centers	Professional organizations
Engage in periodic reflection	Offer childcare and fitness facilities on campus	Develop policies to promote physician well-being
Manage time and energy	Family friendly policies and flexible work arrangements	Encourage development and dissemination of best practices
Maintain alignment with institutional priorities	Offer educational programs	Reward effective initiatives
Consult mentors; learn negotiation skills	Offer mentoring and faculty development programs	Change medical licensure process
Utilize self-care strategies (see section "Words to the Wise")	Develop supportive programs to monitor impaired physicians	Consider adding a self-care competency

bodies. Table 1 presents a brief overview; selected strategies will be detailed in the following paragraphs.

Strategies for Faculty

Periodic reflection will give faculty members the opportunity to clarify their priorities and see if their environment aligns with their values. Time can be set time aside in a quiet place for introspection using a simple exercise that only takes 5 minutes and can be revisited as often as necessary (see "Emotional Equation" in Appendix). There will always be aspects of one's work environment that are not ideal and others that keep faculty "hooked" in academia. It is important to closely examine both the positives and negatives. These aspects are rarely in balance, but if the negatives repeatedly overwhelm the positives, a change may be needed. The equation will also show any discrepancies between stated goals and values and actual behaviors. Redirecting time and energy on areas that are most important to each individual (family, health, relationships, service to others, work) will help faculty members regain their balance. Time management skills are

important, but in some situations, the workload is simply excessive, overwhelming one's organizational capacity. A clear understanding of one's most and least meaningful activities will help decide whether some duties need to be given up (and which ones) in order to cope (also see section "Words to the Wise").

Next, it is crucial for faculty members to clearly communicate their goals to their division chief, chair, or dean. This is especially difficult for early-career faculty, who face a power imbalance in any of these situations. Faculty development workshops on communication skills, difficult conversations, or negotiation strategies can help. These opportunities may be available at one's home institution or through professional organizations. It is also important to consult mentors (both from within and outside one's institution) who are familiar with the political landscape and can offer unbiased advice on how to best navigate difficult dilemmas. Mentors should not be people who could potentially have a conflict of interest or feel threatened by the faculty member. These strategies will ensure that faculty members have done their part to minimize misalignment and maximize the effort-reward balance.

All faculty members, whether they hold formal administrative roles or not, are pulled in multiple directions every day. Service duties, which at many academic institutions are a promotion criterion, unavoidably include committee meetings. Faculty members should understand their Myers-Briggs Type Indicator profile (see section "Additional Resources") and attempt to adjust their daily schedules accordingly. Extraverted individuals will be fine spending a lot of time in meetings, because they thrive in brainstorming sessions. However, introverts need quiet time to do creative work and to recharge their batteries. Spending too much time in meetings will be exhausting, and they may feel like nothing got done while they were away from their desks. Feeling ineffective and overwhelmed will render faculty members more prone to burnout.

Epstein and Krasner [14] recommend practicing mindfulness to increase one's self-awareness and self-monitoring capacity. Besides formal

mindfulness practice such as meditation, yoga, and other mind-body practices, physicians can develop habits, such as "slowing down when you should" (for surgeons in the operating room), pausing before entering the next patient's room (for high-volume practice family physicians), and using reflective questions to debrief after difficult patient encounters [14]. With further deliberate practice, providers can use reflective questions in real time, during a challenging patient interaction, and this can help guide their reaction, turning the situation into a positive experience for both patient and provider [7]. Most importantly, Epstein [7] recommends to remain present and curious in the moment and to not withdraw from the human interaction with the patient, even if this is difficult. Zwack and Schweitzer [15] interviewed 200 German physicians and culled the following resilience-enhancing strategies, which can help prevent burnout:

1. Seek and cherish rewarding aspects of patient interactions.
2. Engage in leisure-time activities, limit working hours, and pursue continued professional development.
3. Focus on positive aspects of work, understand and accept personal and professional limitations, and use reflective practices.

Strategies for Institutions

Most burnout preventing strategies target individuals at risk; yet burnout is still rampant, highlighting the importance of institutional culture changes to foster physician well-being. Institutional strategies to prevent and reduce burnout may include promoting physician autonomy through participation in decisions affecting medical practice and increased control over schedules; adequate support services and sufficient coverage to allow physician time off; and appropriate vacation time and periodic sabbaticals [5]. Flexible work arrangements, allowing time off for child rearing or caregiving for ill family members, are desirable yet still not an integral part of every academic institution's cul-

ture. Temporary part-time appointments with reduced duties or "stop-the-clock" policies for those on the tenure track support faculty in remaining successful as they traverse busier or more difficult times in their personal lives. Many institutions have adopted family-friendly policies (see section "Additional Resources").

AHCs can also help physicians to become more aware and active in pursuing their own health by offering faculty development and mentoring programs, extended hours of childcare and fitness facilities on campus, and educational resources dedicated to burnout recognition and prevention, work-life balance, and other wellness-related topics. Academic institutions can offer free, confidential burnout or mental health screening, although this must be paired with access to appropriate resources [16]. The University of California San Diego School of Medicine is a champion in this arena, having implemented a comprehensive suicide prevention and depression awareness program [17].

Strategies for Professional Organizations

Professional associations, state medical boards, and AHC accrediting bodies can play an important role in burnout prevention. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandates that hospitals have processes to promote physician wellness, while the Accreditation Council for Graduate Medical Education has imposed duty hour limits for all residents and requires education on sleep deprivation. However, often these organizations have a punitive approach (they will cite or fine an institution that lacks the mandatory programs) instead of rewarding institutions for effective initiatives.

The Royal College of Physicians and Surgeons of Canada and the UK General Medical Council have included a self-care competency [5]. Similar guidelines have yet to be adopted in the USA [4]. US professional organizations could follow suit in expanding physician responsibilities to include an explicit duty to attend to one's own health and

wellbeing. Once again, policies should not just put more pressure on physicians but, rather, encourage institutions to help doctors attain and maintain wellness. Offering resources and supporting the implementation and dissemination of best practices is another way in which professional organizations can help promote a culture of wellness among health-care providers. Additionally, concerns for negative repercussions on licensure and credentialing are real barriers to care. In a recent survey, only 26% of surgeons who had experienced suicidal thoughts in the previous year had sought mental health services, while over 60% cited reluctance to do so, due to concern this could affect their license [5]. Changes in the medical licensure process that balance the concern for public safety with the physicians' need to get treated for emotional problems without fear of losing their ability to work would greatly reduce stigma and encourage help-seeking behavior.

Managing Burnout

Each institution should have an employee assistance program that offers a limited number of free sessions, followed by referrals into the community as necessary. This is a very good first step; it will also help assess if any changes need to be made or if one should take time off. A 4–6-week leave will allow the much needed time to rest and put things in perspective. This is not the moment to worry about all of one's patients or projects that will fall behind. Faculty members will be happier and more productive once they have made some changes and restored their physical and emotional balance.

In addition, hospital medical staff well-being committees, mandated by JCAHO, are peer groups that will help providers get enrolled in monitoring programs, should substance use or a medical, neurological, or psychiatric problem occurs (see section "Additional Resources"). Finally, psychotherapy and medication management are provided either free or as covered by

health insurance at all AHCs. It is very important to keep the academic evaluation process separate from the provision of sensitive health services. Confidentiality and easy access are paramount in order to facilitate utilization of resources.

Solid evidence supports the effectiveness of various mindfulness-based interventions in reducing burnout in physicians and physicians-in-training. A randomized control trial examined the efficacy of an intervention consisting of 19 biweekly physician small groups combining elements of psychoeducation, mindfulness, reflection, and shared experience. At 3 months, rates of high depersonalization were lower by 15.5% for the participants in the intervention arm, compared to 0.8% increase for controls, and this difference was sustained at 12 months [18]. A recent review and meta-analysis also found that interventions based on psychoeducation, interpersonal communication, and mindfulness meditation led to burnout reduction in physicians [19]. Additionally, cognitive, behavioral, and mindfulness-based interventions were associated with decreased anxiety symptoms in both physicians and medical students [19]. Reducing provider burnout also translates into better health-care outcomes. In a study of 45 physicians, nurse practitioners, and physician assistants, clinicians with high mindfulness qualities consistently engaged in patient-centered communication, and their patients reported high overall satisfaction with the care [20].

In summary, burnout is a state of chronic psychological exhaustion and disenchantment with one's work that occurs in at least half of physicians and physicians-in-training. Risk factors are deeply embedded in the landscape of contemporary health care, which does not allow space for meaningful physician self-care. Left unaddressed, burnout can have serious consequences for physicians, their patients, coworkers, and families. It thus behooves institutions and professional associations to become more active in raising awareness and developing programs for burnout recognition and prevention. Broad cul-

ture changes will be necessary to combat this epidemic that threatens the vitality of our profession and, ultimately, of our society.

Key Concepts

- Burnout = psychological syndrome that occurs in response to chronic work-related interpersonal stress, consisting of emotional exhaustion, depersonalization, and low personal accomplishment [1].
- Resilience = ability to respond to stress in a healthy, adaptive way such that personal goals are achieved at minimal psychological and physical cost [14].
- Burnout and resilience are at the opposite ends of the spectrum [7].

Words to the Wise

- Spend time with family and friends.
- Set time aside to talk with your spouse/partner.
- Exercise; meditate.
- Maintain a healthy diet and get adequate sleep.
- Take email-free vacations.
- Don't expect to fulfill any role perfectly (spouse, parent, physician, adult child).
- Prioritize work opportunities and learn how to say no.
- Consult mentors, coaches, and trusted colleagues about difficult work situations.
- Ask for help!

Ask Your Mentor or Colleagues

- What is my most meaningful professional activity, and do I spend at least 1 day a week doing it?
- What can I (am I willing to) give up in order to spend more time on this activity?
- How can I negotiate this change with my chair (division chief, dean)?
- If I am not successful in negotiating this change, what can I learn from this experience?

Appendix: The Emotional Equation

Values

Write down your three most important values.

Strengths

Write down three of your strengths.

Behaviors

Write down three behaviors which show that you "walk the walk" (practice your values).

Challenges

Write down three things you strongly dislike about your current work situation.

Emotional Equation

Review the positive (behaviors) and negative (challenges) aspects in your current work situation.

Positives	Negatives

Make a Commitment

If there are more negative than positive aspects, write down one thing you will change in your work situation.

Next, start planning how you will accomplish this change.

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How to Manage Personal Finances

David J. Peterson and Roger D. Strode

For the academic faculty member, managing personal finances is as essential as the time, effort, and planning that were invested to acquire the educational credentials to support an academic appointment in medicine. After devoting years of study to achieve an MD or PhD degree, and then more years in residency, fellowship, or other postdoctoral learning programs, the academic faculty member needs to attend, with equal fervor, to his or her financial health in order to sustain the academic career and allow it to flourish. Simply stated, the academic faculty member's investment in education requires a return on that investment, and this return can be measured in a variety of ways. Certainly an example of such a return is academic success evidenced through scholarly work, but an equally important return is also realized through a salary, benefits, and a myriad of other financial products that provide for his or her financial well-being throughout an academic career and extending through retirement.

Managing personal finances can be viewed as one component of taking care of "Me, Inc." and in fact was characterized as such in a keynote address at an annual conference of medical group professionals [1]. "Me, Inc." goes beyond thinking of oneself in the financial context of a salary alone and extends to thinking of oneself as a business, a multifaceted business with a diverse set of intangible and tangible assets such as education, reputation, bank, and investment accounts, home, and other household and material goods. "Me, Inc." also includes liabilities such as educational loans, home and auto loans, and other financial commitments such as credit card debt, to name a few. The difference between the academic household's financial assets and liabilities can be viewed as *net worth*, a number that will ideally grow to a large positive number that can sustain the faculty member throughout his or her life.

Just like managing any business, managing "Me, Inc." requires knowledge of some fundamental personal finance principles and products along with an ability to think in both short and long terms. It means financially planning for a "worst case" like death or disability; planning for both welcome and unwelcome health events; planning for financial surprises; planning for an eventual retirement, long-term care, and eventually death; and certainly planning for all of the living that occurs in between.

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Personal Finance Basics

Because the topic of personal finance touches everyone, everyone has an opinion and is often not afraid to share it. Name a "money" topic, and there will be a variety of opinions, opinions that can be confusing and conflicting. Need a car? Someone will state that it is better to lease versus buy, while an equally persuasive argument can be made for a purchase over a lease. Need a place to live? Conventional wisdom states that buying a home is a "good investment" but that is not always the case. Got some money to invest? Financial experts in the guise of investment advisors, money managers, financial planners and insurance salesmen—all with the perquisite credentials—will make equally compelling arguments in favor of stocks, bonds, real estate, precious metals, and insurance products, to name a few.

Fortunately, there are a few commonly accepted demographic trends and principles in the financial world that can help guide the academic faculty member through the maze of products and options.

Demographically, data show that the general US population is living longer and is more active as it ages. For example, according to the Centers for Disease Control, the average life expectancy for an individual in 1980 was 73.88 years. In 2007 the average life expectancy grew to 77.9 years [2]. Along with living longer, senior citizens are more active, "pursuing freedom, not retirement" [3]. This trend of increasing longevity coupled with a more active lifestyle affects how much the academic family should save, how long the academic faculty member will work, and what kind of lifestyle expectations can be afforded. "Saving more and working longer" are obvious answers, but even these answers are clearly dependent upon an individual's goals, expectations, and health.

To ensure that a family has enough funds to support these trends, it helps to remember a principal principle in money and finance. The *time value of money* is a foundation principle stating that the value of money will change over time at varying interest rates. It can either go up or down,

depending upon the interest rate and whether the money will be collected in the future or in the present. For example, $100 now growing at a 5% simple interest rate will be worth $105 at the end of 12 months. This would be the *future value* of money. Conversely, the *present value* of $105 12 months into the future, discounted at the same interest rate, represents $100 now [4].

The time value of money is a financial principle that underlies the value of general savings accounts, certificates of deposit, stock, and bond investments, and it is used in house mortgage and other lease/buy calculations and is certainly a fundamental principle in calculating the value and cost of insurance products, for example. It is the concept that allows household savings to grow over time, sometimes to large amounts, even with small but steady contributions early in a career.

An example of how time affects the value of money, the *Rule of 72* (72/interest rate = years to double), is an easy way to calculate approximately how long it will take for a sum of money to double at any given interest rate [5]. For example, if an individual invests $1000 now at an interest rate of 6%, the money will double to $2000 in approximately 12 years (72/6 = 12). At a 12% interest rate, that sum will grow to $2000 in approximately 6 years (72/12 = 6).

Financial experts will also point to other generally accepted rules of thumb:

- The idea that some debt is "good," especially debt for a tangible asset that appreciates in value, such as a mortgage for a house. Conversely, some debt is "bad," with revolving debt, i.e., credit cards, as the prime example [6].
- A "pay yourself first" philosophy that essentially states that an individual or family— "Me, Inc.," for example—should stand first in line when paying bills each month. "Pay yourself first" usually means a contribution to a savings account or other investment account, just as one would pay another bill such as the phone, electricity, or gas bill. Automatic savings plan such as those with a payroll deduction or through an automatic, regular monthly

withdrawal for a savings account is a classic way to execute this plan [7].

- A philosophy that "tax deferral and avoidance" are usually good financial strategies. Tax evasion is clearly illegal, but tax avoidance and tax deferral are legitimate strategies to utilize when managing personal finances. A smart tax strategy makes assumptions though, assumptions such as future income (is it rising or falling?) or future federal and state tax policy (are rates rising or falling?). The answer to either might mean paying taxes now is a smarter strategy than deferring taxes into the next year where future income might be subject to either higher rates or a higher income tax bracket. Pre-tax payroll deductions and an effective use of flexible spending, health, or dependent accounts are also useful tools when deploying a tax-deferral/avoidance strategy. Saving for retirement through tax-deferred investment vehicles such as 401(k)s and 403(b)s is an ideal example of deploying such a tax and savings strategy.

- An opinion that fee-based financial advisors are preferable over advisors that earn their fee from commissions on the type of investment sold. As a general rule, fee-based advisors are considered more impartial and in theory offer unbiased investment advice because their fee is not based on the type of investment strategy used, such as that with advisors who make a commission on the type of investment chosen [8].

- A mantra of "diversify, diversify, diversify." Most everyone will agree that smart money management and "downside" risk management—in other words, "protecting the household net worth"—require a diversification of investments over several financial products such as a house, insurance, cash and money market accounts, stocks and bonds, and other investment vehicles. The theory is, quite simply, that when one asset goes down, the other assets will retain their value or even increase, offsetting the loss in one asset. This notion was sorely tested in the world financial crisis that began in 2008, but diversification is still considered a prudent financial strategy [9].

Finally, most experts and advisors will agree that effective money management requires some level of professional expertise. Given the complexities and varieties of money management choices today, both the time to manage the household finances and the expertise to do so need to be available. Often there is a paucity of at least one, if not both, so when that is the case, identifying a trusted advisor—ideally fee-based as noted above—is a wise strategy.

Personal Income Management

During his or her working years, a cornerstone of annual income for "Me, Inc." will likely be the academic faculty member's *annual salary*, based on some type of pay scale established by the State (if a public institution) or by some other benchmark such as the Association of American Medical Colleges (AAMC). The baseline salary for the faculty member is often negotiated and established in the hiring process. Thereafter, changes in annual salary are often governed by the cost of living, merit, changes in rank, and years of service to name a few. In some instances, bonuses or other incentives may increase the annual salary.

In addition to an annual salary, a generally rich package of other *fringe benefits* usually accompanies an academic appointment. Benefits such as annual vacation, sick leave, and insurance coverage are standard. Insurance coverages usually include a major medical insurance package, dental insurance, life insurance, and short- and long-term disability coverage. Generous sick leave allowances are sometimes offered in lieu of short-term disability, but in any event, the faculty member should be protected in the case of an inability to work in either the short or the long term.

A relatively new addition to the standard package of benefits is some form of "flexible spending account" (FSA) that allows the faculty member to shelter salary dollars on a pre-tax basis to support certain medical, dental, and dependent expenses. What can be purchased or supported by

these pre-tax dollars and how much can be sheltered are defined by federal tax and health-care rules. Usually, there is a "use it or lose it" aspect to sheltering such dollars—that is, no carryover of unspent funds from year to year.

Health-care savings accounts (HSAs) are also a newer pre-tax option for faculty. HSAs allow for sheltering salary dollars to pay for medical expense, and these too are defined by law but are often allowed to carryover from year to year.

The advantage to both FSAs and HSAs is the ability to shelter salary income from taxes for expenses that the faculty member would or could incur and normally would pay for with after-tax salary dollars. The savings can be significant. For example, a faculty member in a 30% tax bracket can shelter $1000 in support of eligible expenses at a cost of only $700.

Finally, some type of eligibility for a retirement plan is a standard component of an annual salary and benefit package. There are two basic types of retirement plans, a *defined benefit* and *defined contribution* plan [10]. Defined benefit plans, offered by ever fewer employers, generally define a retirement benefit using a formula that is based on years of service to an organization. A simple defined benefit formula might be "years of service $\times$ 2% for each year $\times$ the average of the last 3 years of salary." Using this formula, for example, a faculty member with 35 years of service and an average annual salary of $100,000 could expect annual retirement income totaling $70,000 ($35 \times 0.02 \times \$100,000$). There are a number of pros and cons attached to such plans. Some of the pros include simplicity and predictability, while one con is the limited choice that such a plan offers along with the limited ability to change employers.

Defined contribution plans, on the other hand, define the contribution the organization is making toward the retirement plan, rather than the benefit. Such plans (usually defined and allowed under 401(k), 403(b), or 457(b) tax law) usually require the faculty member to contribute x % of his or her annual faculty salary, matched by an organizational contribution of X% of the faculty member's salary [10]. These funds are then regularly directed into a mutual fund account contain-ing investment options (stocks, bonds, money market, real estate investment trusts, etc.) that will rise or fall with the economic climate. For example, a faculty member earning $100,000 annually might have a defined contribution plan that requires the faculty member to contribute 5% of gross income that is then matched with a 10% contribution by the organization, allowing a total of $15,000 annually to be contributed to a mutual fund of the faculty member's choice.

Defined contribution plans generally have a mandatory participation provision and a mandatory minimum employee contribution. There are usually opportunities to contribute beyond the mandatory employee contribution, and most financial experts advise clients to take advantage of any *voluntary opportunities* to contribute beyond the mandated contribution. Such opportunities have the obvious advantage of deferring more income and allowing such deferrals to grow tax-free over time.

In theory, and referring back to the *time value of money*, these *regular contributions* to a *diversified investment account* will grow to a sizeable amount of money that will adequately fund a faculty member's retirement. One of the keys to success with this type of plan is to begin saving early and often. One advantage of such a defined contribution plan is that the faculty member can choose how the funds are invested, a choice that will eventually affect the total retirement funds available upon retirement. Also, the faculty member can choose how much to draw out of the account in any given retirement year, but such decisions have tax consequences; that is, withdraw too little and tax penalties are incurred, while withdrawing too much results in higher taxes as the faculty member's income moves up into higher tax brackets. A disadvantage to the plan becomes evident when the faculty member starts saving too late, or makes poor investment choices, thereby diminishing the amount of funds available upon retirement.

On a final note about retirement plans, the faculty member might come across the term *vested*. According to the US Department of Labor, individuals are "vested" after they have a right to funds that have been invested on their behalf or

when they are fully eligible for the retirement plan benefits. "Vesting" can be immediate or occur in increments toward "full vesting" over a period of time [10].

Personal Investment Management

In addition to annual income, another component of "Me, Inc." is the smart management of investments and other income both now and into the future. As noted above, it is likely the annual salary and commensurate benefits attached to the faculty member's position that will contribute to building an investment portfolio. Certainly other household income such as a spouse's potential salary, inheritance, outside consulting, and other income may also contribute to a household net worth.

Building savings and investments is a function of one's stage in life. It is not uncommon for individuals early in their career to begin with a negative net worth (more liabilities than assets) but then watch their net worth change to the positive as their career progresses, annual income grows, loans get paid off, homes are purchased, and savings plans mature.

Financial advisors often suggest thinking of savings in at least two "buckets," with one bucket identified for the short term. The common rule of thumb for this bucket is 3–6 months of readily accessible cash that can adequately cover monthly living expenses in the case of job loss, a health or other life event, or other unplanned emergency. The general investment tools recommended for such savings are generally low risk and can be easily redeemable certificates of deposit, money market, and other cash-type savings accounts.

The second bucket of savings is for the long term (also known as "retirement" in this instance). Because these types of savings and investments are intended to extend over decades, they are generally in accounts less accessible, generally carry financial penalties if accessed prematurely, and often carry more risk, to achieve maximal growth. As noted earlier, 401(k), 403(b), and 457(b) plans are the most common deferred compensation tools used to save for the long term. These plans have the advantage of setting aside pre-tax income into the account and also the advantage of tax-deferred growth while the funds are in the account.

Two other common methods to shelter income and save for the long term are the individual retirement account (IRA) and the Roth IRA. The former allows for sheltering annual income on a pre- and after-tax basis and deferring taxes until withdrawals occur, while the latter allows for after-tax sheltering of funds that will grow in a tax-deferred manner but also allows for tax-free withdrawals. When using such investment tactics, investors need to remain mindful of Internal Revenue Service definitions and limits on eligible contributions for all types of tax-deferred retirement savings.

The level of *financial risk* and the degree of *financial diversity* that an investment portfolio contains are key contributors to how fast and how much the retirement accounts will grow. Low-risk investments such as passbook savings, money market accounts and savings, and other types of bonds can be secure, but the trade-off for that security is lower returns and slower growth over the long term. Adding more risk and diversity to the investment portfolio will create higher returns, but also be less secure, especially in the short term. Higher risk often means higher volatility in the investment account, so it is always important for investors to understand their level of risk tolerance, the length of time the funds will be invested, and the ultimate goal of the investment account.

Such analysis requires time and expertise, and in the absence of both, as noted earlier, there are a variety of financial experts who can assist with such thinking and analysis.

Personal Risk Management

When running the business of "Me, Inc.," the faculty member, as would any good Chief Executive Officer, must consider how to manage the risk of the enterprise—in this instance, personal risk. The Oxford English Dictionary defines *risk* as "the possibility that something unpleasant or unwelcome will happen" [11]. Many of the

chapters of this book deal with the concept of managing and developing one's professional life. This chapter involves financial concepts related to one's personal life and protecting "Me, Inc.'s" personal wealth and loved ones from the possibility of something unpleasant or unwelcome.

Risk is a concept that has been around for generations, and, as a result, the solutions available to manage risk have been around almost as long. Like any good strategy, risk management is not one "thing" but, rather, a set of programs designed to complement each other. As the paragraphs below illustrate, personal risk management generally involves a combination of insurance (professional liability, life, home, auto, umbrellas, etc.) and well-drafted legal documents that anticipate one's incapacity or death. Each one of these is a necessary tool to a well-developed risk management strategy.

Insurance as a Risk Management Strategy

Insuring risk is a time-tested method of managing the potential of personal calamity. Some types of insurance are mandated by law or by the ordinary course of business; other less common types are a matter of personal preference or (as will be shown below) are simply good practice. While the list of coverages one should consider may seem overwhelming, and the cost imposing, the risk of doing nothing and the potential downside of an insurable event are far more problematic.

Professional Liability Insurance

Faculty physicians and other faculty clinical providers are at risk for their own professional conduct. In a litigious society, clinical providers are held to very high standards and, rightly or wrongly, blamed for bad things that happen to their patients. While the psychological damage that results from being sued for malpractice can be great, the financial loss can be devastating. In order to protect patients, as well as to protect

clinical providers, most states require practicing clinicians to carry certain minimum amounts of *professional liability coverage*. For example, in order to maintain a license to practice medicine in the State of Wisconsin, a doctor must carry liability insurance with coverage limits of $1 million per occurrence and $3 million in the aggregate (annually) [12]. In addition, he or she must also participate in the so-called Patients Compensation Fund maintained by the State of Wisconsin to pay for damages in excess of the above-described coverage limits [12].

As one might imagine, the cost of this type of insurance can be high and, in some states with active plaintiff's bars, difficult to obtain. In most instances this insurance will be mandated and procured by the faculty clinician's employer. Depending upon the faculty compensation plan in place, the cost of this insurance may be considered general overhead, factored into the physician's overhead computation when calculating incentives, or less frequently, the cost can simply be deducted from his or her salary.

Health and Long-Term Disability Coverage

Other critical components of a personal insurance strategy are *health and disability insurance*. With recent changes to federal law, specifically those occasioned by the Patient Protection and Affordable Care Act of 2010 (PPACA), each person over the age of 26 is legally required to maintain health insurance, and insurers are required to provide coverage regardless of pre-existing conditions. (At the time of this writing, there are a number of legal challenges to the so-called individual mandate found in the PPACA.) Luckily and as noted earlier, for most faculty in academic medical center settings, health insurance is an employment benefit provided by employers. The cost of all, or some, of this insurance is likely to be paid for by the academic institution and, likely, the remainder by the faculty member through payroll deductions. It is noteworthy that the high cost of health insurance and the changes required by the PPACA have resulted in creative

arrangements that will allow an insured to hold down his or her individual cost. For example, many insurers now offer "high deductible" plans, which place the risk of the first $1500–$5000 of health-care costs on the insured. In many cases these deductibles can be paid for with pre-tax dollars through health savings accounts (referred to as "HSAs" and discussed earlier), reducing further the cost of health insurance and, as noted earlier, lowering taxable income.

Closely related to health insurance is *disability insurance*. While health insurance pays medical costs, it does not replace the income lost due to one's inability to work because of a medical condition. Should one become ill or injured and, as a result, not able to work for long periods of time, personal wealth can be quickly depleted. Disability insurance can help manage this risk by paying the disabled person a portion of his or her income in the event of a disability. As noted earlier, this insurance will usually be offered as part of an employment package and, if not, is available from a variety of private insurers. That said, there are pros and cons to carrying disability insurance.

As noted above, disability coverage replaces income lost due to the inability to work, thus protecting savings, investments, and other assets, such as home equity. Moreover, insurance payments from private insurers should not affect the ability to obtain government disability benefits, such as those paid by Social Security. In addition, if disability insurance premiums are paid with after-tax dollars, disability benefits should not be taxable. That said, disability insurance premiums are not inexpensive. The average cost of group coverage is approximately $250 per month and can be higher if purchased on an individual basis [13]. In addition, should premiums be paid with pre-tax dollars or by an employer, some or all of the benefit payments will be taxable. In addition, most will have to wait up to 4 months in order to start receiving benefits, during which time living expenses will need to be covered by personal savings should the faculty member's employer fail to continue salary during that waiting period (please note that for faculty physicians, many employment agreements provide for salary continuation

during the waiting period prior to a finding of permanent disability). Finally, disability insurance does not cover 100% of lost income (and contains a "hard cap" on total payments) and is not a permanent solution as very few policies provide benefits beyond normal retirement age [14].

Life Insurance

In general, *life insurance* is designed to replace lost income, and take care of one's dependents and loved ones, in the event of the death of the insured. The amount of insurance and the type of insurance one may decide to carry, if carried at all, often are a matter of debate.

In general, there are two types of life insurance: *term* and *whole* (*or universal*) *life*. *Term* insurance is considered a "pure" type of insurance; the faculty member's life is insured for a large sum of money, and all premiums paid are retained by the insurance company and used to cover the cost of insurance, and the payout, should one occur. Generally, as soon as life insurance payments for premiums cease, term life insurance coverage simultaneously terminates. Because it builds no cash value, term insurance is usually less expensive than *whole life* insurance, a product offered by many insurance and financial services companies containing both a "pure" insurance component and an "investment" component.

A whole life insurance policy increases in value over time as a result of the investment component and can be surrendered for its cash value, or the cash value can be used to continue to pay the whole life insurance premiums at some point in the future.

Because of the investment component, whole life insurance is substantially more expensive than term coverage. The debate between term and whole life coverage is whether or not whole life is worth the extra cost. Many financial experts believe that one should buy term insurance and simply invest the difference between the cost of term and whole life. Conversely, other experts will tout the investment performance—sometimes guaranteed—of their whole life insurance product

and the current tax-deferred growth it offers. The question for most is whether or not the insured believes that the insurance company can invest his or her money better, and cheaper, than can he or she.

In addition to the type of insurance to be purchased, the amount of insurance coverage also has to be considered. This question is not as easy as it might sound. There are a substantial number of factors that go into this determination, such as age, the amount of personal wealth owned by the insured and its liquidity, the number and age of dependents, and the debts left upon death. Be careful about relying on "rules of thumb" such as buying six-to-eight time's annual income as one may find him or herself over, or under, insured. The academic faculty member is well counseled to consider his or her personal circumstances and needs before buying insurance and, only then, buying accordingly.

Home, Auto, and Umbrella Insurance

If one owns a home, and carries a mortgage on that home, the mortgage lender will require that the *home be insured*. Even if the home is owned free and clear of mortgages, it is wise practice to carry insurance on the home and its contents. A *standard homeowner's policy* will cover the home and personal effects, as well as the homeowner's liability for injuries or property damage caused to others by the homeowner, his or her family members or pets. Most policies also provide additional dollars to cover living expenses in case the home cannot be lived in while it is being repaired. In this regard, it is important to understand what a policy covers and what it does not cover. Most policies are designed to cover all *perils* other than those specifically excluded in the policy. Before one purchases homeowner's insurance, he or she should read the policy or have it explained. In most cases, homeowner's policies do not cover events such as earthquakes or floods, risks which must be separately insured. In addition to the above, it is important to understand coverage limits. Most insurance experts

advise that the cost to rebuild the home should be insured, not its market value. This is especially important during times where market values have dropped dramatically, such as since 2008.

Nowadays, most states require that an automobile driver carries insurance. To be clear, *automobile insurance* is not insurance on the car; it is insurance on the driver. There are, generally, three types of automotive insurance: *personal liability and personal damage*, *comprehensive*, *and collision*. *Personal liability* and *personal damage coverage* (PLPD) generally only covers personal liability and personal damage for which the driver is responsible. It will not, however, cover vehicle repairs or replacement of the vehicle. This type of coverage is, generally, the cheapest form of auto insurance. *Comprehensive and collision insurance*, on the other hand, are considered "full" coverage and will cover the driver as well as the other people and property involved in an incident. For example, collision insurance covers the cost of repairs or replacement for the vehicle and property caused by a collision. Comprehensive covers losses from situations other than collisions. These types of insurance are, often, more wise to carry than simple PLPD coverage but, of course, are more expensive. As with homeowner's coverage, it is important to understand what is, and is not, covered. For example, the cost of towing, a rental car and medical care arising out of an auto accident generally are not covered and must be separately insured.

Closely related to home and auto coverage, and worth considering should personal wealth or earnings be significant, is *umbrella coverage*. *Umbrella* coverage will protect the insured from major claims and lawsuits by providing additional liability coverage above the limits of homeowners and auto policies. For example, if a faculty member or family member is at fault in an auto accident and the other party is badly injured and incurs damages exceeding limits of the automotive policy, the faculty member's personal assets could be at risk for such excess loss unless umbrella coverage is carried. In this instance, if there were a loss incurred above the limits of the insured's automotive policy's bodily injury coverage, an umbrella policy would cover the

excess loss. Umbrella policies are generally carried with coverage limits of no less than $1000,000 and are relatively affordable.

Other Risk Management Tools

In addition to insurance coverage, there are several other effective, and relatively simple, ways to manage personal risk: ensuring against *identity theft*, developing *powers of attorney* (such as *financial* and *health-care powers of attorney*), and creating a *will*. Each of these legal instruments will provide those around the faculty member with instructions as to what to do if he or she is too ill to direct his or her own affairs and, further, give them certainty relative to the faculty member's affairs and estate following his or her death.

Identity theft is increasingly prevalent with an estimated 7% of US residents 16 and older affected [15]. Sadly, personal data breaches in both private and public sectors frequently make headline news. These types of breaches have both personal and financial costs, disrupt lives, and can often take up to 6 months and hundreds of hours of work to recover [16]. In addition to a heightened personal awareness to minimize exposure to such breaches, insurance can be purchased to mitigate against identity theft and to provide financial assistance should such a theft occur. This type of insurance can be bought in the private sector or is more frequently offered through employer-sponsored plans.

Health-care powers of attorney are becoming increasingly common and come in several forms. This instrument, usually prepared by an attorney, will direct one or more persons (who will act as the faculty member's agent(s)) to make decisions on behalf of a person regarding his or her medical care in the event they are no longer able to make or communicate those decisions. The benefits of a well-designed document are many, and the downsides of drafting and maintaining such an instrument are few (if any).

Most health-care powers of attorney give the faculty member's agent the authority to make decisions and communicate with doctors, hospitals, nursing homes or health-care facilities, and any other health-care personnel. A standard health-care power of attorney gives the agent the authority to, among other things, consent to the administration of pain-relieving drugs and to any treatment the agent believes is in the best interests of the person under medical care and consistent with such person's wishes, withdraw or consent to life-sustaining treatment in the event that the person under care is in a terminal condition, request copies of and review health-care records, disclose those records and information to others, and select and employ health-care providers.

The form of a power of attorney can be as simple or as detailed as one wishes. As should be evident from the discussion above, the document will provide loved ones with a degree of certainty as to what to do in the event a person cannot direct his or her own care. Moreover, a well-drafted power of attorney can help ease some of the emotional burden of an already strained situation and, further, may help ameliorate costly bickering among family members and unnecessary legal fees occasioned by health-care providers seeking "cover" for their decisions relative to the care of someone who is unable to direct that care. A financial power of attorney functions in much the same way as does a health-care power of attorney. Rather than allowing the agent to direct medical care and treatment decisions, the financial power of attorney allows one's agent to direct and take care of financial matters.

A final, necessary, component of a personal risk mitigation strategy is the preparation of a *will*. The primary purpose of a will is to direct the distribution of one's assets (often referred to as an *estate*) in the event of death. Should a person die without a will—known as dying *intestate*—the distribution of most, if not all, of the deceased's assets will be guided by state law, which may be contrary to a person's actual wishes (were he or she to be alive). By creating a will, the CEO of "Me, Inc.," again, creates a level of certainty for those whom he or she leaves behind. A will directs the distribution of a person's estate and ensures that those who are to receive his or her assets, or the income or distributions from those assets,

receive them. In addition, if properly prepared in conjunction with a thoughtful estate plan, a will can mitigate the effect of, what can be, devastating estate taxes, thereby preserving the value of the assets passed along to a spouse, children, and others. Dying without a will, or dying with a poorly constructed will, can result in assets being distributed contrary to one's wishes, cost the estate vast sums of money (lost to state and federal taxes), or devolve into family fights over assets, clearly not a legacy one would wish to leave.

Most will agree that personal risk management is not pleasant and it is not inexpensive. However, when done thoughtfully and carefully, it can mitigate the cost and loss resulting from an unwanted or unpleasant event. Moreover, smart risk management can provide one's family, friends, and loved ones with peace of mind should the unfortunate happen.

Conclusion

"Me, Inc." is really a complex business comprised of annual income management, investment management, and risk management. Each of these areas, with their own complexities, requires careful thought and consideration, all with the goal of ensuring financial security and supporting a personally and professionally robust and satisfying life.

Smartly managing personal income by knowing and understanding the full range of benefits offered by the academic employer is a key component toward this goal. Faculty need to take advantage of every opportunity the employer offers to contribute to his or her financial well-being, either through enrolling in benefits, deferring salaried income, or joining various insurance plans.

Moving beyond the base salary, faculty need to think about saving and investing for both short and long terms. Understanding different investment tools, how to maximize savings through tax-deferred investments combined with the right mixture of risk and diversity, is a must.

Finally, recognizing first that there are risks in life and then understanding the different ways to manage and plan for these risks is a critical feature of managing personal finances. Protecting members of the academic household, ensuring against catastrophic events, and developing an end-of-life plan are part of risk management and the last essential component of a "Me, Inc."

The faculty member who remembers some general rules of thumb, seeks advice when necessary, thinks in both short and long terms, and has a risk management plan in place for the unforeseen, unknown, or unexpected event will do well.

Words to the Wise

- Review wills, durable powers of attorney, and beneficiary information in such documents as insurance policies regularly.
- Check investment portfolios regularly, but not too often. After establishing an asset allocation strategy, checking portfolios no often than quarterly or semiannually is generally recommended, but no less than annually. This minimizes the risk of overreacting to transient news and events.
- The cost of hiring an attorney to design a simple will and establish powers of attorney varies by city and region but will likely cost between $1000 and $2000.
- "Virtual banks" (no bricks and mortar) can be an effective way to maximize interest earnings on savings accounts, but these banks can be more restrictive with withdrawals and the frequency of the same.
- Credit unions are often more consumer friendly and can offer affordable house and auto loans and can also offer marginally better interest rates on savings accounts and certificates of deposit.
- Know your comfort level with risk. The tolerance for risk can change with the stages of life where more risk can be tolerated early in a career and less risk is recommended for later in a career and retirement.

Ask Your Mentor or Colleagues

- What happens if I don't contribute to a retirement plan?
- Who should I consult when performing some estate planning?
- What value does an accountant or financial advisor add to my financial planning? Do I need either?
- Do I really need all of these insurances described in the chapter?
- What personal steps can I take to minimize my vulnerability to identity theft?

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How to Bring One's Knowledge to Improve the Lives of Others

Philip A. Pizzo

While each of our life journeys is distinct and even unique, most of us who chose a career in academic medicine share in common a deep personal fulfillment that comes from pursuing unchartered questions, making discoveries, educating students and trainees, learning constantly, and being able to bring one's individual and collective knowledge to improve the lives of others, especially those suffering from illness or disease. I am not unique in those goals and aspirations. However, as I reflect on the course of my own career, I also recognize that during its various stages, including its ups and downs, starts, and restarts, it would have been impossible to predict the path ultimately traveled. I didn't plan most of what has transpired over the past several decades. Looking backward, the seemingly distinct threads of my own career, each a different journey, some of which I anticipated, but many others of which were the result of unexpected forks in the road, now seem to have woven together in a pattern that makes sense to me, at least in retrospect. But that too is one of the great fulfillments of a career in academic medicine—one's personal career portrait is really defined by looking backward

rather than forward. This does not mean that one's career is unplanned—but, rather, that adventuring in the unknown can lead to the greatest fulfillment—in time, space, and personal growth.

The individual threads of one's career are bound by common principles that glue and connect them. At least for me, these have been the very deep sense and resolve that one's career is more of a "personal calling" than a job. A career is something one relishes and is excited about—not just something to fill time and space or to march in the path of proscribed expectations. Linking the threads of one's academic career is a sense of vision and mission—often to tackle the big challenges that negatively affect the lives of others or that threaten the integrity of institutions and individuals we value and admire. To the contrary, it should not be about the gathering of titles or superficial "metrics" of success—in academic medicine or beyond. In themselves, titles and positions are simply transition points to me, not stopping places. When they become endpoints or goals in their own right, they can blunt creativity and the sense of risk that makes science and medicine so exciting. Although we all work at institutions and serve as its leaders, when the need for a "position" and the trappings of power become goals in their own right, the opportunities for bold leadership shrink exponentially. We should aspire to positions of leadership because they are vehicles for bold change,

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not because they bolster who we think we are—or should be. Success comes from serving others and is reflected in the glow of spawned accomplishments, the light of which should be more transparent and dispersed, rather than a search for a personal limelight.

If I were to narrate the beginning of my life journey, I might start with graduating from high school—now nearly five decades ago. In some ways with that accomplishment, I would have reached a pinnacle of success in the first-generation working-class family in which I was raised in the Bronx and Queens. I was the first to graduate high school and to go on to college. Some of the threads that had begun earlier in my life began to interconnect at this phase. Without immediate role models, my heroes were the discoverers and inventors—first in physics and science—about whom I read as a young child and adolescent. From Newton to Pasteur and Fleming to Burnet—they were my guide through the Penguin "classics" or the pages of *Scientific American*. I am not sure now how I imagined them other than with awe and vicarious admiration.

Although I was highly interested in science, my college years were more marked by the works of Heidegger and existential philosophy—including the social justice of Huxley and Pauling. In many ways I was coming of age during the turbulent period now affectionately called "the 60s," which has many stereotypic portraits but one enduring value that has marked my own career—and I am sure many of my generation. More specifically, it was the sense that one could "change the world," that individuals could make a difference by taking on big issues with big visions. That aspiration, with all of its youthful naiveté, proved a galvanizing force and a lifelong guidepost.

The goal of becoming a doctor emerged from multiple beginnings: the hidden and sometimes stated aspirations of parents hoping for a different life for their children, the sense of pursuing a career path that seemed to have social value, meaning, altruism, and professionalism (at least at that point), at a time in history when social issues were dominant. There were no role models

of academic medicine in my personal orbit before I started medical school, other than the champions I had imagined or the stories told in Paul de Kruif's *Microbe Hunters*.

In fact, my original plan was rather circumscribed. Before going to medical school, I had envisioned a career that would likely mirror the family doctor who had come to our house for interval illnesses when I was growing up. That began to change dramatically when I entered medical school—as new doors of inquiry opened and new possibilities seemed to abound. Yet, even when I graduated medical school, my planned career pathway turned out to be quite dramatically different than I had anticipated—even though the values, integrity, and sense of mission were still clearly manifested. My goal when I left Rochester for Boston was to shape the future of pediatric health care for the under-served. Although I had been quite involved in research at the interface between stress and risk for infection during medical school, social issues seemed more pressing—likely reflecting the influence of incredible leaders and mentors in my medical school but also the sense of social inequity and racial injustice that was so apparent, especially as the 1970s began in the wake of President Johnson's "Great Society Program" and his "War in Vietnam"—seemingly diametrically opposed forces that had a big influence on impressionable young people, including me.

The threads that connected me to the research that has dominated the largest part of my career occurred with my transition from Rochester to Boston. It started immediately with a research project I conducted on the sources and value of teaching and learning experiences during internship and was soon accompanied by a study of "unexplained fever," which I conducted while a resident. It was a dramatically different time of expectations and mores—of individuals and institutions. My "on-call schedule" in the hospital was 132 hours/week—and during that time, I used unscheduled night call times to do research. In retrospect this seems pretty "pathological"—but at the time it was exciting and fulfilling. These intense days redirected my interests to two seemingly unlinked career paths—hematology-

oncology and infectious disease. At first it was not clear how to choose between these different life journeys—but unexpected coincidences found a way to link them and create other connections in the seemingly disparate threads of my then nascent career.

It was an unexpected detour from Boston to Bethesda that occurred weeks before I was about to begin my fellowship in hematology-oncology at the Children's Hospital and Dana-Farber Cancer Institute that changed my life and career journey. There was a need for a pediatrician to care for an 11-year-old youngster who had developed aplastic anemia and who had been placed in a special "protected environment" room in the Clinical Center at the NIH that changed my life. I was literally "drafted" for this duty and found myself immersed with the care of a young patient who would change my life personally and professionally. While my time in Bethesda was supposed to be for 2 years, I wound up spending 23 years—the first 7 of which were involved with Ted, who grew from 11 to 18 years of age in a room the size of a modern bathroom. Because of the nature of his illness and the uncertainties it posed, my research moved quickly to efforts to understand bone marrow failure and immunocompromised host defenses. Suddenly a link between infectious disease and hematology became apparent and extended to my decades-long work as a pediatric oncologist and infectious disease specialist.

In another unexpected turn of events, the links between my earlier work and commitment to underserved communities intersected with a new disease that emerged in the early 1980s and that arose at the intersection between infectious disease and pediatric oncology—and earlier work that I had done in virology. As HIV/AIDS became defined and children became involved—first by transfusion, then by coagulation factor replacement for hemophilia, and finally by vertical transmission from mother to child—my research journey moved quickly to define pathogenesis and treatment for this new and frightening disease. Indeed my previous work in childhood cancer and the use of clinical trials and translational medicine had important ramifications for the

early days of pediatric AIDS research and again linked threads that seemed parallel rather than interlocked. Soon these were coupled with advocacy positions for children who were being excluded from school or who were unable to receive experimental therapies—and which brought confrontations and struggles with leaders in industry, the Food and Drug Administration, Congress, and the public community. Science, social justice, medicine, advocacy, and leadership—the power of children and parents—all served as catalysts for unanticipated changes in medicine, science, and my career development, at least looking backward. But in retrospect the ways the threads would come together now seem much more natural and even reasoned.

Although positions of authority have never seemed important to me in their own right—and certainly not as metrics of success—I do acknowledge that a willingness to consider new positions in academic medicine did change as my career evolved and developed. The first of these occurred when I became concerned about the future training and development of pediatric physician-scientists. I concluded that I could only influence the more distal phases of this process in my various positions at the National Institutes of Health and that a larger impact could be achieved if I were closer to a medical school and children's hospital—to the beginnings of new careers. That led to my decision to leave the NIH and ultimately to my assuming a leadership position at the Children's Hospital Boston and Harvard Medical School. I envisioned that this opportunity would permit me to focus on the passion that had been long placed in my research career—namely, helping to foster research pathways for a new generation of pediatric physician scientists. This time the threads seemed connected to me.

Frankly, I never envisioned that my career would move from academic pediatrics to leading a medical school. In fact, when I was first asked to consider being a candidate for the deanship at Stanford, I declined. It seemed unconnected. But with additional overtures, time, and exploration, what seemed unconnected began to have links—in the future of academic medicine and the missions

about which I have cared most passionately: education, research, and improving patient care.

Some journeys through academic medicine are planned and even predictable. Mine has not been one of those. Rather, my course through academic medicine has been driven by the opportunity of exploring new questions and challenges, never resting in one space, and frequently moving to new and even uncharted ventures. That is the joy of academic medicine—the opportunity to continue to grow and to contribute in ways that are important to individuals, institutions, and societies. From my perspective, this is done best when one's goals are driven by a sense of personal mission and passion—and when the consequences are meaningful to students, trainees, colleagues, and communities. Even when the threads are unconnected and the journey sometimes confusing and even daunting, it is a life path worth taking. I am grateful I have had the opportunity to be part of academic medicine, and I appreciate the support and encouragement I have had from colleagues and trainees who have been enjoined in the journey.

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