Laura Weiss Roberts

Editor

The Academic Medicine Handbook

A Guide to Achievement and Fulfillment for Academic Faculty

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Springer

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For our sweet Tuli

Introductory Commentary
by Philip A. Pizzo, MD

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, 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 5 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, inventors—first in physics and science—about whom I read as a young child and adolescent. From Newton to Pasteur, 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 DeKruif'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 underserved. 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 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, 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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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 exists to create a better future for all of humanity. Medical school faculty fulfill this awesome responsibility through present-day effort in five interdependent realms: advancing science, engaging in clinical innovation and service, fostering multidisciplinary education, collaborating to address societal needs, and nurturing leadership and professionalism. Faculty investigators seek new knowledge to help understand the biological basis of health and disease as well as the psychological, cultural, and social determinants of illness. Academic clinicians apply scientific evidence to help individual patients, to establish better practices, and to create effective systems of care for entire populations. Teachers teach. Medical school educators impart knowledge, build competencies, and inspire students across the many disciplines of the health professions. Faculty work with diverse partners to define and take on concerns affecting the health of communities, whether local or global. Medical school faculty, in turn, help cultivate the next generation of leaders—people who will be prepared to offer expertise and wise judgment in broad policy efforts, scientific inquiry, and organizational responses to issues of importance to human health. Through these efforts, individually and collectively, academic faculty members have stepped forward to address vast health problems that do and will affect all people. On the shoulders of academic medicine rides the hope that the world's next generation will live better lives and endure fewer burdens of suffering, disability, and premature mortality.

When entering the profession of academic medicine, it is clear that the path ahead will thus be one of great purpose and hard work. Harder to discern at the outset are three other aspects of a career in academic medicine that are immensely valued by experienced faculty. First, the work itself is creative and complex. Second, the colleagues are extraordinary. And, third, the environment of academic medicine continuously—perhaps relentlessly—causes faculty members to question, to learn, and to extend themselves. *Meaning, effort, creativity, colleagueship,* and *growth*. These elements define the experience of a life dedicated to academic medicine and, taken together, they give rise to careers of unimagined achievement and distinct worth for those who choose this path.

A hero is someone who understands the responsibility that comes with his freedom.

Bob Dylan

So, how does one choose the path of academic medicine? For some, the aspirational "calling" of helping humanity through discovery or healing will draw them to this field. For many, the love of

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teaching makes alternative careers—a future without connection to students each day—far less compelling. For others, academic medicine will provide the optimal, most exciting, or only settings for their scientific work. For some "bitten by the bug" of academic medicine, the opportunity to pursue the multiple missions of doing science, caring for patients, teaching, collaborating, and leading plaited as one cohesive endeavor will be irresistible. And for yet others, entering academic medicine may simply feel intuitive and logical—encouraged by their mentors and surrounded by friends, moving from the role as student to faculty member in a familiar context becomes an obvious "next step" in their careers. Perhaps all of these influences have some part in the decisions of students to choose academic medicine.

Whatever the reasons, my sense is that nearly all early-career faculty members experience, as I did, an unsettling combination of feeling overly schooled and, 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/assistant professor, such as 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, and the like. These tasks are not among those that an early academic thinks of when aspiring to better the human condition. Moreover, the dynamics among the faculty may be rather unexpected. Rather. The esteem, as well as the size of office or laboratory and financial compensation, accorded to an early-career faculty member may also seem just a bit thin after all the years of training. Managing these 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 in handling these "fundamentals" in the culture of medical schools, 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. The sections are the following: 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 will be salient for all academic faculty members—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 it 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 subjects 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. 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. My hope in envisioning and assembling this handbook is that it will assist faculty 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 Hilty and I observed that our most successful colleagues have several common attributes—beyond having a sense of purpose and the 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 19 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 and 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, though 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 137 medical schools in the USA and 17 in Canada, with eight 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 128,000 faculty members, 75,000 medical students, and 110,000 resident physicians work within these academic medical organizations. Given that the population of the United States today is estimated to be 313.6 million people and of Canada is 33.5 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, though 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 all of our current understanding of human health and disease. Some medical schools ("medical colleges") are independent and freestanding, 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 a "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 subjects compliance concerns may be very conservative in their decision-making. These factors, though they 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 help guide and some basic resources necessary to complete the academic work of the faculty member, 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 a special aspect of an environment that is more important than all of the rest, in my view, it is 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: if the constellation of duties undertaken by the faculty member is not well-thought through, 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 also 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 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 both can bring immense opportunities for faculty members as well as 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, it is a time in history that 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 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 better 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 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 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 choice-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

2

Upinder Singh and Linda M. Boxer

It is the ultimate goal for many who go to medical or graduate school—joining the faculty ranks of an academic institution. 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) being focused on goals in an efficient and organized manner that allows one to set priorities and achieve measurable success in them, (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 is key 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 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

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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 the time to develop a realistic budget for your research needs for at least the first three 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) are key factors, as are clear expectations of how your time as a new faculty member will be spent (e.g., what proportion will be research, clinical, 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 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 it is easier on you and your family not 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. 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 citizenship 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. 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, 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. 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 a faculty member as an underrepresented minority or a woman deserve mention. Identifying people whom we look like or to whom we aspire to emulate are important factors in shaping our thoughts about our potential. Seeing women faculty who have successful academic careers, handle work–life balance, and succeed in leadership positions gives the younger generation of women confidence that they too can have this career and be successful at it. For an underrepresented minority faculty member, the importance of finding others who look like him or her or have similar cultural backgrounds is also essential. 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 weakness 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. 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 in 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 weakness and learn from your mistakes.
- Do not be afraid to take risks.
- Do not neglect other aspects of your life; work–life balance is the key to 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?

How to Be Organized and Manage Time

Robert K. Jackler

Time keeps on slippin', slippin', slippin' Into the future.

Steve Miller Band

The great majority of medical school faculty members begin their faculty service with an abundance of motivation, drive, and ability. Among those who fail to fully achieve their career aspirations, the most common reason is an inability to effectively manage their time. Of all the skills needed to achieve success in academic medicine, perhaps most essential is the ability to achieve balance among innumerable commitments to enable at least passable success in all domains.

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 such responsibilities. For example, if one has made worthwhile contributions to a task force or *ad hoc* committee, rest assured that aca-

demic physician will receive at least twice as many 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 over-booked 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

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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.

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 [1]. 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 have 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 multiday 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 provide 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 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 clinical 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 moni-

tor 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. A 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.

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 Align Individual Goals with Institutional Goals

4

Sabine C. Girod

Leading a worklife as an academic medical faculty that is balanced with your goals and values and allows for the realization of your professional potential has the capacity to be a uniquely satisfying and rewarding experience. Medical faculty members engage in a multitude of tasks around the academic missions of clinical care, medical education, and biomedical research. Aligning your personal strengths as a faculty member with the goals of the school and department is critical for long-term personal motivation and, ultimately, success in an academic career.

In the last two decades, academic medical centers have undergone major changes in response to external pressures. With the changing environment in health care reimbursement, physicians in academic practices face rising demands to concentrate on clinical work to ensure their institutions' financial profitability. When more clinical duties are combined with an increase in administrative tasks, less time is left for scholarly pursuits such as research and (especially) teaching. At the same time, research funding has become more difficult to obtain, and academic medical faculty members are engaged in implementing new curricula to improve effectiveness of teaching and medical student learning.

Identification and assessment of your priorities in response to these challenges is important as a guideline in creating and shaping an individual, successful path.

Understanding Priorities

Academic medicine is a starting point for an almost unlimited number of pathways to professional fulfillment and success, not only in the traditional areas of clinical care, research, and education and combinations thereof but also in fields associated with the delivery, science, business, and policy of health care. Goal setting is the process that will help you define a long-term vision and give the short-term motivation and steps to realize that vision.

The first step in setting up yourself for a successful career in academic medicine is to analyze your personal interests and strengths in clinical work, research, and teaching. As an academic physician you have likely spent considerable time analyzing your motivation and skills when making the decision to accept a particular position in an academic medical center.

A "*S.W.O.T.*" analysis—for *S*trength, *W*eakness, *O*pportunities, *T*hreats—is a helpful tool to assess what opportunities are best for you to pursue in a new institution, what strength you can improve further and build on, and what weakness and threats

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Table 4.1 S.W.O.T. analysis

TEACHING or CLINICAL or RESEARCH or OTHER (pick one topic)	
*St*rength	*W*eakness
1.	1.
2.	2.
3.	3.
…	…
*O*pportunities	*T*hreats
1.	1.
2.	2.
3.	3.
…	…

you will need to address. Using the S.W.O.T. template (Table 4.1), you can analyze your strengths and weaknesses in the three academic missions within which you will be expected to perform as a faculty member. If you have other strong interests in areas professionally related to a faculty position, such as health care policy and community or international medicine, that are important to your work, you may create templates for these areas of interest and follow the same method of analysis.

Initially you should focus on noting your personal *strengths* and *weaknesses*. Fill in two or three points in each area. Return to the worksheets again after the institutional information described in the next section is obtained, and fill in the *opportunities* and *threats*. Also ask: What interests do I enjoy most in my work as an academic physician? What motivates me? What do I think I will enjoy doing most in my academic career? Do I want to focus on teaching? Clinical care? Is research what interests me most? Rank the worksheets accordingly. Assign a percentage of time during which you would ideally want to spend caring for patients, teaching, doing research, and pursuing other professional interests.

Understanding the Institutional Mission

An institutional mission and environment that matches your values, ambitions, philosophy, and personality will help you stay engaged and bolster professional productivity and success. The first step in this process is to obtain information about the goals of the school, the hospital, and the individual's department or division. Read the school's, hospital's, and department's mission statements to understand their goals and strategic direction. Due to their different missions, these constituents of an academic medical center and the respective expectations from the medical faculty members tend to align in some, and compete in other, areas. Take notes when evaluating the mission and vision statements, and focus on the following questions, filling in the S.W.O.T. worksheet as it relates to possible *opportunities* and *threats* to one as a new faculty member:

- What are the institutional goals and strategic initiatives by school/hospital/department?
- What parts of these goals and plans are relevant to my position in this institution?
- Do the goals of my department/division align with the school's/hospital's mission and therefore will my work be supported? If not, which areas of work are likely to be supported that are related to my area of expertise?
- What are the strengths and the areas of excellence of the institutional/departmental/divisional performance, programmatic criteria, and leadership in the academic missions related to my position?

Asking these questions will help you develop insight into the professional environment and the expectation from the institution for your particular faculty role. This insight will provide you with the basis on which to plan a career in the institution.

Note on the S.W.O.T. worksheet if conflicts arise or if some information cannot be obtained from the school's publications. Ask questions for clarification from representatives of the different constituents of the academic medical center—colleagues, administrators, and academic leaders. These conversations may give you directions to overcome possible threats and also open up exciting opportunities that he or she had not thought about previously. Meeting with stakeholders in this way may also lead to new partnerships and allow you to develop a community of supportive colleagues within the institution.

Understanding Criteria for Success

Criteria for success vary for the different faculty lines in an academic medical center. Today three basic academic career tracks usually are associated with different performance profiles and goals:

- The *Physician-Scientist*, whose focus is basic or translational research (75–80% effort), with limited clinic care and teaching.
- The *Clinician-Investigator*, who combines clinical care with patient-oriented clinical research that is complementary to the clinical activity.
- The *Clinician-Educator*, whose focus is clinical care and education.

Academic titles and descriptions for these positions vary among institutions and are usually specific for an individual school. The tracks allow flexibility in appointments that can benefit the school and the faculty member if the goals are aligned but make comparison between institutions more difficult.

Given the great variability between schools and positions, it is important to review the specifications outlined in the school's faculty handbook for the faculty lines of your school. Focus on the description of your faculty role, access to research and other funding, promotion criteria, and timeline to promotion. Faculty members in the traditional Physician-Scientist track usually have 10 years before tenure review, with the guarantee of long-time financial commitment by the institution, whereas the other tracks are often renewable employments that depend on programmatic need with the additional expectation that the faculty member will cover his or her employment expenses with clinical work and/or third-party funding. Depending on your faculty track, the expectations for scholarly, clinical, and teaching productivity will vary. Find out precisely what the expectations are from the faculty affairs office and divisional or departmental leadership. Check if seminars are provided by the school, and learn what is relevant for your promotion and the timelines.

The funding of different faculty positions is also highly variable. Earnings may depend to a varying degree on the clinical income the academic physi-

cian generates and thus can fluctuate greatly. Be aware that departments and divisions often have their own compensation policies and promotional criteria within the rules outlined in the faculty handbook. If the compensation heavily relies on one's clinical productivity, review the support, referring practices, and competition for the clinical practice within the school and in the local community. Identify and get to know the physicians who are essential for the development of one's clinical practice. Note possible threats, hurdles, and opportunities in your S.W.O.T. worksheets.

Heavily research-oriented institutions may also have tenure track and non-tenure track research positions to accommodate physicians and basic researchers without clinical responsibilities. These research faculty positions may be fully funded or require the academician to fully cover his or her own salary with third-party money. Identify the support that is available in the institution to apply for grant funding and other finances that can help one's research enterprise and note the information in the threats and opportunities sections of the S.W.O.T. worksheets.

Setting Individual Goals

S.M.A.R.T.E.R. Career Goal Setting

S.M.A.R.T.E.R. goal setting is a methodology that is helpful for developing meaningful goals. The acronym S.M.A.R.T.E.R. stands for *S*pecific, *M*easurable, *A*chievable, *R*elevant, *T*ime-bound, *E*xciting, *R*esources:

- *Specific*. Goal objectives should answer the five Ws—Who, What, When, Where, and Why. Use action verbs to describe the goal.
- *Measurable*. Goal objectives should include numeric measures so that it is clear when the goal is met.
- *Achievable*. Assess whether the goal objectives are within your influence or if there are obstacles outside one's control that you cannot overcome.
- *Relevant*. Goals should support the requirements of your academic career, such as research and publications, that are important milestones for

promotion in the academic ranks as well as the mission of the department and institution. How will your goals help achieve these objectives?

- *T*ime-bound. Goal objectives should identify a definite target date or milestone completion dates.
- *E*xciting. How interested are you in working on pursuing this goal?
- *R*esources. List the resources available in the institution, such as space, support, and collaborators and the threats/obstacles you may have to overcome.

Setting Career Goals

The S.W.O.T. analysis helped you assess your personal strengths and weaknesses and put them into the context of opportunities and threats in the work environment, which is the foundation on which to build your personal goals for an academic career. Ask yourself, What do I want to achieve professionally in my life? Start with your long-term goals. Where do I envision myself in my professional career 20 years from now? Then proceed to define short-term goals for the next 5 years, for example. Some goals will be mandatory for promotion, such as scholarship, whereas others will entirely depend on your personal interests.

For every goal that is formulated, you should reflect about the following:

- *Growth*. How can I grow my knowledge, skills, and practice to become the expert or leader I want to be in my chosen field?
- *Contribution*. What are the most important contributions that I want to make in my academic career in clinical care, research, teaching, and beyond?
- *Financial*. What are the financial and business projections for my academic career in this institution?

Stepwise career goal setting can help define what you need to do within the academic work environment to realize your vision. Use the

Table 4.2 S.M.A.R.T.E.R. goals

What do I want to achieve in long term? *"My Goal is …."*
What is my specific goal? *"Research the …"*
What are the resources needed to achieve this goal? 1. 2. …
What obstacles can I expect and how can I overcome them to reach this goal? 1. 2. …
What resources are available to achieve this goal? 1. 2. …
Timeline *1 year Milestones …*

S.M.A.R.T.E.R. worksheet to formulate goals (Table 4.2).

At the end of the process, assess whether and how your personal goals align with the institutional goals of the medical school or department. Are there programs that can help you successfully align and review your goals with school or department or division goals, such as mentoring? Are there goals that are important in your department to which you would like to adapt, even though they are not at the core of your current interest? Do the financial prospects align with your expectations and needs? Do the values of the department or division align with your life and work values? Does the school offer educational programs that can help you improve in the functions that are expected of you such as teaching, research, and grant writing, as well as computer literacy and basic business and leadership skills?

Remember that even though the focus here is on professional life, you also need to develop goals for your personal life (e.g., family, relationships, personal interest), and pay attention to the alignment of all life goals. The ultimate goal is for you to do what you are passionate about.

Words to the Wise
- Formulate your values, interests, personality, and skills to set your career goals.
- Have a clear understanding of the school's goals and departmental/divisional goals and the expectations that are specifically associated with your faculty position.
- Aligning your personal goals with those of the institution is one of the most important steps of performance planning.
- Goals need to be flexible and adjusted in response to changing circumstances on a regular basis to ensure success.

Ask Your Mentor or Colleagues
- This is my understanding of the promotion process. In your experience what are the most important criteria for success in this institution for my faculty line?
- My goals are …. Given the strategic vision of the school/department/division, which is the most important goal for my focus? Do you have a recommendation for how I can align my goals successfully with the goals of the school/department/division?
- Are there professional development opportunities or educational or other resources for early-career faculty in which you recommend I participate in this institution and would you recommend me?
- In retrospect, what do you wish you had known when you started at this institution and you would like me to know?

Part II

Getting Established

How to Prepare the Best Possible Curriculum Vitae

5

Heather Kenna

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 skillset 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, 4]. Some experts recommend maintaining two versions of the CV—one, a short summary of training and experiences; 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 this task is achieved, it will reward the academic physician with a blossoming textual

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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.
- Professional affiliations and leadership: Professional society memberships, including offices held and committee responsibilities.
- Faculty roles and activities: Typically includes research, education, clinical and 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.

In preparing the CV, consider the mission goals of the institution for which it is geared. For example, 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

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 [2]. 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 a (fictional) annotated middle-author paper.

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

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

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.

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 Additional Resources at the end of this chapter). A newer addition to the bio sketch in the last few years is the personal statement.

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. The personal statement in an NIH bio sketch 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 [3]. Generally speaking, a personal statement serves to complement and supplement the CV with a description of the academic physician's qualifications 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?

Additional Resources

National Institutes of Health Office of Intramural Training & Education: https://www.training.nih.gov/careers/careercenter

National Institutes of Health bio sketch samples: http://grants.nih.gov/grants/funding/phs398/phs398.html

Purdue Online Writing Lab: http://owl.english.purdue.edu/owl/resource/642/01/

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
1990 to present
San Francisco General Hospital
San Francisco, CA

Assistant Professor
1990–1998
Department of Psychiatry
University of California, San Francisco

Associate Professor
1998 to present
Department of Psychiatry
University of California, San Francisco

EDUCATION
B.S. in Biology, 1982
University of California, Berkeley

M.D., 1986
Stanford University School of Medicine

Residency in Psychiatry, 1986–1990
San Francisco General Hospital

Fellowship in Child and Adolescent Psychiatry, 1991–1992
San Francisco General Hospital

CREDENTIALS

American Board of Psychiatry and Neurology

Board-Certified in Psychiatry, 1990

Board-Certified in Child and Adolescent Psychiatry, 1993

California Medical License #ABC123, 1986

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Miller S, **Doe** J, Johnson D. (2007). Psychiatric medication efficacy in toddlers. *Journal of Family Practice, 23,* 1–14.

Doe J, Smith A. (2008). 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, 2006

"Current Treatment Models for Adolescent Drug Abuse"

East Bay Community Foundation

February, 2008

TEACHING AND MENTORING

Instructor, *Introduction to Clinical Interviewing* (Medical Students)

Fall semester of 2005, 2006, 2007

Department of Psychiatry

University of California, San Francisco

Mentor, McCarthy Medical Scholars Program

2005 to present

University of California, San Francisco

Course Director, *Pediatric Psychopharmacology* (Psychiatry Residents)

2007 to present

Department of Psychiatry

University of California, San Francisco

PROFESSIONAL MEMBERSHIPS AND SERVICE

Member

2000 to present, American Medical Association

2005 to present, US Psychiatric Association

2007 to present, US Association of Women in Psychiatry

Service

2005 to present, Manuscript Reviewer, *Journal of Alcohol Research*

2009–2011, Grant Reviewer, Foundation for Drug Abuse Research

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How to Interview for a First Academic Position

Robert Chayer and Jon A. Lehrmann

Perhaps the most important conversation that academic clinicians ever have in their career with regard to defining their role, impact, and implications on eventual success, as well as aligning academic goals and fit within a department, is the first job interview. This critical conversation initiates what could be a lifelong relationship and defines the new faculty member's value/worth/ salary. Despite the significance of this first interview, clinicians and scientists routinely receive little training or practice in preparation for it and, perhaps more important, do not learn about the process of negotiating a contract. It is true that all physicians interview for medical school and for a residency, but 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 in the academic 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.

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 other 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 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 and rank by value/priority all of these factors. 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

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the size and flexibility of the department. The candidate needs to understand his or her strengths, weaknesses, and preferences.

Assessing a department's strengths and weaknesses and its overall fit in relation to one's own research 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 the 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 this 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 this culture in a 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 important 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 AAMC median salary for someone at the targeted faculty level in a particular region. The AAMC publishes a book

of academic salaries yearly [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 may be more financially lucrative but leaves less opportunity for flexibility, typically involves less diversity in the work, usually lacks opportunities for mentoring, and offers fewer opportunities for sharing with colleagues.

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.

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). Submitting an outdated CV shows a lack of preparation and perhaps can be read as either 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, if possible. Six months to a year in advance is typical. 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, but conservatively. 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 candidate was rude, disrespectful, or very self-centered in interactions. Turn off cell phones and pagers before going into an interview [4]. 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 and answers that he or she has no weaknesses, that answer can come across as the candidate having no perspective or being overly confident and can often have a negative effect. Employers want to hire faculty members who are willing to work on self-improvement and growth [5].

If you are well prepared, there really 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 hand-write a personal thank-you note to each interviewer met.

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 [6] 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 towards 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.

Other Unique Circumstances and Sensitive Issues

When an agreement has been reached, 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 [7]. Interviewers should not ask if one has been arrested or make queries about disabilities or weight or height [7]. 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 meet its needs. The end result of this process should be the offer of a position that holds anticipation and excitement for both 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 yous 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

Andrew Norton

The letter of offer or contract represents the official intent of a hiring institution toward 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, work experiences, influences of family and mentors, travel and cultural experiences, and even spiritual and religious background. All of these factors will help frame the priorities that the academic physician will bring to the decision-making process. 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 experiences in his or her most recent job or during a just-completed residency or fellowship were all that the candidate were considering at this phase, the candidate would likely not make the most informed decision. Work–life balance, income expectations, a blended career, or a more focused career are all examples of characteristics of jobs that will have to be considered in this phase. The clearer these priorities are for the candidate, the higher the likelihood that a good decision will be made. Having clarity on these issues helps not only during this process but also throughout one's career. These priori-ties can be a touchstone to which the academic physician returns during the critical phases throughout his or her career.

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

Throughout the process of searching for, interviewing for, and considering any 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. Although the letter of offer is the official declaration of intent by the hiring institution, the candidate should be well along the mental process of deciding whether that institution would be a good fit at the time that he or she receives the letter. The goal of any recruitment process is for both parties, the candidate and the hiring institution, to find the best match. The candidate's due diligence during the interview and negotiation process will go a long way to ensuring a good fit. By the time the candidate receives a letter of offer, he or she should have a basic understanding of the offering institution, its organizational structure, its employment environment, and the candidate's general role within the organization. Thoughtfully accumulating specific employment-related information throughout the interview process will facilitate this phase. A 2×2 decision grid listing the institutions that one is considering and some key characteristics is an example of a simple tool

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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, which could be shortchanged in the enthusiasm to close the deal.

Before beginning the interview process, the candidate would benefit from meeting with 2–3 senior faculty members or mentors to receive their input on the interview process, job characteristics, employment models, and so on. Ideally these advisors would have insight into the candidate's skills and career aspirations, so their advice would be specifically tailored to the circumstances. If one is working with a recruitment firm, utilize its expertise in outlining the key characteristics of the institutions being considered. 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 he or she has adequate information available in the deliberation phase of the hiring process. The candidate will find it much easier to gather information about an institution during his or her site visits, where the opportunities, both structured and spontaneous, are numerous. Trying to find that information after the interview is more challenging. The decision whether one would use legal counsel to review the contract should really be made before one starts the process. If the candidate decides to use legal counsel, that person should be hired and met with before the interview process begins. The legal counsel's perspectives will help prepare the candidate to get even more out of the interview. Be sure to hire an attorney with considerable health care experience, who knows the unique issues related to health care institutions and 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 about life goals with people about whom one cares are all essential elements of the process. Preparation of checklists

and decision grids will make the process easier. Recognize that the recruitment process is often overlapping and not in sync between interviews, second visits, and offers, which makes clearly defining key decision criteria all the more important. The candidate may find that his or her schedule is full and time limited at the critical phase of the process of making a final decision of whether 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 decision making. Often there will not be adequate time for deliberate introspection when one is considering more than one job offer, each with its own time limit for a yes/no response.

Be sure to ask for an official employment handbook at the time of the initial interview. Often these are not offered during the first interview without special request. This information can be invaluable and easily perused during the trip back home. During this immediate post-interview period, take the time to review any materials that were obtained during the interview, add information to the decision grid, and develop specific follow-up questions that would 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, which will serve as a reference for subsequent site visits and discussions with leaders at the institution.

The use of social media in the recruitment process is still in its infancy. Institutional Web sites can certainly provide basic information. Web-based services such as LinkedIn and Monster may provide networking opportunities, content resources, answers to FAQs, and so on, but the use of such sites as an active part of the recruitment process is unlikely. Be aware that prospective employers can access any personal information available on the Internet.

Once the Offer Is Made

You just got off the phone. A verbal offer has been made which you have accepted pending the review of a letter of offer or contract. You are

excited, enthusiastic about the new position, and cannot wait to get started. However, it is important to take adequate time during this phase to be sure that you understand 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 all make up the legally binding employment agreement and trump any verbal offers or commitments made during the recruitment process.

During the negotiation phase, keep the lines of communication with the hiring chair or chief open and active. There is often a lag between the time that the verbal offer is made and the written letter of agreement/contract and referenced employee handbook materials are received. Use this window of time to send a letter to your likely new boss that, in your words, describes what you think the job elements and expectations are. This represents an opportunity for you to communicate what you thought you heard as it relates to the job elements and expectations and what you think is most important. You should highlight the key deliverables that you expect to be covered in your 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. An important question is to clarify what components of the letter of offer or contract are negotiable. If you have engaged an attorney, set up time now to sit down and review the letter of offer or contract.

The Contract/Letter of Offer

Each institution will have its own format to its written employment agreement. It may be a formal contract or it may be a letter of offer. Either will be supplemented with legally binding amendments as articulated in employee handbooks or like 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 have been developed at a central institutional contracts-and-human-resources level; others will be created at the hiring-department level. What is critical is whether you feel you have 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. What is critical to understand are the elements of performance assessment and the bilateral obligations for contract termination. 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 components. 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 one-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 nonsolicitation 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 they 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 one's initial faculty position. However, in the case of an academic physician making a midcareer position change, it will be important to clarify academic rank criteria at the new institution and to 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 a critical criteria in the selection of a new position, be sure to raise that issue during the recruitment process.

Duties and Responsibilities

The duties and responsibilities section is the section of the letter of offer or contract in which the candidate should expect and request the most

detail. As previously recommended, the candidate can facilitate this section by submitting a letter to the hiring official with a detailed listing of 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% 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 will include the following items:

- Distribution of work effort: Clinical, educational, research, administrative, academic service (membership on committees), and community service. Who determines this, what influence the candidate has on it, and the intervals between reallocations should be determined.
- Lines of communication and authority: Clarify with the division chief or department chair who specifically is one's superior 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 comanagement 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, this 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 perfor-

mance are linked to compensation or incentives would be critical. Clear understanding of who determines performance measures, who does 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 that one's clinical workload goes up by 50% because a clinical colleague broke a hip and needed surgery can be an unexpected and unwelcome surprise. Adequate support staff in the clinical environment is as critical as adequate lab space and research associate to the researcher to maximize efficiency, productivity, compensation, and satisfaction. 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 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.

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 will be developed at the institutional level, and the human resources department should be used for questions for clarification. 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
- Childcare provisions
- 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 the 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 contract or letter of offer.

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 contract or letter of offer. 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, call coverage, and bonus programs.

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 specific resources into which I should tap?

Appendix: Sample Letter of Offer

[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 two 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----------------
                    Dean and Executive Vice President

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: ------------------------

How to Give a Lecture

Sallie G. DeGolia

The lecture is alive and well within medical education despite the increased emphasis over decades on small-group teaching and problem-based learning [1, 2]. All US and Canadian medical schools are still using lecture formats as an important teaching vehicle in at least the first two years of medical school [3]. Furthermore, the "*See One, Do One, Teach One*" classical approach to medical education also continues to thrive when it comes to lecturing. Most educators learn how to lecture by having experienced a lecture as students rather than by participating in any professional development workshop or training [4, 5]. But being an expert of content does not necessarily translate into being a proficient lecturer. With increasing demands from the Accreditation Council for Graduate Medical Education (ACGME) for higher standards of accountability for student learning, faculty seek to improve educational methods. This chapter serves as a guide to help make the lecture a more efficient and effective learning tool.

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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, deepen understanding, stimulate further learning, provide a way to present up-to-date material not available in print, and even serve a social function [6–8].

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 contribute 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 [9].

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 [8]. 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. The learner also must appreciate the relevance and importance of the content; this will help motivate the student to learn the content. The learner must be an active participant in the learning process in order to 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 [10]. If the preexisting knowledge 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

Preparation

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 are 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.

Organization

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.

Assemble 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* [6]. The classical hierarchy is the commonest and simplest 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. Because the average number of items that can be held in short-term memory is about seven, do not overload the learner with details but allow plenty of time for processing of the information [11]. 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.

Another related schema is using the problem-centered approach, where an identified problem is presented followed by outlining associated, alternative 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 story-telling approach is utilized.

Other suggested organizational schemas include the following:

- *Cause and Effect*. Events are described and explained 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, the lecturer allows 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.

Beginning

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 [12]. 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 technology 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 and previews. 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.

Furthermore, provide a preview of the lecture by outlining its structure in terms of main topics, issues, and theories. 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 [13]. Refer to this outline periodically to reorient the learners.

Gain the attention and interest of your audience. Generating interest is essential in a presentation if you want your learners to attend to what you are presenting. This interest influences students' attitudes toward a subject and promotes learning [14].

Depending on the size of your audience, you can 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.

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 or using a dramatic contrast, or giving a short questionnaire or demonstration. Even showing a short video may be of value. Vary what you use to open the lecture, because repetition leads to less effect over time.

Assuming a narrative mode of explaining also may build interest. Mixing explanatory modes by beginning with the narrative or story-telling approach and then inserting anecdotes where appropriate and ending with a conceptual summary is a particularly effective way to generate interest and understanding [10]. Furthermore, behavioral dimensions including warmth, enthusiasm, conversational style, energy, and charisma will also increase a learner's interest and attention to the topic.

Build on previous experience. Attempt to stimulate the learners to recall previous learning and capabilities. 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 [15]. 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

Once the audience is primed to receive the new information, the lecturer is ready to deliver the body of the talk. For a 50-minute lecture, no more than 3–5 main points should be presented so that learners can manage the information. 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 [6].

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.

Clarity

Several strategies can be employed to optimize clarity, such as the following:
- Provide a clear structure.
- Avoid vague terms.
- Define new terms.
- Emphasize key points.
- Use images to guide the learner.
- Name and label various parts and point precisely at diagrams.
- Offer examples, metaphors, and analogies.
- Use repetition.
- Paraphrase the key points.
- Employ transitions.
- Adequately answer learner questions.

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 [16].

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.

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

Other important tips to consider regarding clarity involve speaking clearly, using pauses effectively, and not speaking too fast.

Interactive Techniques

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. Learner attention tends to decrease significantly after 20 minutes into a lecture and only picks up right before the end of a lecture [17]. 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 [18]. Students find collaboration groups fun, nonthreatening, and dynamic. Such strategies also can result in increased attendance and an 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, buzz groups or cooperative groups, and audience response systems. These will be described in greater detail in the subsequent text.

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. 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 tend 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 can also provide clarity and feedback to the student and topic.

If asking a question to the class or an individual and expecting a verbal response seems 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 or Cooperative Groups: 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 also they receive feedback from both peers and the teacher.

Audience Response Systems: Students enjoy using an audience response system [19, 20], although the data are mixed regarding its effect on knowledge retention [19–22]. The system tends to encourage more active participation and more honest responses as it preserves students' anonymity [19]. The instructor can stop periodically throughout the lecture to question the learners and track individual and/or group responses. This immediate feedback allows learners to gauge how well they understand the material while informing the instructor how effective his

or her explanation has been and whether the instructor needs to rephrase or repeat concepts. This technology provides another way to highlight key points being delivered.

Handouts and Notes: Several 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, or exercises to be used during the lecture.

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 [23]. In general, the acts of taking and reviewing notes improve recall [6]. 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 with their future use in mind [24]. 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.

Other Techniques: Several other techniques have also been employed to encourage learners to engage actively with the lecture content:

- 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: Gaming represents another method to engage learners, such as *Jeopardy*! or *Wheel of Fortune*. Games energize 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 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
- Brainstorming
- Role-plays
- Mock interviews

End/Conclusion

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. (See Table 8.1.)

Audiovisual Aids

Audiovisual aids such as white or blackboards, flip charts, or electronic slides (e.g., PowerPoint) can increase learning clarity and interest and therefore improve understanding and learning. Visual displays also have been shown to facilitate retention [25]. 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 [26] and tend to prefer visuals to text [27], adding audiovisual aids can help the efficacy of the overall presentation.

Audiovisual aids should be simple, clear, and uncluttered. No matter which aid you use, make sure that you talk to the 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. Use multiple colors to emphasize points or draw diagrams. The most common audiovisual aid now is an electronic slideshow. Check the equipment for good functioning before starting the lecture. The actual audiovisual device chosen is less important than the appropriate use of it.

Stahl and Davis [28] provide key tips regarding the development of an electronic slideshow, including the following:

- Emphasize "data ink," or the substantive parts of data that change (dots, lines, labels, etc.),

Table 8.1 Guidelines for an effective lecture

Tip	Principle
Preparation	
Know the context	Understand the purpose of the lecture
Know the audience	Anticipate learners' preexisting knowledge base and cognitive structure
	Determine what will be relevant, interesting to learner
	Understanding how the material may be applied in the future
Know the content	Include knowledge, skills, and attitudes
	Narrow scope of content to enhance learning and retention
Develop a logical organizational schema	Promotes ability to focus, follow, and understand
Introduction	
Attend to the learning climate	Promotes interest and participation
Pretest questions (*optional*)	Provides audience feedback and increases attention
State learning objectives	Establish lecture purpose, relevance and organization
Get learner attention: video clip? Case? Question? etc.	Gain interest of audience
	Establish relevance
Provide outline	Preview of lecture
	Establish organizational map
Refer to previous learning	Connect with preexisting knowledge of learner
	Increases retention
Middle	
Limit content	Helps manage information
	Increases retention
Use examples, anecdotes, cases	Promotes interest
	Improves clarity and understanding
Utilize visual aids	Enhances retention
Reviews at end of each section	Repetition promotes retention
	Focuses
Interactive strategy	Offer opportunity for knowledge/skill application
	Provides feedback on how well learner and lecturer are doing
	Enhances retention
Provide handouts	Offer opportunity for application
	Encourages self-directed learning
Closing	
Post test questions (*optional*)	Feedback, appraising performance/providing feedback
	Adding questions for audience feedback
Summarize: Integrate new information with previous information	Integration
	Repetition
	Increases retention
	Re-establishes relevance and application
Stay for questions	Feedback to learner and lecturer
Evaluation	
Collect data on impact of lecture	Improve learning
Student option or achievement	Improve lecture
Peer or group feedback	
Self-assessment with or without video	

over "non-data ink," which represents the vehicle in which substantive data are presented (e.g., title, scales). This can be done skillfully utilizing PowerPoint "builds," for example, where by keeping the "non-data ink" constant, each successive slide depicts only the critical data that change, allowing the learners' attention to focus on the changes [29].

- Present data in "small multiples" [29] or groups of information at a time. As each "small multiple" is added, learners' attention is directed toward contrasting the differences and similarities to the former bit of information. The use of "small multiples" also allows the speaker to modulate the pace of learning.
- Transmit new knowledge both orally and visually. Learners tend to process visual and auditory input simultaneously. However, the sources must be synchronized and mutually reinforced to enhance learning [30].
- Use visuals with simultaneous oral narratives rather than visuals with text. The former has been shown to impact learning positively. Eliminate redundant text and avoid presenting orally a slightly different text than what is noted on the slide, which will distract learners.
- Present text and images in close proximity rather than far from each other on a slide [30]. Presenting words and pictures simultaneously versus successively also enhances learning.
- Eliminate legends and put labels directly on data to prevent breaking up the spatial contiguity of slides. Identify key points on each slide and eliminate excess information.
- Present bullet points in parallel structure, starting each with the same type of word (verb, noun, etc.). As a result, the learner's eye will tend to focus on the new information in each bullet.
- When presenting complicated images or diagrams, superimpose them on each other sequentially to emphasize what is changing and the associated similarities and differences of the data.
- "Builds" can be a powerful technique to present data but take time to develop. To be effective, the lecturer should anticipate each slide with the audience before showing it. Therefore, the lecturer must be familiar with the slides and would do well to rehearse the presentation rather than relying on the slides as lecture notes.

Direct the learners' attention to the key features. Make sure to give adequate time for the audience to review and possibly copy the information. There is no need to talk during this time. Beware not to use audiovisual aids excessively. 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.

Performance 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 [31]. 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 [31].

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 [32].

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 [33]. 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 [33].

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 [34]. 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 [33].

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 [35]. 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. 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.

Language. Utilize simple, clear, and dramatic language. Avoid vague terms (e.g., "sometimes," "often"), jargon, 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 short-change the ending.

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

Evaluation

The final component of providing an effective lecture is the evaluation, which provides feedback so that learners can see if they are accurately integrating the new material while allowing the instructor to discover whether or not he or she presented the material 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 [36], checklist [37], 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 [38, 39]. 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.

Words to the Wise
- Invest time 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 *expect* less than what we *inspect*." 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, and assessment-driven learning is not a bad thing—if the test is a good one—if it really measures learners' knowledge and skills. Assessment communicates what instructors value, and it motivates students to learn.

This chapter describes common methods of assessment and how to create or evaluate assessment items. It also urges a comprehensive approach to implementing assessment, setting standards, and using assessment results to inform learners and the curriculum. Instructors are frequently asked to write multiple-choice test questions, but

without question-writing training, the result is often poorly written, flawed questions that test fact memorization and recognition rather than the application of knowledge. In clinical assessments, patient notes are difficult to grade fairly and consistently, especially when multiple instructors are doing the scoring and writing the feedback. This chapter introduces assessment methods that encourage student learning. It also addresses common problems in assessment creation and implementation.

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 are often informal and may be spontaneous. 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 narrative. However the results are conveyed to the learner, formative assessment results are not recorded in the learner's permanent record.

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Although a formative quiz or clinical observation may result in a score, the purpose is to give information to the student in order to guide improvement. In contrast, summative assessments are scheduled and formal. Successful completion of a summative assessment is often required in order to transition to the next stage of training and usually produces a result that is entered into a learner's record or is used to make high-stakes decisions such as licensure. Whether formative or summative, assessments should always be based on the 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 and the most appropriate assessment methods selected. Since assessment is a process of sampling, the best characterization of learners' knowledge and skill comes from using an adequate number of test questions from 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 described here are multiple-choice questions (MCQs) and essay questions. True–false questions should not be used in summative assessments. Statements about biological systems are rarely totally true or false. High achieving learners can be penalized by true–false 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. Essay 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; performance examinations allow students to demonstrate what they choose to do while interacting with a patient.

Multiple-Choice Questions

MCQs consist of a question and several answer options, one of which is the correct answer. 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 relatively short amount of time. Scoring is easy and rapid and can be done automatically by computer. MCQs also have weaknesses in that instructors cannot know if learners really understand why an answer is correct, merely recognized the right answer without knowing why it is correct, or guessed successfully. 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.

Single-best-answer questions are refinements of MCQs where the question, consisting of a stem and lead-in, is followed by a series of three or more answer options, one of which is most correct and the others are less correct and act as distractors (Fig. 9.1) [1]. The body of the MCQ question is called the *stem* and is often a clinical vignette. 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 resemble 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, if pertinent.

The last sentence of the body of the question is called the *lead-in*. The lead-in is the actual question the learner will answer about the scenario
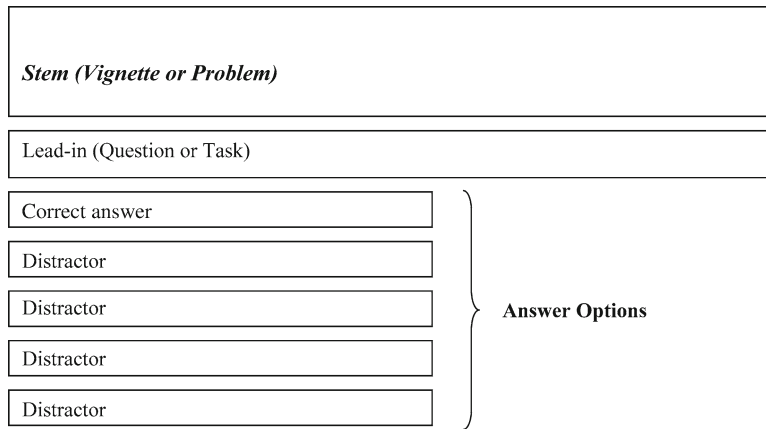
Fig. 9.1 Anatomy of one-best-answer questions

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. For example, the lead-in should read, "Which of the following is the most likely diagnosis?" While the answer options may include diagnoses that are possible but uncommon, the task for the learner is to recognize the most likely diagnosis. Single-best-answer 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 *not* write. Questions that are negatively phrased are easy to write but they are difficult to read, and learners who really know the information may inadvertently end up selecting the wrong answer. Another drawback of negatively phrased questions is that learners cannot answer them without reading 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 some questions 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 in that they should each 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 are typically cues that an answer option is incorrect. Similarly avoid frequency terms such as *seldom*, *rarely*, or *occasionally* as the meaning of such words is interpreted quite differently by different readers. Each answer option should be grammatically parallel with the lead-in or learners will be directed to the intended answer by an overlooked grammar clue. While the options *none of the above* and *all of the above* make question writing easier, they should not be used as answer options because they make it easier for learners to guess correctly on the basis of limited information recognition [1]. 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 random 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 answers [2]. 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

Learners answer essay questions with a free-text response instead of selecting from a set of answer options. Essay questions are especially 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 differ from essay questions in that they restrict the response to a single word or phrase while several paragraphs may be permitted for extended-response essay questions. 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 factors limit the number of concepts that that can be assessed, essay questions should be reserved for ensuring that learners can demonstrate their understanding of critical concepts when other assessment methods would be less effective.

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 answer 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. Instructors use 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 has greater validity [3]. 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 piles are consistent with one another before making the final grade assignments [4].

Performance Assessment

Rather than recognizing 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

Key Concepts	
Assessment	Assigning a value or a judgment or 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 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. Are the meaningful, essential features accurately measured by the assessment method?

clinical examinations (OSCEs) are performance examinations that use standardized patients to pose each learner with the same patient scenario. OSCEs remove the natural variability of actual patients and improve assessment reliability and fairness [5]. 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. It is also ideal 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.

Another valuable approach to performance testing is workplace-based assessment [6, 7]. Largely 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 developing a new rubric or scoring tool, instructors who wish to begin to implement this form of assessment should go to the assessment methods literature and select and adapt a 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.

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 common steps that are useful in establishing a valid standard. Gather a group of instructors that are familiar with the curriculum and that 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 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, perhaps 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 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 [8].

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 do not develop the curriculum.

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 forms of high-quality assessment is a fundamental part of any well-designed curriculum and is a worthy emphasis for faculty scholarship.

Words to the Wise
- 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, practice things that are difficult.
- Within a culture of respect give feedback frequently.
- Learn how praise impacts achievement.
- Use a variety of summative assessment methods.
- Convene a group of faculty to set standards.
- Announce beforehand what constitutes a successful performance or score.
- 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

10

Michael D. Jibson, Michael I. Casher, and Sara R. Figueroa

听而易忘, ⬚ 而易, 做而易懂. --中国⬚⬚
I hear and I forget. I see and I remember. I do and I understand.

Chinese proverb

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 …."

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 have 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

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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]. 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 internal medicine residents found that excellent teachers outscored other faculty on time spent with residents, enjoyment of teaching, and importance imputed to giving in-depth feedback and building relationships with house officers [3]. This study added to previous reports that emphasized the need for teaching faculty to display compassion, integrity, humor, and teaching skills. A more recent meta-analysis concluded that such qualities as enthusiasm and support of learners are as crucial to clinical education as the "cognitive" elements of

teaching [4]. 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 family medicine study found that residents and faculty did not necessarily agree on all of the elements of good teaching: residents valued support of their autonomy highly and the need for the supervisor to be a role model less so, while the opposite was true for the faculty [2]. One lesson from this may be that faculty should be more humble in their certitude that their students are eager to emulate them. Nonetheless, just as occurs in the parent–child relationship, both our fine qualities as physicians and our less admirable characteristics are likely to be replicated in our trainees.

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 [5, 6]. 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 [7]. 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 10.1).

Individualizing Teaching to the Resident and Student

Clinical supervisors can learn much from the teaching styles of experts in other fields. The distinguished Julliard violin professor Dorothy

Table 10.1 Characteristics of supervisors valued by medical students and residents

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

Delay, teacher to Itzhak Perlman, Midori, and Sarah Chang, was renowned for her ability to prepare even the most accomplished musicians for the concert 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 [8].

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" [9] 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 [10]. 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. 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 [11]

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 [12], 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 [13], 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.

Table 10.2 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?" "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.

- *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 1 or 2 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 10.2.

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 [14]

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 supervisory 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 covering 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 appropriate 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 confidential 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.

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.

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

Table 10.3 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.

are often overlooked in training, yet are critical for the graduating resident, Table 10.3.

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 2 to as many as 10 clinicians, along with 1 or 2 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, but should never be allowed to languish longer than that; for year-long rotations, quarterly summations are ideal. These evaluations should include an overall evaluation 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 resident physicians over the course of their training, with many rewards for both the resident 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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How to Evaluate and Give Feedback   **11**

Jennifer R. Kogan

A key and critical component of medical education is evaluating learners and providing them with feedback. Evaluation is the process by which the academic physician assesses whether the learner has achieved the goals and objectives outlined by a course or by the clinical rotation or experience. Feedback is the impetus for improving performance. It is a fundamental cornerstone of effective teaching and learning. This chapter focuses on how to assess learners for the purpose of providing feedback. The chapter also reviews some best practices regarding the completion of evaluations.

What Is Feedback?

Feedback can be conceptualized as specific information about a learner's observed performance compared with a standard, given with the intent to improve the learner's performance. This definition highlights several important concepts. First, feedback is based on observed performance. In the classroom setting, this could be a student's ability to apply knowledge to a problem-based learning case. In the clinical setting, feedback may focus on the core clinical skills of history taking, physical exam, interpersonal skills with patients, professionalism, and humanism. Feedback could also focus on the academic physician's observation of learners' skills related to transitions of care, interpersonal interactions with the team, oral case presentations, documentation in the medical record, or problem-solving abilities. Second, the aforementioned definition highlights that the intent of feedback is to help the learner acquire the knowledge, skills, and attitudes to improve. Third, the content of the feedback focuses on the difference in performance between how the learner is doing and a standard. For example, feedback content is about the difference between how a learner does the cardiac exam and best practices for the cardiac exam. Finally, and most important, the aim of feedback is learner improvement. Feedback is meant to be a catalyst for additional learning. It has been said that feedback is really 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.

Differences Between Feedback and Evaluation

It is helpful, when thinking about feedback and evaluation, to be clear about the differences between the two. Evaluation is usually summative, meaning that it happens at the end of a defined period of time. It is about past performance, and it

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conveys a judgment. The purpose of evaluation is to measure a learner's achievement for the purpose of providing a grade or making decisions about progression or for certification. Evaluation is often normative (comparing one learner to other learners), but it is increasingly becoming 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.

In contrast, feedback is formative, meaning that it happens in real time with the intent of helping the learner develop and improve. Feedback is designed to foster learning. Feedback is about current, rather than past, performance. It is meant to convey information, reinforce strengths, and identify areas in need of improvement, "before it counts."

Types of Feedback

Feedback can further be divided into "micro-feedback" and "macro-feedback."

Micro-Feedback

Micro-, or brief, feedback is feedback in the moment. As its name suggests, it is brief, approximately 1–2 minutes in duration. It can be thought of as feedback nuggets. Ideally, because it is so brief, micro-feedback can, and should, be frequent (i.e., daily). An example of micro-feedback would be, "*Let me show you a better way to assess the jugular venous pressure on this patient*." Often, this type of feedback is not recognized by the learner. Therefore, it is helpful to start micro-feedback by telling the learner that one is about to give feedback. For example, "*Let me give you some feedback about how you checked the jugular venous pressure*."

Macro-Feedback

Macro-feedback is usually more formal. Examples of macro-feedback include sitting down with a learner after observing his or her history and physical exam or after listening to a patient or topic presentation. Macro-feedback also includes mid-rotation or mid-course feedback. Macro-feedback tends to be a sit-down conversation. It lasts longer than micro-feedback, for example 5–20 minutes. It tends to cover a broader array of skills and competencies. Macro-feedback tends to occur less frequently, but it is usually a more detailed conversation.

Why Is Feedback Important in Academic Medicine?

Feedback is essential in medical education so that learners can improve. To improve, learners need external information about how they are doing. This is particularly true because self-assessment, defined as an individual's assessment of personal performance or skill, is often inaccurate. Given the inaccuracy of self-assessment, self-assessment must be externally informed. This means that a learner must use not only internal data but also external data to generate an appraisal of his or her own ability.

To better understand this concept, it may be helpful to think about an analogy outside of medicine. Imagine a student who is learning to play the piano. Imagine that the student plays a piece of music. After playing, she identifies what she believes she did well and what she needs to work on. Imagine that the student never plays the piece for her teacher or someone more skilled than she. Without this external input, just how much better could the student get? How likely is it that she will be able to identify and then correct all of her mistakes?

Therefore, feedback is essential for learners. 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. As we will see shortly, feedback should be about

agreed-upon goals. Therefore, feedback clarifies the expectations of the learner.

Not only is feedback important for learners, but it is also important for teachers. Feedback done well is strongly associated with teaching ratings. Additionally, being proactive about giving feedback helps the teacher to really be cognizant of the learners' progress and their accomplishments, or lack thereof. It also provides the teacher with an opportunity to modify a course or teaching to provide more learner-centered education. That is, by understanding where the learner is, and what it is he or she needs, the teacher has an opportunity to tailor the teaching methods to the individual learners and their current abilities.

Feedback has also taken on heightened importance in this era of competency-based medical education. The focus of training and assessment is increasingly on teaching and assessing competence by documentation of achievement of the milestones. This requires ongoing assessment of trainees, with formative feedback, to ensure progression to clinical competence.

Medical Education Without Feedback

What happens when learners do not get feedback? Many problems arise. Without feedback there are missed learning opportunities. Without positive feedback, good practice is not reinforced. Without negative feedback, poor performance goes uncorrected, medical learning is incomplete, a path to improvement is not identified, and full potential may not be realized. Think back to the example of the piano student. Imagine that the student has a teacher, but the teacher only listens to the student play without ever providing any suggestions for how she might play differently. Imagine how the student's ultimate proficiency would plateau. Imagine an athlete who never is told by his coach how to get better. How good can that athlete get?

An additional problem arises when learners do not get feedback. Without feedback, learners may uphold uncorrected, inaccurate perceptions of their performance. That is, without feedback, learners may assume that they are doing a good job when, in fact, they are not. In these situations, it is not uncommon that learners will be surprised and disappointed with their final evaluations because they will think they were "doing a good job" since they received no information to the contrary. This situation can also lead to learner frustration with final evaluations because the learner, in the absence of feedback, will not feel that he or she had sufficient opportunity to improve in areas identified as needing improvement. Not uncommonly, students and residents will say that had they known there was an area of concern, they would have worked on it or changed their behaviors or attitudes. Not being given that opportunity to improve, secondary to a lack of feedback, is perceived to be unfair.

There is yet another consequence when learners do not get feedback. Without feedback, many learners will start feeling insecure about their abilities, particularly when there is no reinforcing feedback. The absence of feedback can make learners anxious and nervous because they have no sense of how they are doing and they have no idea of what they need to do to get better.

Barriers to Giving Feedback

Despite its importance, many learners are dissatisfied with the feedback that they receive, in terms of its quantity, frequency, and perceived quality. The reality is that many teachers feel uncomfortable giving feedback, and most have never had training in how to do it. In addition to a lack of training in best feedback practices, there are many additional reasons that high-quality feedback does not happen. Lack of time is frequently identified as one of the biggest barriers to giving feedback. Faculty may feel that there is inadequate time to give feedback when there are competing expectations for clinical productivity, research, scholarship, and administrative functions. In the past decade, the length of time that a teacher works with a learner, particularly in the clinical setting, has been markedly abbreviated (i.e., 1- or 2-week attending rotations). The

absence of longer, more longitudinal interactions with a learner can effect feedback in multiple ways. First, faculty may feel like they have insufficient information about a learner's performance to provide feedback. Second, lack of an established learner/faculty relationship can leave faculty more uncomfortable giving feedback because they are less familiar with how a particular learner might best respond to feedback.

A very real barrier to giving feedback is providing negative feedback. Even when given constructively, there are many reasons why giving negative feedback is hard. Teachers are often concerned about undesirable consequences for the learner, such as undermining the learner's self-esteem. Faculty may worry that giving negative feedback will jeopardize the relationship they have with the trainee. Giving negative feedback may feel like giving bad news, and one may be overly negative or critical communicating this information.

What also makes feedback challenging is that it often must be delivered within the context of a flawed learner self-assessment. Feedback never occurs in a vacuum. It is given in the context of a learner's own impressions of his or her ability. The perceived value of feedback depends on the ease to which it is reconciled with the learner's self-assessment.

In addition to negative consequences for the learner, many faculty may also worry about the undesirable consequences of giving negative feedback for them as a teacher. For example, faculty may worry that giving negative 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 worry about the effect of these evaluations on their own advancement and promotion.

Characteristics of Effective Feedback

Knowing how to give feedback well is important to maximally help the learner. Again, feedback given well is a key catalyst to learning. Additionally, it is important to give feedback well, since feedback also has the potential to harm. For

example, negative feedback, if not given correctly, can demotivate learners and actually lead to deterioration in their performance. What follows, then, are some essential characteristics of effective feedback. These characteristics, along with examples, are summarized in Table 11.1.

- *Give feedback frequently*. Think of feedback as a normal daily component of any teacher–student interaction. Up front, let the learner 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 helps to establish the expectation of daily, frequent feedback and can promote a culture that feedback is for the sake of learning. Your frequent, daily feedback or feedback nuggets (i.e., micro-feedback) then sets the stage for more comprehensive, macro-feedback later.
- *Focus feedback on agreed-upon goals*. As a teacher it is always important to set goals for your learners. You can create goals about your course, lecture, or rotation. You can set learning goals for the week, a given day, or even a specific patient encounter. The best goals are those that are specific, clear, and concise. In addition to articulating your goals, you also should have your learners identify their learning goals too. Getting your learners to set goals is essential so that they then become active participants in the learning process by reflecting on their learning needs. In fact, the ability to frequently ask the learner what he or she desires 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. 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 your observations on. Your learners will also be clear about the criteria against which their performance will be assessed. As such, it is beneficial, up front, to make sure that your learner shares

Table 11.1 Characteristics of effective feedback and examples

Feedback characteristic	Examples
Establish 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.*"
Make feedback about specific goals, both yours and the learners	"*This week, I would like for you to focus on making your patient presentations more hypothesis driven.*" "*What do you hope to get out of this course or rotation?*" "*What skills do you want to focus on this week?*"
Make feedback timely	
Signpost your feedback	"*I am going to give you a little feedback now.*" "*I want to give you a little feedback on …*" "*Let me give you some feedback about …*"
Start with the learner's self-assessment	"*How do you think that went?*" "*How do you think things are going?*" "*What are you trying to work on?*" "*What do you want feedback about?*"
Be specific	"*You paused often when delivering the bad news and you responded to the patient's emotion. That was really well done.*" NOT "*You did a great job delivering the news.*" "*Your problem list was missing important alternative diagnoses*" NOT "*Your write-up was inadequate.*"
Provide positive feedback	"*Your decision to assess the patient's gait was very important for understanding potential causes for falls.*"
Provide constructive feedback about areas requiring improvement	"*The history would have been more organized if you had set an agenda with the patient prior to exploring her chief complaint.*"
Prioritize feedback	
Make feedback descriptive, not evaluative	"*I thought you could have demonstrated more empathy by pausing more to listen to the patient*" NOT "*You are un-empathic and cold-hearted*" "*I thought that a key part of the history, his occupational exposure, was omitted*" NOT "*Your history was totally inadequate.*"
Discuss a specific action plan	"*Focus your reading on how to distinguish systolic from diastolic murmurs*" NOT "*Read more*" "*Practice your presentations out loud at least twice before presenting to the attending*" NOT "*Work on your presentations.*"

with you an understanding of what your conception of good performance looks like.

- *Make feedback timely*. Feedback is best when given close to the observed activity. However, there are exceptions to this rule. Feedback given to a sleep-deprived trainee is often met with an emotional response (crying). Learners who are fatigued cannot rationally process and integrate constructive 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.

- *Give feedback in a quiet place*. Feedback should ideally be given in a quiet, private location. This is particularly important for macro-feedback. Micro- or brief feedback is often given in the moment.
- *Signpost your feedback*. Feedback is often not recognized by learners as feedback. Therefore, it is helpful to signpost your feedback so that the learner knows it is coming and will be more likely to recognize it.
- *Start by asking for your learner's self-assessment*. There are many reasons why asking the learner for his or her own assessment is essential. First, it makes feedback an interactive conversation rather than a one-way transfer of information.

Second, it helps you to assess the learner's level of insight. A self-assessment that is very different from your impression of performance is important to recognize in advance of giving feedback. Imagine giving feedback when the learner thinks his or her performance was outstanding at the same time that you believe there are significant deficiencies. That conversation will be very different from one in which the learner accurately recognizes areas of difficulty. By asking the learner to self-assess, you are also helping the learner to become better at reflection, an important skill in lifelong learning and the self-regulated profession of medicine.

- *Be specific*. Feedback should be detailed and specific. It is less helpful to provide generalities of performance (i.e., "*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.

- *Reinforce the positives*. It is important to reinforce what learners are doing well. This is more than an exercise in making the learner feel good or offering generic praise. Positive feedback should reinforce the knowledge, attitudes, or skills that you want the learner to continue to demonstrate. Ideally, focus this positive 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*. If learners are to advance in their knowledge, skills, and attitudes and improve their competence or expertise in a given domain, they need to know what requires improvement. They need to know what needs work and what they need to do better on the next time.

- *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. Particularly as it relates to clinical skills, there is evidence that medical students and residents

are observed relatively infrequently while performing many key clinical activities. Therefore, if you want to provide feedback about core clinical skills such as information gathering (history taking and physical exam), information transfer (counseling and communication of a plan), and interpersonal skills with patients and with the team, you must identify ways to be present during those activities (i.e., watching your learner with a patient; watching your learner with the team). The more you observe patient-related activities, the more likely the trainee will view you as having accurate knowledge of his or her performance. This is important to increase the learner's receptiveness to feedback.

- *Prioritize your feedback*. If you offer too much feedback at a single time, it will be difficult for the learner to process it all. If feedback is not processed, it cannot be integrated and used. Too much feedback at one time can leave the learner feeling overwhelmed and even demoralized. Therefore, you need to make decisions about how you will prioritize the feedback you want to give. Limit your constructive feedback to no more than 2–3 elements.

- *Make feedback descriptive not evaluative*. The purpose of feedback is to improve a learner's competence, not to intentionally make the learner feel bad. Therefore, you need to keep the feedback about the performance not the person. Phrasing feedback nonjudgmentally is more likely to make the feedback more acceptable and palatable to the trainee. Using the word "I" instead of "you" reinforces that what you say is your perception and can make feedback sound less accusatory.

- *Include an action plan*. Feedback without specific suggestions for how the learner can narrow the gap between current and expected or desired performance falls short in effectiveness. All feedback should have an action plan. An action plan includes the specific recommendations for how the learner will get from point A to point B. It provides information for how the learner can narrow the aforementioned gap so that he or she can advance. Action plans can be thought of as an intervention. It should

provide helpful suggestions for what should the learner needs to do to acquire needed skills. As with feedback, action plans are best when they are detailed and specific.

- *Follow-up with the learner*. Because the goal of feedback is to help the learner improve, whenever possible, you should try to observe the learner again to see if your feedback was incorporated. Even if you do not have an opportunity to work with the learner again, it is still important to give feedback. In situations where you will not work with the learner again, think about how you could encourage the trainee to seek additional feedback about the identified skill area with his or her next supervisor.
- *Create a climate of trust and comfort for the learner*. You need to be giving feedback in the context of wanting to help the learner. Credible feedback is based on the perception of genuine concern for the learner and a relationship of mutual respect. Part of giving feedback is also checking your own intentions before giving feedback. Sometimes you may feel angry or upset with the learner. These feelings need to be in-check before you give feedback, because feedback really needs to come from a place of wanting to help the trainee improve.

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.

Another strategy for creating a climate of trust is to make feedback bidirectional. Learners are more likely to appreciate feedback if you also indicate early on that you welcome, expect, and also want feedback from the learner.

Approaches to Giving Feedback

It is important to know 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 it.

The Feedback Sandwich

One of the most common approaches for giving feedback that people talk about is the "feedback sandwich." The feedback sandwich involves giving positive feedback first so that the trainee is receptive to what comes next. Next comes the negative feedback, the "meat of the sandwich." This is followed by additional positive feedback. Although easy to remember, there are some limitations to this approach. First, sandwiching the negative feedback may be more about the preservation of learner self-esteem. Second, the feedback sandwich quickly becomes predictable for the learner who hears the positive and then is waiting for the "but." Third, the "but" between the positive and constructive feedback often leads the learner to discount the positive feedback. And finally, this approach fails to promote a dialogue or conversation about performance since the teacher is doing all of the talking. It does not remind the teacher to get a self-assessment or end feedback with an action plan.

A Six-Step Approach

Feedback probably works best when it is a conversation between you and the learner, rather than a one-directional flow of information from you to the learner. The following six-step approach helps promote a "feedback conversation." This approach emphasizes seeking and responding to the learner's self-assessment and identifying an action plan which catalyzes future learning. It requires you to be an active listener who can reflect back what you hear. The six-step approach, along with examples, is summarized in Fig. 11.1.

Step 1. Get the learner's self-assessment about what was good about his or her performance.
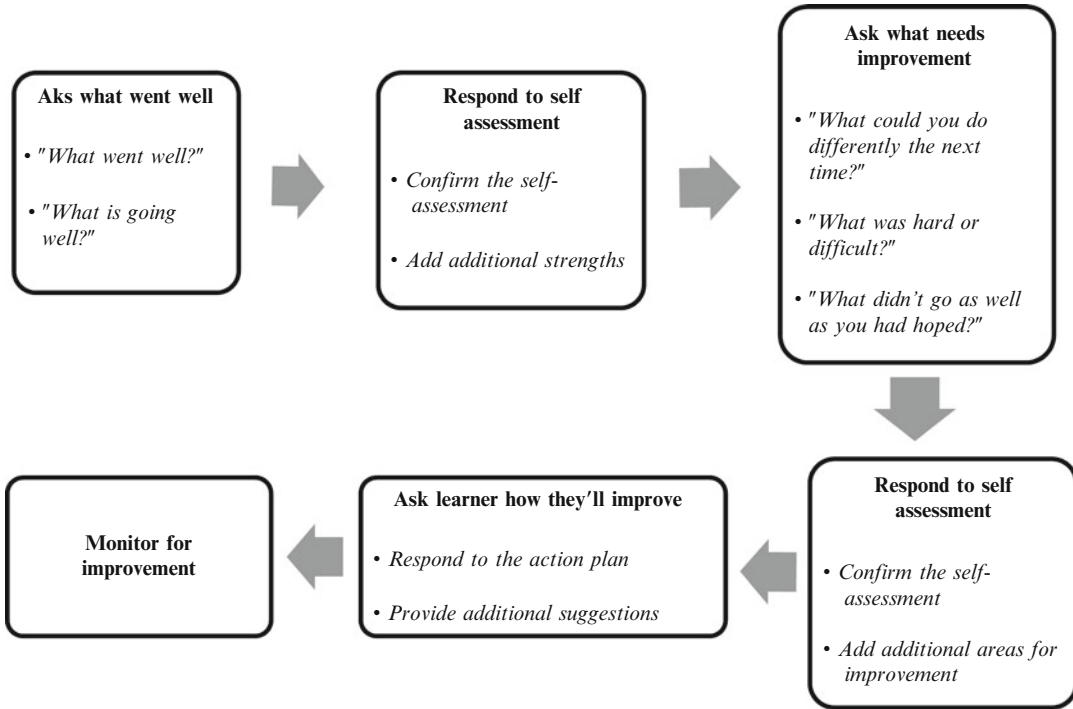
Fig. 11.1 A six-step approach to giving feedback

Step 2. Respond to the self-assessment by identifying the strengths you agree with and any other strengths about which you want to elaborate.

Step 3. Get the learner's self-assessment about what could have been improved. This step and the next are truly the heart of the feedback conversation. It is these two steps where a significant proportion of the feedback time should be spent.

Step 4. Respond to the learner's self-assessment about what needed improvement. Identify what you agree with and review additional areas needing improvement.

Step 5. Ask the learner to reflect on what they might do to improve. Ask them to identify an action plan. Elaborate on the learner's response, correct it, and add to it as needed. It is very important at this point to make sure that your learner understands what he or she needs to work on and how he or she will do so.

Step 6. Monitor for improvement. Make a commitment to monitoring for improvement together. If you will not have an opportunity to work with the learner again, help the learner to identify ways to find out if he or she has successfully improved.

Difficult Feedback Situations

There are certain situations in which feedback is particularly difficult to give. Examples include giving feedback to a learner who has poor interpersonal skills or has issues with professionalism, giving feedback to the learner who really 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 directors.

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 often feels as though that feedback is about the learner's character or personality. It may feel more subjective and also more resistant to remediation. Nevertheless, addressing lapses in professionalism or interpersonal skills is just as important as addressing a deficient 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, describing behaviors, not the person. Using "I" statements instead of "you" statements will also make the feedback less accusatory. 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 short with the nurses.*" Phrasing feedback this way can make its delivery easier because the learner cannot argue with a perception.

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). 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. Such a learner will often rationalize and/or externalize negative outcomes and therefore be resistant to getting feedback.

When giving feedback to a learner who lacks insight, try to focus the conversation on further elaborating the problem. Try to encourage additional self-assessment from the learner. Rereview expectations and try to address denial through education. 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.

Although it is difficult to receive negative 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. Again, this is when one should be contacting the course director, 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 four Ds: distraction, drugs, depression, and diagnosis. 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 should be considered, particularly when a learner is erratic in behavior or does not seem to change behavior when expectations are explicitly set. A depressed learner also will have difficulty integrating feedback, as will a learner with any other type of personality disorder or psychiatric or medical diagnosis.

A Few Tips About Evaluation

As described earlier, evaluation is a summative assessment that occurs at the end of the time one is working with the learner. It summarizes 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 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 to be 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.

- *Only write what you have reviewed during feedback.* In almost all circumstances, the learner should not read something for the first time in an evaluation. As described previously, learners will become angry to 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 evaluate someone in an area about which he or she was not even aware that he or she was doing poorly.

- *If there is a rating scale, use the anchors.* There is tremendous grade inflation in medical education, and many evaluators restrict their ratings to the highest number on the scale. If behavioral anchors are present (i.e., examples of what a number means) read the anchors and use them when making ratings. Think critically about each item you are asked to evaluate, and try to differentiate performance in each of the different competencies. Try to rate each individual or particular skill rather than circling the same rating across all competencies.

- *If there is space for open-ended comments, make them specific.* Many assessment forms include spaces for open-ended comments. Useful comments are those that are specific, that describe relevant competencies and highlight strengths and weaknesses, providing specific examples of both. You need to know what competencies the course director is interested in so that your comments address relevant and important areas. Again, knowledge of the performance standard is needed for comments to be most useful, because comments can than identify objectively where the trainee is compared with the expectation of where he or she should be.

- *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 (i.e., 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 goals and objectives with your learner. This is the foundation of feedback. Think of it as "feed-up." Where is the learner going?
- 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.

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- Seek the learner's self-assessment before you give feedback. Really listen and respond to what the learner has to say.
- Include positive (reinforcing) and negative (constructive) feedback that is specific, objective, timely, and prioritized. It should answer the question, "What progress is being made toward the goal?"
- Make sure that your feedback has an action plan. Your feedback should "feed-forward" and answer the question "What activities need to be undertaken to make progress?" or "Where to next?"
- 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?

Additional Resources

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How to Teach in Busy Clinical Settings

12

James T. Hardee and Frederic W. Platt

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]. Certainly, challenges emerge that can adversely affect teaching opportunities. These include time constraints, increasing attending physician workload and care responsibilities [2], HIPAA and privacy regulations, and house staff work hour restrictions [3] to name a few. Even residents have noticed a "decrease in quality of faculty teaching and decrease in educational satisfaction" [4] 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 is unparalleled. 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 [5].

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

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- 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 a disappointing 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. 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 "bedside" teaching for generations of doctors. 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 altogether 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.

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 beside 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 [6]. These efforts also foster collaboration and collegiality, which are important long-term career skills.

Bedside learning can also be augmented by utilizing available technology. 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 see an example of the Hallpike–Dix 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 use to 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 as well as 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 [7], 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 the preceptor 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, another side to the medical education process may go underappreciated [8]. 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. 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
- Ensure educational objectives and competencies being met
- Set 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 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 [9]. Students identify enthusiasm, compassion, integrity, and good relationships as attributes they seek in their role models [10]. Conversely, faculty with poor attitudes or unethical behavior can cause distress and confusion in students. Certainly, excellent clinical skills and teaching ability are important attributes for an effective attending physician. It is known that exposure to positive role models in a particular field is strongly associated with a medical students' choice of clinical field for residency training [11].

"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 2 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.

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 last 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 important, 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 and attitudes we use 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 the 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 Write Effective Letters of Recommendation

13

Joseph B. Layde

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. Writing effective and clear letters of recommendation is an important skill for academic physicians to master. This chapter focuses on strategies for writing honest, effective letters that convey important information about their subjects, including the level of enthusiasm the writer means to convey for them.

General Principles of Letter Writing

An academic physician should keep several principles in mind when he or she is asked to write a letter of recommendation (Table 13.1). 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 tell the person 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, truthful information about the subject of the letter. If you feel comfortable writing a favorable letter, tell the requestor that you would be happy to write the letter.

On the other hand, it is important to tell students or residents that you cannot write a useful letter about them if you do not know much about their clinical work. It is also important to give a letter requestor a general idea of the tone of the letter you could write. 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 that is the case. You can tell the student or the 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 subjects of your letters—that

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Table 13.1 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

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

will lead to your developing a reputation as a writer of particularly useful letters.

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 their subjects.

A particularly difficult situation may arise when, say, 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 a specialty, but if the student still wants a letter for application to a program in the field 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. Faced with the information the attending would include in a letter, the student is likely to look elsewhere for a reference, but 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.

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. 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 referee's letter should honestly address the pros and cons of the qualifications of the candidate. It 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 such letters are sought by the referring promotions committee, they are exceptions to the general rule that a letter writer should tell the subject of a letter of recommendation, in general terms, 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 one is 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, one should write a letter which 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 described in the letter.

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 one's ability to accurately describe Ms. Jones' 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 rotation, 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 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.

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 is 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 letter of recommendations for medical student a mention of 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 clear that you stand behind your letter.

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.

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 Teach Creatively

14

Hendry Ton, Shelly Henderson,
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Medical schools are challenged to train diverse physicians 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 students 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.

Maintain Good Teaching Habits

Creative teaching rarely happens in isolation. Effective teachers have positive teaching habits that are the foundation for their creative work.

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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 one or more teaching modalities, such as small group teaching or bedside teaching.
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. *Take every opportunity to be a learner*. Good teachers tend to be good students. 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.

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, and biologic components of the

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?
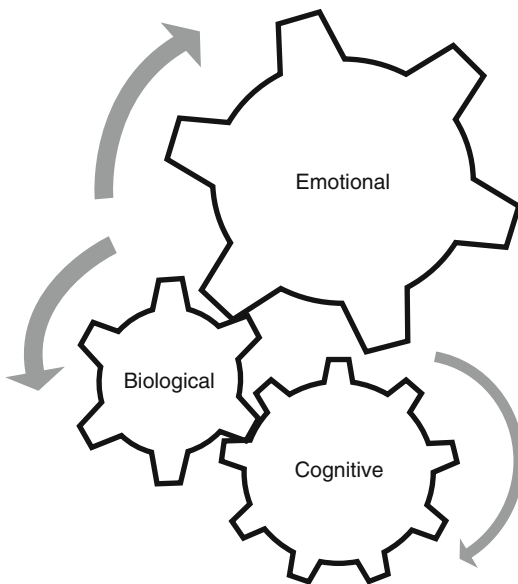
Fig. 14.1 Components of the learning process

experience (Fig. 14.1). 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:

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 students to learn about cultural competence)? And how can I cultivate these emotional experiences?

Biological

1. What type of physical space and seating arrangements do I and the learners need to learn?
2. What is the level of energy that I should expect from the participating students? How do I factor this into the learning experience? *Example*: *An educator anticipates teaching students 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*.

Cognitive

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

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 students to stimulate creative learning.

1. *Ask how the students are doing*. Whether a large lecture hall of students or a small group, get a read on the collective pulse of the learners. What barriers, personal and otherwise, might exist that would prevent students from being fully attentive to the learning activity? The goal is not to solve the problem, but to listen and get a better understanding of how the students are coping with the stressors of medical school.

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 students' 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 students' strengths and interests*. Find out what is important to students, 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 students in a metacognitive process of reflecting on their knowledge and how they know.

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 Use Technology in Educational Innovation

15

John Luo, Robert Boland, and Carlyle H. Chan

In years past, faculty in an academic medical center taught primarily either in the clinical setting via supervision or in a classroom 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.

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. Fortunately, the learning curve for many of these new technologies has diminished and a second degree in computer programming is no longer necessary. Web-based educational methods have become one of the more popular areas of focus with its 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 comfortable with technology. In this chapter,

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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) (www.lifecurriculum.info) 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 utilizes videos from MedicalCrossfire.com, a continuing medical education Web site, as well as videos created by the site authors 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 only linked to the slide when was the author actually intended to insert 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 the presentations generated by PowerPoint and Keynote is to use 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, at the touch of a button, PowerPoint add-on software such as Camtasia (www.techsmith.com/camtasia.html) or video screen capture software such as Camstudio (www.camstudio.org) records the audio portion of a presentation and synchronizes it with the slides being shown. 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 available, such as a video presentation, 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 (www.adobe.com/products/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 sell this product. 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 content, 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 towards mimicking the interactions typical of a medical 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 experience psychotic symptoms—in this space the learner walks through a building where pictures change from neutral to threatening themes and a bodiless voice urges them to hurt themselves. Students using this simulation felt that it helped them to understand what it must be like to experience paranoia. 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 an 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 a similar feature to compare across multiple drafts as well as 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 sending them as 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 editing [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]. 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 [8]. 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. The reference site Wikimatrix (www.wikimatrix.com) maintains a list of available wiki sites and software, and it has detailed feature comparisons.

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 at all versus, for example, a recorded lecture that can be sent to the students. Therefore, 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 simultaneous 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. Although 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 (for example, 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 [9]. 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 ensure that all participants have a chance to participate.

Although this type of 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 bulletin board style postings entered at the team member's convenience [10].

Content Management

Managing educational content is made easier by the use of Course Management Systems (CMS), also known as an Learning Management Systems (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 technology expertise and access to the Web site server. A more extensive listing of current LMS may be found at www.softwareshortlist.com/software/learning_management_system_LMS_directory.

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 [11].

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 permits 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. Previously Web-based materials required sufficient technology savvy, including programming skills and knowledge of client–server technology. Now, many of these tools demand less technical skill but more appropriate instructional design to educate the learner with the correct 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

16

Justin A. Birnbaum

Clinical documentation and navigation of the medical record are part of every practitioner's daily activities. This documentation and the associated medical recordkeeping requirements are central to the provision of excellent clinical care. At times, documentation tasks may be perceived as a burden. In reality, however, they are a necessary and extremely useful component of clinical practice.

Multiple essential functions are served by the medical record. These functions include communication, quality measures, compliance, research, and medicolegal coverage, all of which are described further in the subsequent text.

Communication. Medical records serve as the basis for communication between health care professionals. This documentation provides a reliable reference for clinicians regarding their thought process over time. It acquaints clinicians of the evolution of care provided and the logic associated with medical decisions. It informs about diagnostic formulations and uncertainties, interventions, outcomes, and complications. These benefits are achieved with documentation that is accurate, timely, complete, and concise.

Quality Measures. The medical record is increasingly accessed to measure achievement of goals set to improve patient care. The goals may be set by external regulatory bodies, such as the Joint Commission for Hospital Accreditation or Centers for Medicare and Medicaid Services (CMS), or developed by a particular institution or department. These measures are often viewed as aggregate data for an institution but also can be directed toward the practice pattern of individual clinicians. The efforts aim to improve patient care via use of the medical record, in part by assisting clinicians to identify areas of potential improvement in clinical practice and monitor these over time to determine if goals are being met. Additionally, if questions arise as to standards of care being met by an individual clinician in specific instances, the medical record is essential in the review of such circumstances.

Compliance. The medical record is the basis through which individuals or institutions validate each patient care interaction as it relates to the extent of care provided. This, in turn, is directly related to billing and reimbursement. The clinical documentation should reflect the complexity of care provided and/or time involved in care, and this should be reflected in the billing request. In order for compliance standards to be met, it is necessary for clinicians to have an adequate understanding of appropriate documentation and coding guidelines. This is a challenge.

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Research. Data available through the medical record are a resource for healthcare researchers. Accurate, accessible clinical data may provide valuable information and significantly influence evidence-based practice. With the advent of the electronic medical/health record, this source of research data will likely continue to expand greatly.

Medical/Legal. The medical record serves as the official documentation of care provision in circumstances in which legal matters become entwined with clinical care, such as questions regarding informed consent for medical treatments or standards of medical practice being met. Clear and complete documentation is key in these circumstances. Incomplete records may be as detrimental as inaccurate records in legal proceedings.

The Electronic Medical Record

In academic centers, the medical/health record is often an amalgam of information that may include descriptive data that are written, typed, or dictated by clinicians, laboratory results, radiologic images, photographs or drawings, demographic data, self-report forms completed by patients, written communications from families, insurance carrier communications, pharmacy records, and a variety of other contents. Each institution has its own processes to manage its medical records, and it is essential to understand how the institution in which you work manages this information. Endless options exist in regard to how medical information is obtained, stored, and accessed. Important first steps to help one understand his or her institution's system are knowing the following:

1. Who is responsible for the various data entries (including updating of data)—clinicians and support staff?
2. Where the information is stored—electronic and hard copies?
3. How to most effectively enter and access the stored information? This may require initial training and intermittent training updates (often time well spent).

When becoming familiar with the methods that a particular institution utilizes to organize and manage its medical records, one will likely have personal preferences regarding the process. While it is fair to advocate for one's individual preferences, this is often limited by the need for, and benefits of, standardization of these methods. It will be useful to recall that most systems have been built to meet the varied purposes the medical documentation serves.

Paper-based records have been the standard for medical recordkeeping and in most settings are currently being replaced, or already have been replaced, by electronic, computer-based systems. This Electronic Medical Record (EMR) will eventually replace the paper with an electronic record that maintains the elements of the traditional paper-based method and, it is believed, will eventually provide significant additional capabilities and benefits:

- Computerized access to information has the potential to streamline the clinician's workflow.
- Improved access to accurate clinical information and data will improve clinical care by improving clinical decision-making and reducing risks.
- Improved communication between patients and clinicians.
- Increased patient awareness and involvement in care.
- Improved evidence-based decision support by providing prompts and reminders to clinicians.
- Enhanced data collection for research and quality management processes.
- Reduced health care costs by increased integration of care (e.g., reduced duplication of tests, reduced delays in treatment).
- Minimized reimbursement discrepancies as documentation and billing processes are coupled.

The transition to use of the EMR has been slow and is not without its challenges. Some items worth considering are these:

- The transfer of data (historic and current) from hard copy to the EMR is arduous and accuracy is essential. Be informed about the systems in place to ensure that the EMR data are accurate and complete.

- Updating data is as important as initial data entry. Who is responsible for updating EMR data?
- Systems and methods to minimize information overload are needed. Both institutions and individuals should design strategies to make the EMR complete, but concise. For example, "Copying Forward" of electronic documentation has utility if used appropriately, but may result in a burdensome excess of information if inappropriately used.
- Patient access to clinical information carries benefits but requires thoughtful processes to manage patient responses. Be aware of these processes and ask for assistance if unclear.
- Clinical templates for documentation are effective tools if designed correctly. Ask about redesign if these templates do not fit your clinical practice.
- Standardized or templated clinical documentation may not be sufficient in the clinical setting where the narrative description is central to clinical practice.

Basics of Excellent Clinical Documentation Entry

The clinical documentation provided by a professional is a testament to the care provided to a patient and, as such, should be thoughtfully entered into the medical record. Basic, but important, considerations are noted below.

- 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.

Privacy and Clinical Documentation

Maintaining confidentiality and privacy of the medical record has been an expectation for many years and increasing regulatory requirements have been implemented over the last few decades. The US Department of Health and Human Services (HHS) issued the Privacy Rule to implement the requirement of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Compliance with the Privacy Rule standards was expected by, and initiated in, April 2003. The Privacy Rule standards address the use and disclosure of individuals' health information.

In the era of the EMR, maintaining excellent documentation means, in part, complying with privacy standards in an evolving and increasingly complex environment. Some suggestions:

- Maintain confidentiality of passwords and update them as required.
- Do not transfer patient data to unsecure sites.
- If any patient data are viewable via "smartphone" connections, make sure that the phone is pass-code protected.
- Use electronic communications (e.g., e-mail) containing any patient information only as approved by the institution.
- Use confidentiality statements when using electronic communications.
- Log off computer access when leaving any work station.
- Do not download any documentation containing patient data to a personal computer.
- If a personal computer has remote access to patient data, make sure that the access is closed when leaving the computer unattended.
- When viewing electronic information on a monitor, make sure that others cannot view the screen.
- Medical records should not be left in an unlocked room or be left unattended.
- Report a breach or potential breach of confidentiality immediately.

Compliance, Clinical Documentation, and Financial Considerations

Compliance as it relates to clinicians in practice is a term that refers to the extent to which the clinical care provided, and the associated documentation of that care, is in accordance with the service/procedure code applied to that provision of care. The Physicians' Current Procedural Terminology (CPT) is published annually by the American Medical Association (AMA). It is a systematic listing and coding of procedures and services performed by physicians and other healthcare professionals. A five-digit code is provided for each procedure or service. The intent of the CPT codes is to simplify the reporting of medical services. The desire is for CPT codes to be used appropriately and accurately so as to reflect the true level of care provided (as reflected in the clinical documentation). If this is achieved, the clinical encounter is deemed "within compliance."

The ability to remain "in compliance" when providing clinical care, documenting this care, and then selecting the appropriate CPT code is directly correlated with the clinician's awareness and memory around CPT codes. It is not surprising that many clinicians do not fully remember the criteria expected to fulfill each CPT code that they might utilize when providing care to patients. This may result in the use of CPT codes that "under-code" or "over-code" the patient care interaction. It is important to make efforts to ensure that clinicians are not consistently "under-coding" or "over-coding" for services/procedures as this may have significant financial implications and/or result in regulatory penalties. Many institutions have developed compliance departments to assist with this matter, and provide reference cards for clinicians' use.

Three suggestions:
1. Limit the number of CPT codes you utilize. Be familiar with the criteria for a few CPT codes and investigate other codes when necessary.
2. Avoid consistently "under-coding" or "over-coding."

3. Ask for assistance from the Compliance Department when starting practice and when difficulties arise.

CPT codes are associated with certain monetary values in financial reimbursement. Accurate use of CPT codes is important for appropriate billing of services for both the individual clinician and the institution. Frequently, a clinician's salary is covered by an institution based upon financial billing targets, or determined by the institution based upon financial billings. The CPT codes submitted for reimbursement by the clinician are significant determinants in meeting financial billing expectations.

Another method of measuring clinical work productivity is based on work relative value units (wRVUs). Each CPT code has an associated wRVU that assigns a numeric reimbursement value. The clinical documentation required for CPT code and wRVU pairs is identical. Whether it be CPT code (and associated financial billings) or wRVU driven, clinicians working in an environment that has set clinical productivity based on either of these measures are wise to strategize about achieving their productivity target.

Consider the following:
• Have a clear understanding of clinical work productivity targets.
• Discuss any question or concerns about targets with a supervisor early in the fiscal year.
• Request monthly reports to ensure that productivity is on track.
• Productivity will increase over time as one's practice is established.
• Take into account the effect of anticipated leaves of absence.
• Anticipate fluctuations in month-to-month productivity.
• Discuss in a timely manner any anticipated changes in expected clinical productivity due to restructuring of employment responsibilities (e.g., changes in research funding or administrative responsibilities) with a supervisor/administrator.
• Request a meeting with compliance administrators if available.

Words to the Wise
- Be accurate and honest, including uncertainties.
- Be timely with entries—same day whenever possible.
- Be aware that productivity will increase over time.

Ask Your Mentor or Colleagues
- Given the significance of matching clinical care and its associated documentation with appropriate CPT codes, when might it be possible to use the EMR to automatically generate appropriate CPT coding?
- With the increase of patient accessibility to the medical record, do you have suggestions for managing this?
- How do I most directly get help for questions about the EMR?

17

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.

The following data provide context for the legal issues physicians may face:

- A landmark 1999 study by the Institute of Medicine found that as many as 98,000 deaths annually in US hospitals are attributable to preventable medical errors [2].
- Despite the high rate of medical error, there is a mismatch between medical error and medical malpractice suits: most patients who are injured by medical malpractice do not file lawsuits, and there are many plaintiffs in medical malpractice cases who were not victims of negligence [3].
- The American Medical Association's 2007–2008 Physician Practice Information Survey found that while a physician's risk of being sued in a given year is relatively low, 5%, 61% of physicians 55 years old or older have been sued during the course of their careers [4].
- The AMA study also determined that risk of being sued varies by specialty, estimating that as few as 22.2% of psychiatrists and as many as 69.2% of surgeons and obstetricians/gynecologists have been sued [4].
- A study by Studdert et al. [5] concluded that, despite the risk of being sued, generalizations that the US medical malpractice system is "stricken with frivolous litigation" are

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overblown; most claims that involve errors do not result in payment.

- Feld and Moses estimate that approximately 80% of physicians prevail in a medical malpractice suit and cite another landmark study by Harvard University, which examined medical malpractice claims in New York and concluded that there are fewer lawsuits than incidents of medical negligence [6].
- A physician's risk of being sued appears stable over time and related to "patients' dissatisfaction with their physicians' ability to establish rapport, provide access, administer care and treatment consistent with expectations and communicate effectively" [7].
- Physician concerns about being sued result in changes in clinical practice in order to avoid liability, also known as "defensive medicine" [8].

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" [8]. "Good medicine" involves both meeting the standard of care and avoiding unwarranted defensive medicine.

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 consists of "that medical care that would be provided by a reasonable physician in the same or similar circumstances" [9]. 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 [9].

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 loquitor*, e.g., a surgery performed on the wrong side of the body or a surgery resulting in a retained instrument [10]. Clinical practice guidelines, medical literature, 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 [11]. 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, medicine which aims primarily to avoid lawsuit as opposed to benefitting patients. Examples include ordering extra tests, procedures, and referrals [3]. 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 and documentation, a written form of communication, are critical aspects of litigation prevention.

Numerous studies have found that poor communication, rather than negligence, is the primary reason people sue [12]. Hickson et al. examined patient complaints and malpractice risk and found that, consistent with previously published studies, "[p]atients who saw physicians with the highest numbers of lawsuits were more likely to complain that their physicians would not listen or return telephone calls, were rude and did not show respect," and those who sued their physicians expressed similar concerns [7]. Another study by Vincent et al. found that, in addition to the initial injury, "insensitive handling and poor communication after the original incident" led to litigation [13]. May and Aulisio cited one study identifying communication problems generally as the driving factor in over 80% of medical malpractice cases, and others that found a link between specific communication problems, e.g., concerns about cover-ups or the desire for revenge, and lawsuits [14].

Physicians can practice good communication with patients by communicating "in an honest, open, empathetic manner" [8]. This includes listening to patients, following up with patients, and treating patients respectfully and with sensitivity to their particular situation. It also includes incorporating a meaningful informed consent process in the course of each patient's care. When unfortunate outcomes arise, good communication includes appropriate disclosure, as discussed below. It both reduces liability exposure and is consistent with the ethical standards set forth by the American Medical Association and the American College of Physicians [8].

Communication with other health care providers and/or the treatment team is also of critical importance and may help to prevent systems errors or situations when a patient "falls through the cracks." Avoidance of systems 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]. Williams provides the following examples of such systems failures: "[c]ulture reports, other laboratory and pathology reports, and radiology reports not being timely seen by or communicated by the ordering physician;" "[r]eferrals or consults ordered, but not made or obtained;" "[i]mportant laboratory results or other information to be discussed with the patient at the next appointment, but the patient cancels or no-shows and the important information is not communicated to the patient;" "[w]rong medication administered;" "[m]edication allergies not appreciated or overlooked;" and "[c]ritical medical history missed which exists in prior records in the same facility" [15]. 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.

In addition to preventing systems errors, communication with other physicians may also help to provide justification for a physician's actions. For example, a physician may wish to obtain a consult for a difficult or unusual case or one calling for treatment other than what is typical [16]. Such justification may prove useful in the event medicolegal problems arise for the physician in the future.

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 [16]. 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. 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 and, following investigation of the facts, fully disclosing the incidents to patients and/or their next of kin, providing the patient or next of kin with opportunity to file a claim, and attempting to settle any corresponding claims in a timely, fair manner [17]. 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 through 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 is approximately double that for the VA system ($1,484,000 versus $720,000) [17].

Similarly, the University of Michigan Health System began implementing a program of full disclosure and compensation of medical errors in 2001 [18]. 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 [18].

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) [19]. Although the MEDiC Bill did not become 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 [12, 19]. A 2008 study by McDonnell and Guenther found that 36 states have adopted apology laws to protect disclosure of medical errors, with 28 of the states barring the use of expressions of sympathy, regret, and condolence against the physician in subsequent litigation [19]. Other states have laws requiring disclosure of medical errors involving adverse outcomes and prohibiting such disclosures from serving as evidence of fault in malpractice litigation [19]. Similarly, since 2001, the Joint Commission has required disclosure of care that caused harm [20].

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. Woods describes the key elements as "recognition, regret, responsibility, remedy, and remaining engaged" [21]. 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 [17]. Additional tips include empathizing with the patient and family, communicating the bad news in an immediate and direct manner, expressing sorrow for the person's loss, and documenting the disclosure in the chart [1]. Note that while disclosure should always be complete and truthful, some disclosure approaches advocate framing the apology in a manner that conveys regret for what happened as opposed to apologizing for the physicians' actions [1]. 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," [22] along with the converse principle of doing good for the patient, "beneficence," which some see as the primary imperative of medicine [23]. 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" [21].

The American Medical Association's Code of Medical Ethics explicitly addresses the ethical obligations of physicians faced with potential disclosure issues at Opinion 8.12, Patient Information, which states the following:

> It is a fundamental ethical requirement that a physician should at all times deal honestly and openly with patients. Patients have a right to know their past and present medical status and to be free of any mistaken beliefs concerning their conditions. Situations occasionally occur in which a patient suffers significant medical complications that may have resulted from the physician's mistake or judgment. In these situations, the physician is ethically required to inform the patient of all the facts necessary to ensure understanding of what has occurred. Only through full disclosure is a patient able to make informed decisions regarding future medical care…
>
> Concern regarding legal liability which might result following truthful disclosure should not affect the physician's honesty with a patient [24].

Closely related is the AMA Code of Ethics Opinion 8.03, Conflict of Interest: Guidelines, which states the following:

> Under no circumstances may physicians place their own financial interests above the welfare of their patients. The primary objective of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration. For a physician to unnecessarily hospitalize a patient, prescribe a drug, or conduct diagnostic tests for the physician's financial benefit is unethical. If a conflict develops between the physician's financial interest and the physician's responsibilities to the patient, the conflict must be resolved to the patient's benefit [24].

A physician who practices unwarranted defensive medicine risks violating Opinion 8.03 if he/she orders unnecessary tests or treatment for purposes of avoiding litigation and its associated costs.

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 are available to prevent medicolegal issues and address existing ones. Such 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

Fig. 17.1 Best practices model for avoiding medicolegal problems

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 institution's 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" [8]. 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. See Fig. 17.1. However, even the 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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Additional Resource

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Part III

Approaching Work with Colleagues

How to Network and Be a Good Colleague

18

Edward Kass and Laura B. Dunn

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 hold 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 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

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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 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. 18.1, 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, such as 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.

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
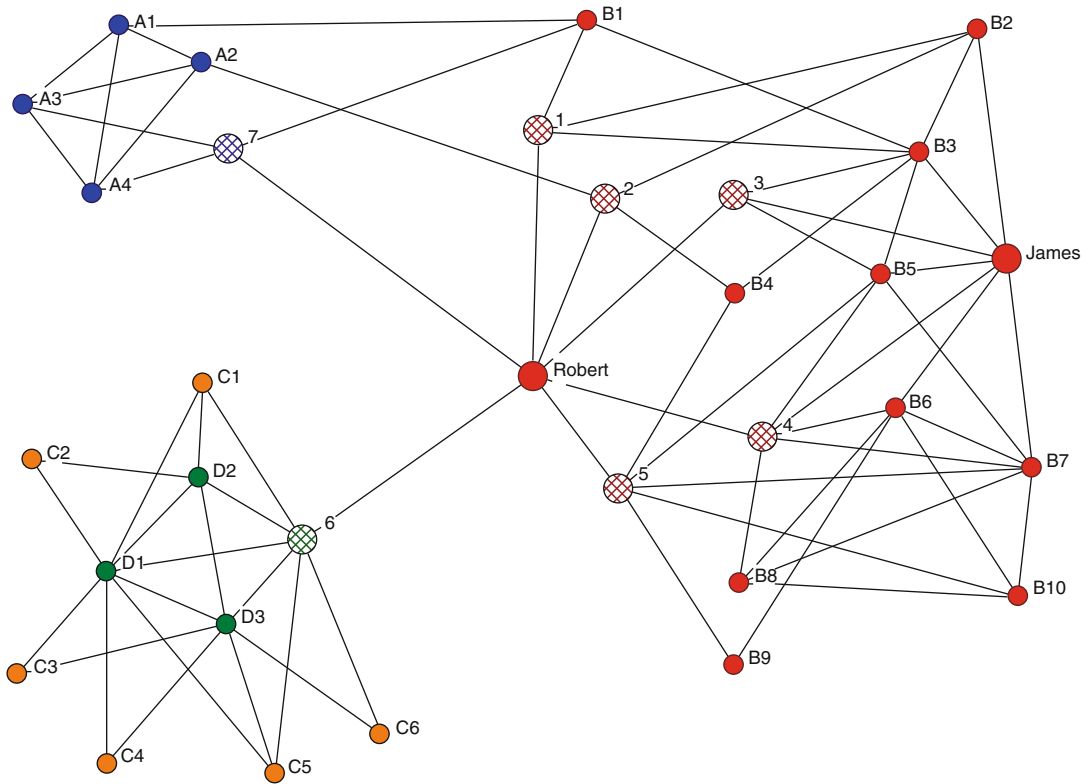
Fig. 18.1 Example of a social network: *circles* people, *lines* relationships. Reprinted with permission from Burt RS: Brokerage and Closure: An introduction to social capital. Oxford University Press, 2007

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 citizen" 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 activities that we know will not be productive, will be psychologically unhealthy (e.g., an abusive

Table 18.1 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

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. 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 18.1 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 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.

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?

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.
  - Committees
  - Grand rounds
  - Interacting 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.

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How to Collaborate Interprofessionally

<div style="text-align:right">**19**</div>

Nathan Hantke and Penelope Zeifert

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 health care 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.
- Collaboration history, personality style, and collegiality are other attributes to consider in forming a treatment 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.

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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?
- 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.
- 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. For example, professional demands may cause delays in meeting research deadlines. On the other hand, publication submission may be necessary for academic promotion or a grant submission.
- 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.
- 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 looks 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

Interprofessional collaboration in clinical care has become increasingly important as research has shown that effective teamwork in a medical setting decreases medical errors and increases patient quality of care [1–3]. 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 Health care 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 [4].

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 [5, 6].

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 [7]. 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 [8].

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 [9]. Unfortunately, most 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 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 [10]. 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 [11, 12]. 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.

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. 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?

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

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. Areas of needed change can then be implemented. Setting clear expectations for program goals will reduce ambiguity.

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.

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 a skilled professional to refer to?
- What is the culture at your center? What is the role of politics at your work?

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.

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How to Approach Mentorship as a Mentee

20

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Early- and middle-career physicians, scientists, and clinicians have multiple demands placed on their time, especially within the context of academic medicine. The learning curve is very steep as one takes the developmental step from trainee to faculty. As new faculty are called upon to prioritize their time and rapidly assimilate to the academic culture, it becomes extremely important to utilize time wisely and draw upon available resources to promote an efficient and successful transition.

The relationship between mentor and mentee may be something already familiar to early-career faculty, as the fortunate may have either formally or more serendipitously been matched with an experienced faculty mentor as a student. 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]

Equally as essential as the contribution of the mentor to the relationship are the roles and responsibilities of the mentee. The mentorship relationship is a dynamic relationship, one that is mutually beneficial and inclusive of both personal and professional gains. This relationship has been identified as influential in the decision of trainees and early-career faculty to enter and remain in academic medicine. Its 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 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." The initiation of the mentorship relationship is mediated by the personality style of the mentee. Management research has shown that individuals with an internal locus of control, emotional stability, and high self-monitoring experience greater success [5]. 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 20.1.

As personal qualities are being considered, thinking should additionally be expanded to include consideration of values and priorities, particularly those that are considered a requisite part of any successful relationship. Honesty, trust, and integrity are important traits to consider, as a relationship with a mentor will require a certain amount of self-disclosure and receipt of critical feedback. There is also often a power differential within a mentoring relationship and likely collaboration on scholarly work, which further elevates the need for mutual respect and collegiality.

Moving beyond character and values, it is important for mentees to 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 it may enhance the sense of identification and understanding. It may be additionally important to explore the importance of the location of the mentor. While long-distance mentoring may have the advantage of accessing skills or knowledge

Table 20.1 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
• Knowledge
– Strengths
– Weaknesses
(b) Professional
• Skills
– Strengths
– Weaknesses
• 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
(a) Write letter of intent
(b) Update and send curriculum vitae
(c) Schedule meeting
Maintaining and sustaining mentorships
(a) Contact log
(b) Review and update CV
(c) Review specific elements of professional development plan
(d) Review work in progress (grant applications, manuscripts, project proposals, curriculum projects, productivity measures, etc.)

that are not available to mentees at their home institution, Allen et al. found that mentees perceived more successful career mentoring from mentors within same department, as location impacted availability and interaction frequency, which subsequently enriched the relationship [6].

The next step in a comprehensive self-assessment is to inventory skill and knowledge strengths and weaknesses within both personal and professional domains. Starting with the personal domain, mentees should reflect upon such capabilities as stress management and maintenance of the work–life balance. Professionally, mentees should consider all facets of their career development, including clinical, teaching, and research and begin to focus their energies on the pursuit of 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 the plan for growth in the specific areas of interest and will not only allow mentees to begin to visualize the roadmap to the success that they seek but enable mentees to identify the specific expertise they try to find in a mentor and to make selections based on their individual needs.

Mentor Assessment

Once a mentee's self-assessment is completed and clarity is achieved about specific needs, the next step is to identify mentorship that will best meet those requirements. Formal mentoring programs exist at some institutions, and by utilizing processes already in place, mentees will have an easier time gathering information and making initial connections. In the absence of a formal process, mentees should be proactive in outreach to peers and senior faculty. Identifying faculty with similar interests and complementary talents is crucial, but equally important is determining interest and availability for mentoring. Mentees should ascertain whether potential mentors have 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 professional networking.

Mentees should appreciate that there are various forms of mentoring, including dyadic, group mentoring, peer mentoring, and mosaic mentoring. Dyadic mentoring describes the more traditional form of mentoring, the 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. Group mentoring may also include the influence and presence of an experienced faculty member; however, in these cases, the experienced individual is providing wisdom and guidance to a group of early-career faculty, often as a way to extend the expertise of a limited resource. Peer mentoring can also take the form of group mentoring, but without the immediate availability of senior influence or input. Peer mentoring can be beneficial by creating an environment of support and problem solving for individuals at the same developmental level. Models for peer mentoring groups have been described, one such group at Duke University, which 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 a combination of all forms of mentorship. Seldom does one individual have the ability to meet all of 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 in the form of an email or telephone call, to briefly

explain the purpose of the outreach, to establish the availability and potential interest of the mentor, 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 may not be suited to meet the needs the mentee has identified at the outset of initial contact, senior faculty may still serve as resources and be able to make connections within one's professional community.

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 will be always be important and 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 oneself and for the mentors, accepting feedback gracefully, and being active listeners who are inviting of and open to constructive critique. The challenge for mentees is to find optimal balance between unconditionally accepting and questioning the voice of experience, 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 and ideas (5). 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 [8, 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 electively be terminated prior to meeting objectives, as personality or professional conflicts become insurmountable obstacles to progress. Relationships may additionally end as professional appointments change, making the necessary time commitment unmanageable or location 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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Jonathan F. Borus

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 working and need to learn both "how it is done here" and how things are done in the field in general.

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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, 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 mentees' 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, I 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 mentor 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 the past 4 years, we have 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 wanted to learn how to be better mentors. To date, FMLP has trained three cohorts of faculty members (68 in total) from 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 must have at least 5 years' experience mentoring other faculty to demonstrate their investment in this role and be willing to commit to attending all of the program's 9 monthly meetings. Each of these meetings focuses 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 have 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.

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

Table 21.1 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

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 21.1).

> **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, 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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How to Participate in Institutional Review Board Activities

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Ann Freeman Cook and Helena Hoas

Institutional Review Boards (IRBs) 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 a 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. 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.

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

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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."

In order to fulfill regulatory requirements, 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's 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 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 developed with that institutional model in mind. Over time, new models such as independent or central IRBs, hospital IRBs, and community and tribal IRBs have become key players in the oversight system. Institutions have various protocols for approving studies that are conducted in their facilities or by their faculty. Depending on the kind of study and where it will be conducted, institutions may require approval by their own IRB, an independent or central IRB, or multiple IRBs.

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 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 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 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 fully protect human subjects.

Likewise, it can 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. The lack of guidance seemed to inhibit the ability of IRB members to tackle difficult ethical issues.

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 subjects 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.

Special Contributions of Persons with Medical Training

Persons with medical training bring unique perspectives and experiences to the IRB's deliberations about how to both 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. 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.

assessment of risk, and strategies for obtaining informed consent to enhance understanding of the ethical problems that can accompany research.
- Membership requires an ongoing commitment to self-reflection: Know what you know and what you do not know.

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, my friend? Would I seek this for myself?
- Look for articles on topics like therapeutic misconception, participant

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 IBBs or serving as a consultant for an IRB?

How to Participate in Ethics Committees

Ryan Spellecy, Cynthiane 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 ineffectiveness 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 actual practice, ethics committee consultations are nondirective and 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 have argued 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 simply do not exist, 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 is valued when colleagues are wrestling with issues and if you have a passion not for solving problems but for equipping your colleagues with

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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 and provide ethics education. 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 [3]. 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 one-day conferences to Master's degrees in bioethics.

Functions of an Ethics Committee

Education

The ethics committee is charged with the education of the members throughout the institution and, at times, patients and family members, and education is perhaps its most important function. 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 recommendations 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.

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 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.

Consultation

Excellent available resources describe the process of ethics consultation [4], 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.

> **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 function 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 that, 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!

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 [5] (Table 23.1).

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. In all of these models, those present at the consult might be selected on

Table 23.1 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

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 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.

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 American Society for Bioethics and Humanities (ASBH) and its publication, Core Competencies for Healthcare Ethics Consultation, Second Edition. 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 [6, 7]. 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.

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 is 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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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 endeavors 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 [1] and the American Psychological Association [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 institution. Further, they 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. 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, it readily extends to the domains of education and research. Extreme fatigue and emotional stress are subsumed under the rubric of impairment. Interestingly, APA [9] 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. It is

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depicted as a source of ethical misconduct distinct from impairment. APA defines an impaired psychologist as one who has a condition that may cause harm to the patient or others. From this stage forward, the term *impairment* will incorporate the construct of distress.

Levels of physical and psychological impairment among health-care professionals are congruent with the rates in the general population. For example, approximately 15% of medical professionals will experience problems with alcohol and/or substance abuse at some point in their career [10, 11]. However, physicians are twice as likely as the general public to complete suicide [12–14]. Extreme stress related to health-care work has been identified as one of the causes of depression and substance abuse [15]. As a result of their recurring exposure to patients with enduring medical, physical, and emotional difficulties, health-care professionals are more disposed to distress and, in its extreme manifestation, burnout [9, 12, 16]. More specifically, providers can experience stress as a result of containing their own emotional response to others' pain; maintaining therapeutic boundaries; negotiating competing demands from patients, medical institutions, insurance companies, and regulatory entities; balancing their clinical and academic responsibilities; and confronting their imperfections as clinicians or teachers.

Incompetence refers to the provision of substandard levels of patient care due to inadequate knowledge, skills, or judgment [1, 8]. Again this can be translated 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. Morreim [17] cautions against equating adverse treatment outcomes with incompetent care. Poor outcomes may also result from natural factors beyond human control, unexpected effects despite a well-justified intervention, atypical but not necessarily unacceptable interventions, or good management of a remarkably complex circumstance.

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 [18] 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 have the awareness of professional ethics and 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 branded as a "code of silence" or "culture of silence" or "conspiracy of silence" [11, 19–21]. Multiple personal, interpersonal, and contextual factors account for this silence.

After the fact of 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. Those who honor their societal obligations over the individual

rights of the offending colleague are more likely to report the unethical behavior [6]. Others choose to not act because they are apprehensive that a report will cause their colleague to be, for example, stigmatized as an alcoholic, drug addict, mentally ill, deviant, or any other iteration of unfit; unfairly punished; or disallowed to practice his or her chosen profession. It is assumed a report will engender financial difficulties, marital and family problems, humiliation, depression, and further emotional deterioration for their coworker. Others use rationalization, believing their colleague will "work it out" or expecting the problem to disappear [11]. And still others avoid the distress that comes with confronting a colleague. Many identify with their errant colleague, agonizing that they too could have a lapse of moral reasoning and believing they deserve a second chance to right their mistakes and confirm they are ethical professionals.

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 [17]. The reporting provider may be identified as a whistle-blower [17] 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 impaired 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 [12]. 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 not only directed to monitor their own behaviors but also to intercede on behalf of patients or others when a colleague violates professional standards.

Health professions are allowed significant 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 [22, 23]. 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 reasoned 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.

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 the general population [11] and

are estimated to be 78% [24]. The evidence indicates that interventions which provide structure and strict monitoring are the most effective [25]. These programs allow for 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.

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 [18, 26] 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 on-line competencies to ensure their ongoing knowledge and adherence.

Professional associations have codes of ethics and conduct. AMA [1, 8] has guidelines for confronting its three forms of unethical behavior. A nonpunitive approach is used with substandard colleagues. With regard to impaired colleagues, professionals are expected to communicate with them in an effort to have that colleague discontinue practice and enroll in a sanctioned physician assistance program. Clearly, this information 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 concordance from the assistance program.

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 [23] proposes a four-step ethical decision-making process to help determine the best course of action with unethical colleagues:

1. Be aware of your state's reporting requirements as specified by legal statutes and licensing boards (and also the 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. However, this process can be uncomfortable and even perceived as a confrontation. Several important ethicists [27–30] 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 made 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 [31, 32]. 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 [33]. 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 directed medical schools to include professionalism as a core competency by the year 2007. 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]. 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.

Additional education is essential for more senior providers. 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 towards a treatment and educational model, intercessions reduce the stigma and risks 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 submitting 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 the best antidote to stress and carelessness.

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 and Publish an Empirical Report

25

Alan Louie and Laura Weiss Roberts

The old adage in academia has always been "publish or perish." This still 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, empirical articles in refereed journals is the metric relied upon most by promotions 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. There is a kind of "objectivity" to this process that 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. Lastly, 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 illustrate a stepwise progression through the thought processes and concrete tasks involved in writing an empirical report. One certainly need not follow the exact order of these steps, but an intrinsic logic to the sequence presented will, we hope, become apparent and instructive. These steps 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. Absent this, the report will run into 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

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data may enhance one's objectivity. Consultation from a statistical expert often helps to ensure that the right statistic is being used and to consider alternate analysis of the data. More formally, the author might solicit 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. Other 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. Additionally, 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" is of course painful for the researcher who has labored to obtain every data point. The hesitation to let go of hard-won, if weak or flawed, data may be especially difficult for early-career faculty—this may be less true for more senior faculty members who may have files of data 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, but they will also learn that, regrettably, not all 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. And 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 the authors plan to submit their 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.

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 of journals, particularly ones in which they have 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

score of each journal, which is calculated by a complicated equation and may be found by searching the ISI Web of Knowledge Journal Citation Reports. Conceptually, the impact factor signifies how frequently articles in a journal are on the average cited in the literature at large. In other words, what is 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 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. Obviously, one's manuscript will only get published in a journal if both one chooses the journal for submission and the journal accepts the manuscript for publication. Some authors will initially submit to the most prestigious journal possible—the authors understand that the journal accepts a low percentage of submitted manuscripts, but they figure the worst that can happen is that their manuscript is rejected. The authors will then revise their manuscript on the basis of the reviews received and resubmit it 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, may necessitate reformatting the manuscript for the second journal, and may constitute inappropriate use of the peer-review process.

An author should not waste time submitting to journals for which his or her manuscript will not fall within the journal's scope or 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 "Instruction to the Authors" that journals maintain at their web sites or put 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 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. Ethical guidelines for authors are well established, and they can be found, for example, at the web site of the International Committee of Medical Journal Editors (http://www.icmje.org/).

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). 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 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. For one of us (LWR), the first "writing" work is actually the construction of the tables or figures that will serve as the backbone of the manuscript. Presented here is a stepwise approach to composing the manuscript for an empirical report that may facilitate the author who is just learning how to perform this "craft" (Table 25.1). We start with the Methods section because it is the most straightforward and least interpretive—beginning to write the methods section (rather than, say, starting with the paper's introduction) helps "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 [1]. 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 in evaluating 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

Table 25.1 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

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 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.

Results

The Results section is key to the quality of an empirical report simply because it presents the findings of the study. These should be written about in an organized, objective, and observational 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 and are visually accessible, and often more readily interpretable, so one's most important data should be put in graphs. Usually data may be displayed in different ways, and some are much more effective than others or prompt new ways to think about the data. Tables may also be useful, but have less impact than graphs, and authors sometimes make them overwhelming for the reader by exhibiting 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 in the Results should add up—and do not repeat data (e.g., reporting the same data in a table/figure and 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 and the value of the basic findings of the work. This is followed by discussion of the findings and contextualizing them in terms of prior findings in the literature—noting similarities, differences, and how the current findings advance the literature. This latter area involves the authors proposing conclusions and implications of their findings and 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, one must always maintain healthy skepticism, and this should be reflected in one's language. Furthermore, 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

Ironically, 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" future 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 and typically begins with a statement of 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 relevant hypothesis. The author is ethically obliged to provide balanced reference 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. Finally, 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. The chosen ones 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 with which they are associated and

support. Readers do not appreciate the carelessness of 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 the author's, providing examples of the specific language and style appearing in the journal. Authors are wise to ask a mentor or colleague, especially ones 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 includes 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 self-reinforcement for completing sections of writing. One of us (AKL) reinforces

the completion of a writing section by minimizing the document, so changing family photos become visible on the computer desktop. Some external help might be sought from a writing partner or attending writing workshops sponsored by a medical school. Most important may be keeping a constructive attitude towards oneself as an author. One must have enough self-esteem 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 couple studies published goes a long way in boosting self-esteem as an author, but nevertheless, writing is not uncommonly for most academic faculty members a mix of pain and pleasure, since successful reports usually are rewritten and revised several times. Writing skills in general improve over many years with intentional practice, so 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. 25.1). This is an imperfect process, but it is the guardian of scientific quality. (For more details, see the chapter in this volume on reviewing manuscripts.) 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 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 will not be given the names of the reviewers. The hope is that this will lead to less bias, greater fairness, and honest commentary. Occasionally, the editors may also seek review by a statistical consultant.

The reviewers write reviews [2] 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 [3].

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 it published or submit it to another journal. Absent

Fig. 25.1 Peer review and editorial processes

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 seemed unfair. Negative reactions of an author, however, are counterproductive to the process of getting published, and an author is best advised to work on developing tolerance to these 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 towards his or her writing, and in scientific writing, towards 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. They will also give an author a prediction of how the readers will receive the manuscript and how the author may make it clearer and more persuasive to the audience. Rather than seeing the reviews as obstacles

to one 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 them down into discrete suggestions. They 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. For instance, in the former case, reviewers may suggest that more data be collected and, in the latter, that the described conclusions of the study are poorly written. A 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 suggestion of the reviewers. 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 them. 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 for the second journal 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 will 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 3,000-word article; however, a brief report (about 1,750 words) or a letter to the editor (about 1,000 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. While one probably wants to be known foremost for meaningful and rigorous work, being a prolific writer is also of value, because this disseminates one's 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.

Thus, 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. Most articles end up being just one of many on one's publication record. 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 regards 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 scores. They will want to track how many times their articles are cited by others, which may be periodically searched through the Web of Knowledge (http://apps.isiknowledge.com/). Also associated with publishing for more experienced authors is being a reviewer for journals and later applying to be on the editorial board of journals or for editorial positions. As one gets to know colleagues at other institutions through national meetings and networking, collaborating with them 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 for oneself or work with colleagues who will hold each other to deadlines.
- Writing and publishing is 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 regards to publishing?

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How to Write a Case Report

Richard Balon and Eugene Beresin

As Borus [1] pointed out, writing for publication has been an "essential component of a successful career in academic medicine." Writing and publishing a case report may be, and frequently is, a starting point of writing for publication. On the other hand, as Martyn [2] 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 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. Last, but not least, case reports provide interesting clinical and educational information to the field of medicine. Martyn [2] mentioned a couple of classic case reports that alerted other physicians to start further investigations of far-reaching significance. And, as Roselli and Otero stated, "The case report is far from dead," in 2001 MEDLINE crossed the barrier of 1,000,000 case reports, and 40,000 new cases enter MEDLINE each year [3].

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. 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 [4].

Green and Johnson [4] outlined three types of case reports that tend to be published: (a) diagnostic or assessment reports, (b) treatment or management reports, and (c) educational reports. According to Iles and Piepho [5], 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 [6] distinguish four kinds of case reports: "(a) the unique case that appears to represent a newly described syndrome or disease, (b) the case with

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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 [5] and Wright and Kouroukis [6] draw from Huth's book on writing and publishing in medicine (see the recommended 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" [5]. Green and Johnson [4] 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 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 a 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 thinking it through and preparation. Wright and Kouroukis [6] provide some 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, interesting, or useful as one thinks. In the beginning, the author has to conduct a solid literature review (PubMed, MEDLINE, or other search systems) to see whether similar or related cases have been published in the past. Wright and Kouroukis [6] 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 [7] 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 [6] recommend that one orders 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 as of this writing 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, 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).

One also needs to make sure that the case report reaches the proper audience [8] 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) [9]. Journals usually do not provide much information on the contents of case reports. According to one study [8], 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. [9], the recommended length of case reports in various journals varied from 500 to 2,000 words with a median of 1,000 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.

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 [10]. 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" [10]. Singer [11] 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 [11] 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 [12] 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 [4] 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.

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. 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 [13] 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.

Those who may have contributed to the case report preparation to a lesser extent than that of an author may be acknowledged or thanked in the Acknowledgements 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; Acknowledgements; and if required by the journal, a statement about possible conflict of interest. Some case reports may not even need an introduction and may go directly to the case description followed by a brief discussion.

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; Acknowledgements; References; and if required, a statement about possible conflict of interest.

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 the search after the case report is published (e.g., schizophrenia, antipsychotics). To select key words 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 [8] but, rather, should help to summarize and shorten it.

Title/Title Page

The title should be as brief and succinct as possible [4] and should inform the reader what the topic of the case report is. 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 [4].

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 [4, 14]. 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.

Introduction

The introduction should state the purpose, subject, value, pertinence, and worthiness of the report [4, 8]. 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 [8]. For instance, one may say, "Our case describes a more severe consequences of the sudden 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, 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; 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 [4] 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 [8] 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 [14]. 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 [4] 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 [8], and vague recommendations. Writing just that "more research is needed" is inadequate [4].

Squires [15] 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?

Acknowledgements

A note at the end of the report should acknowledge colleagues who assisted with the work yet did not fulfill the authorship criteria [4] 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.

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 [4].

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 [8] caution, one should never transfer a reference cited in another article without reading it 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, 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. [4, 14, 16, 17]) include tables and checklists for a detailed case report structure.

Writing Style

As mentioned, case reports should be accurate, brief, and concise [8], and the language should be vivid. An excellent article by DeBakey and DeBakey [18] 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 [18]. One should avoid jargon, slang, vogue and vague words, clichés, redundancy, and circumlocution [18]. (The details on language provided by DeBakey and DeBakey [18] 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 of Resnick and Soliman [19] 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 [18] 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 [19] suggest that proofreading out loud or backwards may allow for some overlooked errors to be discovered. Others [16] 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 learnt?"

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 ask the authors to specify preferred reviewers and reviewers that should preferably not be used.

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 fashion. 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, 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, looking usually 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.

Conclusion

Case reports, an important part of the medical literature, are far from dead [3] and are here to stay. 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. 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.

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.
- 3Establish 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?"
- 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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Additional Resource

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 Review a Manuscript

Thomas W. Heinrich

The peer review process in scientific publications is fundamental to the dissemination of worthy medical knowledge. It accomplishes this through its impact on the publication of quality manuscripts and other forms of media 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 veracity in the products which are produced. Reviewers should seek to improve the products under review and educate the author(s) in how to implement this improvement 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 committee's members were to review manuscripts submitted for publication in the Society's journal *Transactions*. This was followed by a relatively informal process in which some editors of journals would seek review of certain articles 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. Editors began to become more reliant on peer reviewers' objective expert advice on helping to determine the appropriateness of the science, significance of the message, and overall quality of the manuscripts submitted for publication in their journals. 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 part of the curriculum taught during medical school, residency, or fellowship training. Reviewing is all too often a skill developed in relative isolation early in a physician's academic career with little in the way of feedback or quality assurance. As a result, early-career faculty may find it difficult to consider themselves worthy of reviewing products authored by more senior physicians and scientists. Peer reviewers early in their career may also discover it difficult to provide critical feedback or reject a manuscript given their personal experience in receiving such responses from editors 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 the novice reviewer through his or her first peer review assignments.

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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 and suitability for publication. The peer reviewer is but one part of this editorial progression. When a manuscript is first submitted, which is now most commonly done through an online process, it is reviewed by the editor or an associate editor to ensure that the author(s) followed the journal's instructions and 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 worthy reviewers, most journals maintain a database of identified experts in various fields of study, as well individuals who have previously reviewed for the journal. It is from this list that the editorial office attempts to select the most qualified peer reviewer for the manuscript in question. It is in the journal editors' best interest to identify careful, thorough, timely, and fair reviewers to help judge and improve submitted manuscripts. Editors may also identify reviewers with differing scientific and clinical strengths to review a single submission. 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. 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, along with 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. He or she 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 (see Table 27.1) [3]. 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 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. 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.

The second question prospective reviewers should ask themselves is whether the manuscript's content (topic or science) falls outside the reviewer's area of expertise. A poor understanding of the article's topic may fundamentally hamper the

Table 27.1 Questions the potential reviewer should ask when invited to review [9]

1. Do I have enough expertise in the content of this manuscript to provide a fair and competent review?
2. Do I have sufficient time to perform a meaningful review of the manuscript within the requested time frame?
3. Do I have any potential conflicts of interest that may bias my perception of this manuscript?

ability of the reviewer to adequately evaluate the manuscript. Lovejoy et al. [4] 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 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 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 soon after the invitation to review is received. 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 [5]. In a study by Black et al. [6], the characteristics of reviewers had little relationship with the quality of the reviews produced. The only significant factor associated with reviews rated higher in quality was when the reviewer had received training in statistics or epidemiology. Goldbeck-Wood et al. [7] 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 towards 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 [8]. 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 their 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. It may be helpful to read the journal's mission statement when determining the suitability of a submitted manuscript for a specific journal [9]. If not clearly stated in the invitation to review the manuscript, the initial read of the manuscript allows the reviewer to think about in 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 some merit, it is time for the more thorough and critical manuscript read. 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 publication eventually.

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 [10]. 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 is valid. 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 [11]. 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.

Unless there are flagrant errors, reviewers should assume that the data provided are valid [12]. 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 [8]. The rationale for the statistical analysis in the manuscript, along with the analysis itself, needs to be comprehensible to the journal's readership. 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. 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 so that their relationship to the research problem is clearly understood by the reader. It is also important that the 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 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 science through a literature search. The reviewer will also need 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 [11].

Abstract/Title

A well-written abstract and title are imperative to a successful and well-referenced article. If the title is not appropriately catchy and the abstract does not adequately present the paper's content, it is quite possible that few will read the manuscript. This fact is all the more true in the age of

electronic literature searches in which the title and abstract are quickly accessed for review, but to access the full article often requires additional steps. By saving the review of the paper's abstract and title, until now the reviewer can better appreciate the contents and significance of the manuscript. This understanding of the manuscript 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. Despite the apparent simplicity of this statement, inconsistencies have been found. Pitkin et al. [13] reviewed 44 abstracts from each of six different journals and found that 18–68% of the abstracts from the various journals contained data that were inconsistent or absent from the main body of the manuscript.

Illustrations

There are many different types of illustrations in the 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 [8].

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 notify the editor promptly in a confidential manner.

Reviewer Responsibilities

The peer reviewer has multiple important obligations to ensure that the publication process moves smoothly and that high standards of scientific conduct are maintained. These responsibilities include maintaining confidentiality, managing potential conflicts of interest, and preserving a collegial academic approach to the review process. The manuscript under review needs to be treated as a confidential, privileged communication. The existence and contents of the manuscript should not be disclosed as it is 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 in as constructive and empathetic manner as possible. A vast majority of reviewers have authored papers and can therefore relate to how easy it is to become defensive when critical feedback is provided on one's work. A careful, consistent, and

considerate approach to criticism by the reviewer is therefore appropriate. It is imperative that the peer reviewer, after agreeing to review the manuscript, completes the assigned task in the allotted time. 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 the 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 in the web-based systems 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 be constructive and consistent in narrative.

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 submitted. 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 [4]. 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 mentioned. In addition, if the reviewer finds poor grammar, inappropriately vague language, bias, and/or improper interpretation of a literature citation, 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 (see Table 27.2). When the reviewer provides this recommendation, he or she is weighing the paper's strengths and weaknesses and differentiating minor concerns from fatal 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

Table 27.2 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

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 the 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 idea 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 in this section must correlate well with the information provided to the editors to avoid unnecessary confusion between editor and author. 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.

Similar to the comments in the editor section, the comments in the author section should ideally be composed of an introductory paragraph and specific comments about the paper's value, strengths, and weaknesses, followed by 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.

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 necessary information. They are each written with a different purpose in mind and therefore require a slightly different method of peer review. The reviewer should be aware if the journal they are reviewing for accepts only specific types of manuscripts. 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 literature, 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.

> **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.

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 usually 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

Table 27.3 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)

reviewer will again be asked for his or her opinion on a disposition of the manuscript.

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 (see Table 27.3). Peer 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.

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 much more complex than is typically imagined. Biomedical science has been slow to develop rigorous *uniform standards* for designing, conducting, analyzing, and reporting studies [1–5]. This lack of uniformity 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. Inadequate reporting of specific randomization processes in studies is associated with highly biased estimates of treatment effects [7]. 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 [8–15], 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 [16]. 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 should erode the credibility of the research data and their interpretation—certainly, there is no algorithm for translating specific study flaws that are detected 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 procedures, both simple and complex, compromise the value and interpretation of results [10, 17–22]. Some of the most common of these errors include the following:

1. Focusing on reporting simple statistical significance without indication of the size of observed effects or their practical importance.
2. Use of inappropriate statistical models.
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. Conduct of exploratory analyses (i.e., not hypothesis-driven) not clearly described as such.
5. Inappropriate handling of missing data.

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6. Inferences of causation from nonexperimental data without properly framing the limitations of such inferences.
7. Categorizing continuous data or variables without justification, thus greatly reducing measurement precision and statistical power.
8. Using analysis of covariance to statistically adjust for baseline differences in groups as if that equates the groups at study outset.
9. Interpreting studies showing non-significance in statistical tests, 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".
10. 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, 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, guidelines have been developed, and these represent a valuable resource for academic faculty.

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 28.1). 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, 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 (e.g., Cochrane), which do 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 almost 20 years ago. 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 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 Statement and information on various extensions and explanations of the statement.

The CONSORT Statement is endorsed by over 300 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 from the last decade suggests that use of the CONSORT Statement checklist improves the quality of reporting [23].

Table 28.1 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, and 2001. In 2003, the committee revised and reorganized the entire document and incorporated the Separate Statements. The ICMJE prepared the current revision in 2010. 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

If all researchers followed CONSORT and the other published guidelines (see "Additional Resources"), the quality of reporting of studies will likely increase substantially, which in turn will enhance scientific progress.

Additional Research Reporting Guidelines

During the last decade or so, over 80 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 (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/).

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.

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 for this brief chapter, I suggest that biomedical studies be categorized into one of four main 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.

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.

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*

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.

(continued)

- *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.
- The *CONSORT Statement* is a document with an extensive objective checklist of criteria intended to improve the clear and accurate reporting of a randomized controlled trial (RCT), thus enabling readers to understand the design, conduct, analysis, and interpretation of the trial and to evaluate the validity of the trial outcomes and results.

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 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].

Thus, the failure to use randomization or experimental methods in a study is not a fatal flaw—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 and if designed, conducted, or analyzed improperly, and thus all studies should be evaluated by the specifically focused criteria. 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 [25]. 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*. 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 [25]. 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 studies.

Evidenced-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 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, 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

Many guidelines have been developed to help academic faculty in reporting study findings and understanding the adequacy of the study design, conduct, analysis, and interpretation. Dedicated efforts to apply these guidelines will bring benefit to individual health and society at large.

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 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?

(continued)

- 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 valuable evidence?

Ask Your Mentor or Colleagues

- How can access to literature be expanded through Internet searches and web resources?
- What journals, websites, and listservs are essential reading?
- What implications do recent published empirical studies have for practice or research?
- What are some important questions that could be answered by research that you are excited about and currently are prepared to conduct?

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How to Understand Flaws in Clinical Research

Teddy D. Warner

Health researchers, providers, consumers, and policy makers are confronted with unmanageable amounts of information. Being able to 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 29.1) 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 of 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 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

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Table 29.1 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)? Is the design clearly and completely described? What is the basic *research design* and is it clearly and completed specified?
   (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* adequately place the study in the proper context the literature that is centrally important to the study? Recognize that only studies directly pertinent to the study objectives are expected to be discussed. Determine what important and uncited studies, if any, do *not* inform this study and how that may have influenced the study design, conduct, and reporting

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 have them

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 (IV)?

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 or are they only measured as attributes of participants? 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 husbands and wives 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 variable? 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 *not* 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 29.1 (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 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)?
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 trivial or 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 *rationale* for disbelieving?
29.	What is the *next research* that should follow from this work, and was that described and explained by the authors?

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 settings and under what circumstances they apply (effectiveness). That is, controlled RCTs usually need to

be followed by translational studies to 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.

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. 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 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 performs 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 many believe 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 not worth the treatment costs or adverse effects that occur 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]. 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, 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 quite 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.

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—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

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 practice 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 benefit. 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

(continued)

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.

- *Systematic reviews* examine the mechanisms underlying a phenomenon and usually focus on intervention, diagnosis, or prognosis in biomedical fields. Systematic reviews can help practitioners and researchers to be kept well-informed about outcomes in 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. 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 utilized conceptually similar independent and dependent variables.

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.

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 effects 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 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 [4, 5]. 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.

Readers 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, to do the best work possible in one's academic role. Each reader must make an independent assessment.

Ask Your Mentor or Colleagues

- How can I gain a greater understanding of the concept of validity of measures and outcomes?
- How do we search for systematic reviews, especially Cochrane reviews? For other sources of systematic reviews?
- Do I have skills and knowledge regarding research design, conduct, analysis, and reporting sufficient to enable your competent evaluation of complex research? Do I need to consider additional formal training or independent study with mentors to enhance these skills?

Words to the Wise

As you evaluate research studies and their outcomes, ask and answer the following questions:

- Having appraised (rather than merely read) an article, do you generally believe the study results and conclusions? If not, what are your reasons for disbelief?
- What plausible alternative interpretations exist for the reported study outcomes?
- What novel and nontrivial contributions to the literature do the study results make?
- Do you understand how the study results fit with 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?

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Part V

Conducting Empirical Research

How to Conceptualize a Research Project

<div style="text-align:right">**30**</div>

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 (see Fig. 30.1).

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 important, unnecessary burden and risk for research participants if the project does not successfully answer the questions being addressed.

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.

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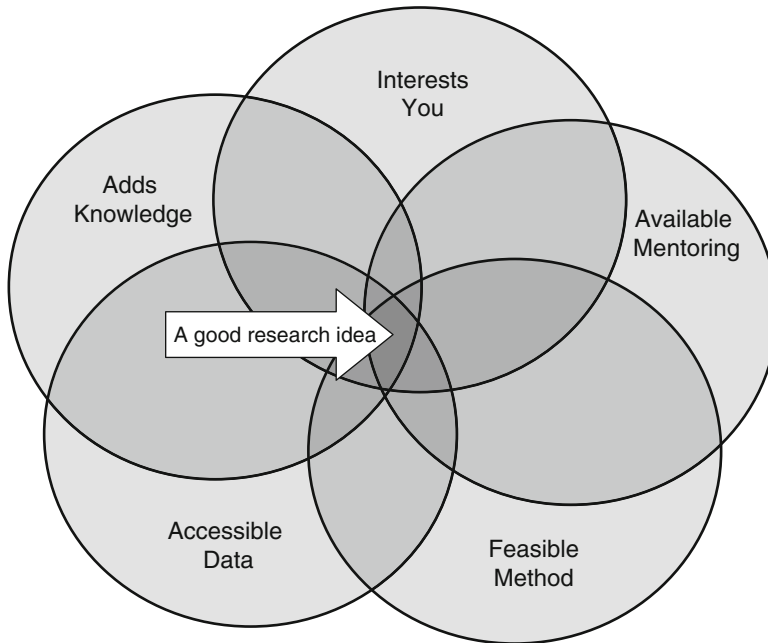
Fig. 30.1 Components of the conceptualization phase of a research project

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 leadership 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 chap-

ter. 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 sensitive 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.

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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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 "Com-mon 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, observational 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.).

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 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.

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Getting Familiar with the IRB

Academic medical researchers need to make it a priority to get to know the local IRB. The first step towards 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 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 administratively process 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?
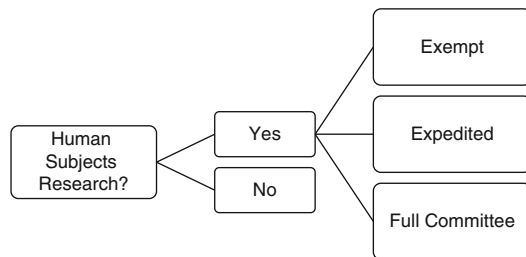
The first point of contact that a researcher might have with an IRB is to determine if the proposed research is, in fact, *human subject research*. An IRB office will usually have a flow chart or form with a series of questions that will aid them in deciding whether the proposed study can be defined 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, the 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 six different categories, defined under 45 CFR 46.101(b). Note that finding a study "exempt" is not the same as declaring it "not human subject

Table 31.1 General components of an IRB 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 subjects 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
	Data collection
	Analysis
Questionnaires, medical procedures, etc.	Are they research related OR 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?

research." These categories are determined by the IRB, not the researcher. The exempt categories generally outline research using publically available information for purposes related to internal quality control, improvement, or effectiveness. The information used in these types of studies is generally 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 31.1): 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).

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 2011, the federal government opened a forum to review and update 45 CFR 46, called [2]. The last update to the Common Rule was in the 1980s, and the government is paying much needed attention to the changing landscape of research in current times as it considers updating, clarifying, and simplifying the regulations that govern human subject research protections. This update will likely change some processes related to IRB review.

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: 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 the proto-col 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 31.2 for a detailed list of questions a researcher will likely encounter in an IRB application.

Table 31.2 Criteria for IRB approval of research (directly quoted from http://ohsr.od.nih.gov/guidelines/45cfr46.html#46.111)

1. Risks to subjects are minimized:
(a) By using procedures which are consistent with sound research design and which do not unnecessarily expose subjects to risk
(b) 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 and should be particularly cognizant of the special problems of research involving vulnerable populations such as children, prisoners, pregnant women, mentally disabled persons, 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 in accordance with and to the extent required by §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
(a) When some or all of the subjects are likely to be vulnerable to coercion or undue influence such as children, prisoners, pregnant women, mentally disabled persons, or economically or educationally disadvantaged persons, additional safeguards have been included in the study to protect the rights and welfare of these subjects

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 construed 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

We cannot live only for ourselves. A thousand fibers connect us with our fellow men.

Herman Melville

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 academic faculty members working together with communities to address 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) clarification of what community engagement means and the approaches that will be used, (3) thinking through who is engaging whom and how, and (4) examining and addressing ethical issues in the engagement process.

Defining 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]. Communities are often characterized by three factors: geography, interactions, and identity [3, 8]. 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,

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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 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 [9] sums a true sense of community using an African philosophical view that states "I am because we are, since we are, therefore I am." 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 towards "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 inter-reliance of a "true" community, in which individuals are engaged in the overall health and social well-being of the community and conversely the community's 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 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

Key Concepts
- *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].
- *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" [14].
- *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" [11].

by the corporation [10]. 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 particular 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 of such issues on the broader community (widely defined) [10].

Community Engagement

Ideas regarding community engagement vary within and across disciplines. Community engagement has been understood 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. [11]

Ideally, community engagement is a process characterized by intentional inclusive and collaborative partnership towards a mutual goal [11–13]. In health, 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. [14]

Table 32.1 presents an outline of the nine principles of community engagement outlined by Centers for Disease Control and Prevention, 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 [15, 16].

This definition from the CDC, 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 justice base. Charity engagement focuses on institutions or individual resources or surplus being given to communities to address areas of need. Justice models of community engagement

focus on mutual sharing of resources among community members and institutions [4, 17].

Community Engagement Models

Bowen and colleagues [18] 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. 32.1, with the corresponding levels of engagement outlined by the International Association of Public Participation [19]. The key difference in these three processes can be summed as the level of collaboration in decision-making and leadership. Briefly, *transactional 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 academia 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 academia or agencies "for" the community and not "with" the community.

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 [18]. This form of engagement involves an interactive process involving critical thinking and reflections to address community issues. I have used an arrow in Fig. 32.1 to illustrate the increasing levels of shared leadership and ownership ranging from narrow-focused

Table 32.1 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 that 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. 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; know, value, and respect the people in the community • Remember that 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 and 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, and 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 and 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
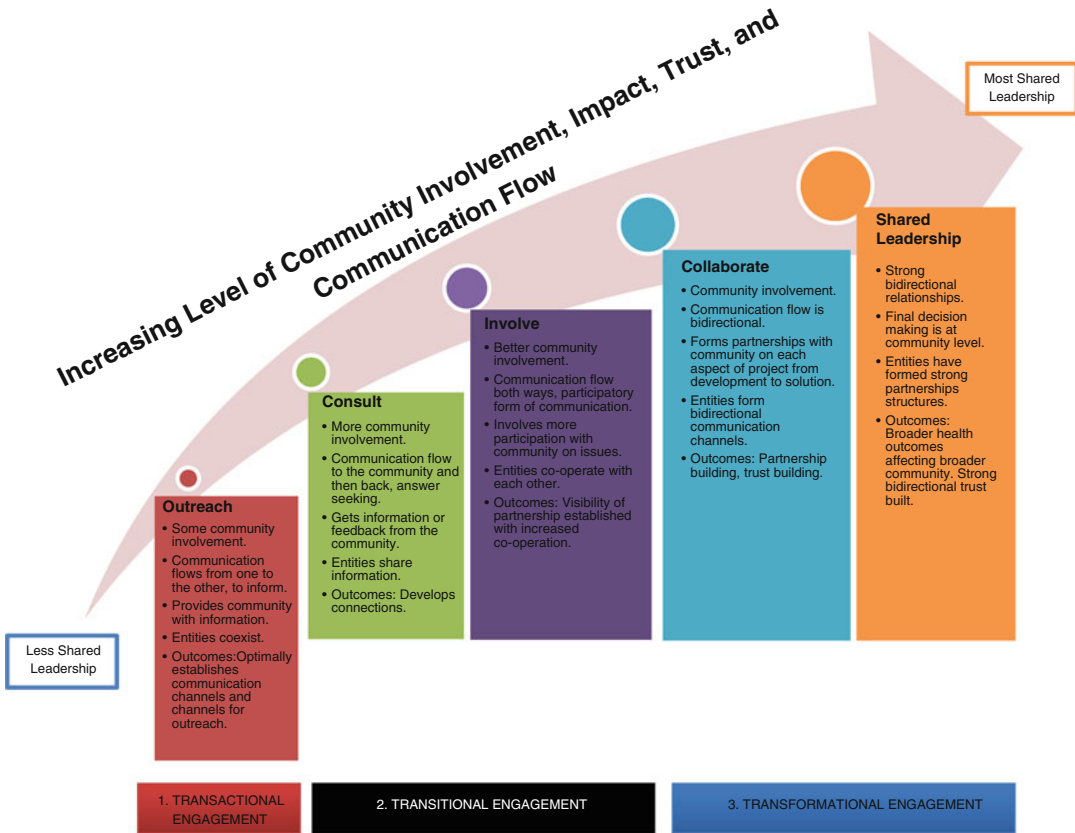
Fig. 32.1 The community engagement continuum

outreach and transactional engagement efforts to transformational engagement characterized by more shared leadership relationships [20].

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 hands-on experiences in real-world environments rather than classroom settings. This experiential learning can include community internships and service learning projects [4]. 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 road map 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 [21, 22], 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 towards more acceptance and valuing of community-engaged research, training, and service. 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. [22]

This 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. Note, however, that while there is some shift in this direction in some institutions, the traditional approaches that place little value of community-engaged research in the rank and tenure process continue to persist. 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].

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 relation value and benefits of academic–community engagement scholarship [4].

Regardless of the definition used, at core, community engagement involves an active, relational, and collaborative working together towards 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 [18].

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 academia 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 academia 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" [22]. When communities seek to engage academic faculty members 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). The partners will 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.
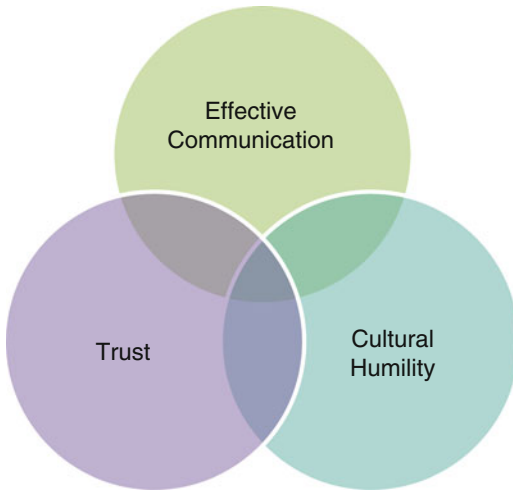
Fig. 32.2 Key ingredients in effective community engagement process

Three essential ingredients in effective community engagement process include establishing and maintaining effective communication, building and sustaining trust, and cultural humility (Fig. 32.2).

First, purposeful, effective, and 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.

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 taken into account 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.

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 narrowly 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. Academic faculty members 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 engage-ment 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" [23]. 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 academia and funding agencies. Effective community engagement requires humility and respect of 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 has to 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.

Individual and Institutional Level Engagement

Community engagement must distinguish between individual community engagement and institutional engagement. Individual engagement occurs when academic faculty members 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 institutions 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 academic faculty members 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. Part of the community engagement process often neglected relates to representation of marginalized groups. Academic–community partnerships, 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. 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 [24] 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. 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 [25]. 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 minimal or 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. 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. It is important to note that in the United States, historical and intergenerational research abuses and unethical behaviors have contributed to the ongoing mistrust and lack of confidence with biomedical research and health-care 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 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 [26].

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 exemplified 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 academia and communities [6]. Engagement can enhance research designs, data analysis, translation of research into practices and effective community intervention strategies and promotion of research based on real-world problems. Effective

Words to the Wise
- Clarify and be honest regarding your reasons for community engagement
- Consider and utilize a justice-based approach to community engagement
- Do not 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 "fly over"
- Focus on community strengths and asset rather than deficit 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; 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 and flexible, and learn from past mistakes. You only fail when you do not try
- Apply and practice the principles of respect of communities, benevolence, and doing no harm

Ask Your Mentor or Colleagues
- 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 past community-engaged research or collaborations?
- Who are the community stakeholders and why are they considered stakeholders?
- 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 stakeholders 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?

community engagement skills and expertise, however, are honed 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.

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How to Approach a First Grant Application

<div style="text-align:right">**33**</div>

Cheryl Koopman

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 in their workload 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 biostat-

istician 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 and avoid 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, and incentives for patients to participate in the research and funding to cover their 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 on this topic and offers a major opportunity for oneself and one's colleagues to develop relationships with top scholars in the field.

Obtaining 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 obtain grant funding to support their research. For such faculty, it may be essential to obtain grant funding in order to be

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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 to serve on 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.

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.

There are different types of grants 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 applying for one's first research grant, it may be important to establish a track record of funding and completing research as well as to provide pilot data in support of a major grant; such considerations suggest that one initially applies 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, NIH has funding opportunities for career development at various stages of one's career. There are also grants that can fund a pre- or postdoctoral 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 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 National Institutes of Health (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 to encourage 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 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 a solo 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 "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. 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 useful 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 the grant before allowing enough time to think through the ideas that provide the foundation for the grant. It is not enough to have some ideas and then get to work writing the grant; it is essential to develop really good ideas for the grant. Otherwise, the grant is likely to be evaluated by its reviewers as lacking innovativeness and/or significance, two major criteria commonly used in the evaluation of grants. Also, taking the time to think the ideas through actually makes the writing process flow much more easily, as it provides a structure for the grant. 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 in mind its

importance 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 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 [1], which describes how to develop a conceptual model. Developing a conceptual 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 these 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, but then that should be explained.

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 has 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, CRISP (Computer Retrieval of Information on Scientific Projects) is an on-line 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 its originality and significance.

Communications with One's Internal Grant Administration

The Challenge: To Obtain the Help and Loyalty of One's Institution's Administration.

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 them 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, they 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 with them. Also, of course, it is the right thing to do.

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 33.1 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 33.1, preparing a grant application tends to be a complex process involving many steps, so allocating time to learn this process is strongly recommended. On-line instructions for applying for a grant do not only exist in written form, but also instructional tutorial videos are often available on funding agencies' Web sites.

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 the appropriate format that is required for the grant. These "bio sketches" 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 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

Table 33.1 Documents commonly included in a grant

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	Identify 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. These usually do 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 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

subcontracts. Furthermore, most grants applications require a spreadsheet with a budget that shows the anticipated dollar costs for each item in the budget, 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) are written into the budget. Many grants also require a narrative section of the grant called the "budget justification" that provides a rationale for each item in the grant. There are usually 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. There may be internal forms that must also 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 Web site 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, and this section typically also identifies the numbers of computers, printers, faxes, etc., that are directly available to the project if it is funded. The references section is highly relevant to the substance of the grant but takes administrative effort to create it and check to make sure that the references are accurate and match all those cited in the grant. Furthermore, 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. For submitting a grant to 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 the NIH grant will be reviewed by the appropriate review panel and also that it will not be reviewed by someone who is identified as being likely to be a biased reviewer if assigned 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 PI's institution's administration, 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, providing these documents may be a lower priority for them than it is for the faculty member, thereby requiring multiple reminders. 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 33.2 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 is 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 the faculty member invites 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. It shows respect for their expertise and is very likely to provide critical feedback that allows the faculty member to improve the quality

Table 33.2 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 one's institution's grant administrators	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, bio sketches, 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	It is likely to require multiple reminders for obtaining all documents needed from others, 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 one's institution's administration may have an even earlier internal deadline	1+ day prior to the deadline

of the grant. It is best to give them sufficient time—such as 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. The faculty member 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 will be produced to keep improving it 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 can severely prejudice the reviewers against appreciating the grant's strengths. The faculty member should read the grant through, carefully checking to ensure that not only does it flow and is grammatically correct but also that it is 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 grant. 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 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 grant may be more visually appealing if tables and figures are included to break up the wall of text.

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 33.2, 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 an internal one that one's institution has set, whose main function is to provide sufficient time for one's institution's administration 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, the faculty member's department may require that the faculty member submit it internally by 9:00 AM at least five business days prior to the deadline, on September 28. Then that is the actual deadline that the faculty member must meet, and so it then would be strongly advised that he or she aims to 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 two 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, e-mail, or through an Internet Web site. 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 time 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 the faculty member 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 Fund Your Research While Maintaining Your Curiosity

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Michele T. Pato and Carlos N. Pato, with Appendix by Colin P. Dias

What do you need to do to be awarded and sustain your grant funding? There are two basic concepts we would like to cover: one is about content and the other is about the process of grant writing and funding. From a content point of view, it is important to have a good idea and a project worth funding, and from a process point of view, it is important to follow the rules (dot your i's and cross your t's). There are always instructions about what must be included in a given grant proposal, such as required sections, collaborators, budget, and budget justification. There are also issues of readability like punctuation, font size, and margins. These may appear to be minor details, but there is a temptation to squeeze everything you can think of into the allotted space. This tends to make a proposal very dense and difficult to understand. Being concise and presenting your ideas as elegantly as possible can be the difference between being awarded a grant and not being considered.

Having Good Ideas

Arnett [1] has written eloquently on this subject, making the point that writing a good grant application is different than having a good idea (research question), though having a good idea is obviously a critical element. She stresses that the main objective of a grant application should be to "persuade the reviewers that the proposed research is both valuable and likely to succeed." Maintaining your focus on the purpose of the grant and not getting lost in the purpose of the research in general is very important. To accomplish this, she makes the point that it may help to focus on what you want each section of the grant to *do* rather than on what each section *says*. Finally, she reminds us that the reviewers reading these grant proposals are focusing on the purpose of the grant application that stimulated your submission, so be sure to address this. Address the choices you made and what you decided not to do, since you did not think it addressed the purpose of the submission.

For a quick mnemonic device to guide the process of your grant writing, think *FINER* [2]. Every hypothesis test (research project) should be simultaneously *F*easible, *I*nteresting, *N*ovel, *E*thical, and *R*elevant. Ioannidis [3] went on to emphasize this by pointing out that research funding should be about funding people and their good ideas, and not just about funding projects that bring in a lot of money. He wrote that judging science, or even criteria for promotion, by the size of the funding or the portfolio is "equivalent to judging art by how much money was spent on paint and brushes, rather than the quality of the paintings." Thus, there is still nothing better than a good idea as you struggle to maintain funding throughout your career.

In a related vein, Kanter [4], in a 2008 editorial in *Academic Medicine*, described the importance

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of sharing descriptions of innovations with the greater scientific community and outlined nine criteria that he felt reports of innovations should have in order to be truly useful and applied by others. Two of these criteria can be transferred to good grant applications:

- There is an assessment of the innovation's potential influence on the field, discipline, or area of study.
- There is an account of the degree to which the innovation described is a sustained innovation. Did the innovation generate new ideas or other innovations? Did it identify new problems? Did it open new avenues for further exploration?

Once again, these features are also dependent upon the investigator and the research idea, and not upon the amount of money awarded.

Finally, in culling together a group of investigators' thoughts on grant writing from around the country, Groves et al. [5] noted that it is critical to "emphasize the NIH mission of enhancing health, extending healthy life, and reducing the burdens of illness and disability" in your grant.

Following the Rules

"Good" Writing

What keeps you reading a good novel? It has to be a good story and it has to be well written. It isn't any different writing a grant proposal. Are your points clear and compelling and will they keep the reviewer interested and motivated to fund your thinking? Short declarative sentences are recommended both to illustrate that your thinking is clear and to keep the reader (the reviewers) on track. The Specific Aims section is usually the first thing reviewers will read, so having it well organized is important if you want to convince them of how organized and clear your thinking is as the PI, so consider the following advice [5]:

1. Grab them with the facts in the first three sentences.
2. Tell them what we already know (two sentences) and what we do not know about this problem.

3. Tell them what we need to know to advance the science or improve health care outcomes for people with this problem (three sentences).

Avoid lengthy paragraphs with dense text. Remember, reviewers may be reviewing many grants over a short period of time. In addition, they may not read your whole grant in one sitting, so using a modular template that divides your grant into sections not only provides a framework for you in your writing but also helps the reviewer, who may be stopping and starting several times as they read the grant, to stay focused or refocus. It is often good to end the grant with a table or final timeline of the whole proposal. In one paragraph or one figure, summarize and remind the reviewer what you plan to do over the years of funding. This not only highlights your organizational skills but also reminds reviewers why they should fund you [5].

Finally, remember that while "short and sweet" gets you a great deal of mileage from the reviewers reading your grant, they are unlikely to look at appendices, so anything you want them to know needs to fit into the required pages (now only 12 pages, not 25, for R01 grants). Further, long bibliographies will just be seen as nonselective and overwhelming and not reflect the clearness of your thinking and understanding of existing data [5, 6]. In addition, each grant requires a bio sketch, which is essentially a summary of each investigator's entire CV, limited to presenting no more than 15 publications. Make sure the 15 you choose highlight why the investigator is an appropriate and valuable contributor to this grant proposal. Groves et al. [5] suggest a rule of 5s: present five of the most recent works, five of the most important works, and five of the most relevant works in each investigator's bio sketch. If some of the papers fit into more than one of these three categories, they are probably the most important papers to select among the 15 you will present in a bio sketch.

Grammar and Punctuation

Poor grammar, misspellings, poor punctuation, and crammed pages will distract the reviewer

from the content. They may even make your argument less compelling. How can you be trusted to manage a difficult and complicated project through to completion if you can't even get the plan on paper clearly? How well you write your thoughts is your first defense of your thinking as a scientist.

Don't get discouraged—this is what collaborators and consultants are for. Some people are great at putting their thoughts on paper and others are better at editing other people's thoughts, and there is room for both roles on the proposed grant!

Figures and tables can make a big difference in helping or hurting your submission. Aesthetically they should be in the same font as the rest of the manuscript and no smaller than 11-point—they are just too hard to read otherwise. Use color to have impact and to help the figure or table to be understandable without having to read the prose of the grant in too much detail. It is more important for these images to add understanding to the data presented rather than be descriptive of the experiments. Express your thinking, not the mechanics [6]. Remember, a picture can be worth a thousand words and 12 pages won't give you much word space.

The Budget

Whether you like it or not, the allowable budget for a project will frame the scale. We propose that this is not all bad. Sometimes budgetary restrictions force you to think outside the box in defining ways to answer the questions you are interested in. It is often difficult to define the separate projects necessary to test a hypothesis. By defining these separate steps, one can also define a sequence of projects that can be independently funded. For example, in a clinical study, strategic judgments will help you decide whether to prioritize the size of your sample or the level of detail of your characterization of each participant. Different study designs can be chosen at each point in the sequence of studies, and the available budget becomes part of the design limits one must consider.

It is extremely important to be realistic about the costs since a reviewer must assess the feasi-

bility of what you are proposing. A bit of good news about budgets is that in some cases costs go down over time. Just because gas prices always seem to be going up, this is not true of all technology. Our own experience in genomic psychiatry has been that with improvements in laboratory methods and data analysis, the cost of running a study has usually gone down. In some cases, with the money we have proposed and received in funding, we can do more in-depth and thorough analyses of our samples.

Timeline: Time To Write and Time To Wait

While it does take less time to do things as one gets more experienced, the timeline to write a grant for submission never seems to shorten as much as one would hope. Initially, grants may take a year in preparation and at least 6 months to write for submission. As you become more expert in a field and know the body of work you are drawing from, the time that it takes to provide the background review for your objectives will be less. On the other hand, you may grow the depth and breadth of your grant proposal. Your questions may become more complex, and the team of collaborators you will need to answer the questions you pose may be harder to put together. Writing as a team is also a skill set that is important to develop.

The process of grant writing will open up new ideas and may alter some of the objectives you have set. Thus, while most will recommend writing up objectives early in the writing process, it will also be necessary to change the objectives as you get data to support them and formulate the budget so your final grant proposal is doable and practical. Be prepared to change your thinking [6]. Groves et al. [5] suggest limiting yourself to three aims that should not depend on each other to be complete. They note it is important to include alternatives for each aim if it does not come out as anticipated. The earlier steps in your plan may lead you down several alternate paths depending on your results.

It is often 6–8 months before you know if a grant proposal got a fundable score, and even

longer before you receive your award. Should you need to resubmit, it can be 14–24 months before you are actually funded to support your work. This timeline is very common for successful applications. This is what makes the first grant the hardest to get since you may need outside funding or support from the university or endowments or donors to generate your pilot data. Pilot data are important because they speak to the feasibility of what you want to do and justify the statistical power, and resulting collection size, you are proposing.

Once your first grant is funded, part of the grantsmanship to sustain your work and your career over many years is to have the data, the results, and conclusions from your present work provide the foundation (pilot data) for the next grant you are submitting. Another important component is to pace yourself. Rather than having one grant provide 80% of your support, for example, be a PI/co-PI on one or two grants and a coinvestigator on others. Distribute your skills and your funding—if you want 80% support through grant funding, be a 30% PI/co-PI on two grants and be a coinvestigator on two or three grants at 10% each.

For us, it has always been about asking questions and finding answers. That's why we have never been too discouraged by the statistics. Most grants are not funded, and most successful investigators spend more time writing rejected applications than writing and developing funded grants. In the *New England Journal of Medicine*, Campbell [7] noted that the National Institutes of Health (NIH), one of the major funding sources of medical research in the United States, had gone from an average annual increase in its budget of 3.4% from 1971 to 2003 (adjusted for inflation) to a 13% decrease from 2004 to 2009.

Similarly, in 2012 Stein [8] noted the following trends at the NIH, as detailed in a 2008 report [9] released by a group of seven academic research institutions:

> From 1998 to 2003, the National Institutes of Health's (NIH's) budget was doubled (NIH, 2006a). Five years later, budget increases were a distant memory, with NIH experiencing an "unprecedented fifth consecutive flat or below-inflation budget" (Brokenpipeline.org, 2008, p. 1). Less than 25% of R01-equivalent applications were funded as compared to 1999, when more than

30% of such applications were funded (NIH, 2008). In 1999, 29% of NIH grants were funded on first submission, compared to only 12% in 2007 (Brokenpipeline.org, 2008). …At the same time, junior investigators are having greater difficulty receiving funding. In 1998, almost 25% of R01-equivalent grants were awarded to junior investigators compared to 20% in 2007 (NIH, 2008). Not surprisingly, junior investigators received their first R01 awards at approximately 43 years of age in 2007 as compared to those who were 39 years old in 1990 (NIH 2008) [8].

Kotchen [10] and Nathan [11, 12] have also noted that these numbers reflected a decrease in fundable priority scores and funding for clinical research by MDs. However, on a more optimistic note, these figures have led to changes in funding strategies, including K23, K24, and K30 awards, as well as the recent emphasis on translational research as ways of trying to improve clinical research funding. The outcomes of these efforts still need to be studied.

Listen to the Reviewers

It never feels good to have your grant proposal not funded, but being prepared can help. For NIH grants, you may only resubmit once. As we have already noted, an ever-shrinking number of grants get funded on the first round; however, the knowledge you gain from the reviewers' comments can make the resubmission more successful. Many committees retain members from year to year, so some of the reviewers from your first submission are likely to play some role in your resubmission. Also, in the interest of time, any reviewers of your resubmission will be looking at how you addressed the initial reviewers' comments. However, this is a double-edged sword. No one wants to read more than they have to and your space in the grant itself is still limited. Though you may include a long letter addressing each reviewer's comments, the grant itself still needs to say everything in 12 pages. It is the only thing the reviewers of the resubmission must read. Davidson [6], in addressing this, offers some wise advice, noting you should focus on the improvements you have made and how they strengthen your application. Respond to the major

concerns the reviewers raised directly, but don't waste a lot of space on things you have eliminated at the reviewers' request.

One of the harder to address reviewer complaints is the need for collaborators that you might not have at your institution and/or might not have a way to put into your budget. This leaves us with one final recommendation brought up by example in Stein et al. [8]: develop a training course at your institution to make your own collaborators experienced in writing grants and participating in research. At 1-year follow-up of the grant proposal-writing seminar series that Stein and his colleagues provided to 20 faculty members, 40% had actually submitted grants.

Remember, answering questions is still what is most gratifying about medicine and science. Get your inspiration where you can. Robert A. Humphrey (veteran, lawyer, and diplomat) used to say, "An undefined problem has an infinite number of solutions." When one thinks of pursuing grant funding in this way, it also becomes fun.

Words to the Wise

- Do something that you are interested in. It's the best way to have the stamina to get through the roadblocks.
- Start with goals and objectives because it is the first step in organizing the grant. But expect to go back and change the goals and objectives along the way as you are forced to look at feasibility issues in structure, function, and finance.
- Start by reading the Request for Application, and revisit it as you are writing to make sure you are meeting its requirements and mission.

Ask Your Mentor or Colleagues

- Does my hypothesis make sense?
- Is my hypothesis valuable to our field?
- Does the grant answer the Request for Application criteria?
- Can I really do it with the money I am proposing?

Appendix: My First Research Grant

When my chairman asked if I would give grand rounds, I was two and a half years out of training and in my first faculty position. Although I felt nervous and unsure of myself, I volunteered. I then was faced with the challenge of choosing a topic. As a resident I had given a presentation to the Society of Biological Psychiatry about the effects of propranolol on hyperarousal symptoms of PTSD. My mentor had encouraged me to publish this study and engage in more PTSD research, but I never took the time out of my busy clinical schedule to seriously consider it. Now was my chance.

The grand rounds announcement went out, with my name and the topic on it. I spent the next three weeks intensely reviewing the literature and working with my mentor on a proposed pilot project that I would present in grand grounds.

On the day of my presentation, the audience was attentive and interactive. After I finished, my chairman announced a new request for grant proposals from our university for small pilot projects of an interdisciplinary nature that related to mental illness.

Within three months my project was submitted and funded with IRB approval, and I was the principal investigator. In the first year we collected data on more than 70 subjects. I have extended my initial funding and plan to double the data collection. I am writing an NIH grant too. Facing that initial fear, taking the first step, and taking advantage of the opportunities that surrounded me were the keys to launching my academic and research career.

<div align="right">Colin P. Dias, M.D.</div>

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Additional Resources

Office of Extramural Research. http://grants.nih.gov/grants/oer.htm.

Extramural News—a regularly updated service with blogs and updates on peer review. http://nexus.od.nih.gov/all/nexus-by-date.

NIH Research Portfolio Online Reporting Tools (RePORT). http://report.nih.gov/index.aspx.

Ruth O'Hara and Shelli Kesler

A cornerstone of any academic career is academic citizenship. This includes a broad range of activities from sustaining scientific integrity to participation in enterprises such as mentorship and manuscript and grant reviewing. Each year, more than 100,000 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. For new academic investigators, this potential opportunity raises a number of key issues. When is it appropriate for me to begin reviewing grants? Is there any benefit to my own career development by reviewing grants? How would I go about obtaining opportunities to review grants? Are there guidelines for how to best review a grant? The goal of this chapter is to address these key questions.

At What Point in Your Academic Career Should You Begin Reviewing Grants?

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

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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.

When individuals are invited to serve on NIH study sections or VA review committees, they are typically required to be a core reviewer for multiple grants and indeed to read all grants under review at that meeting. This can be a very time-consuming

enterprise, more appropriate to more advanced stages of an academic career when one has more expertise and experience. However, NIH and VA *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 early-career investigators, providing them with the invaluable experience of reviewing but within a reasonable time frame relative to their other career priorities. Internal and local institutional grants may also provide such venues for obtaining 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.

What Makes You Eligible to Review?

Most granting agencies have at least three reviewers assigned to review each grant. The main requirements for reviewers are that they have significant expertise in the domain area of the grant under review and significant experience in writing and obtaining grants. Often tertiary reviewers are assigned who may be more junior but are included because it is judged that they have excellent scientific methodological 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. Mentors and colleagues can 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.

What Should You Do Before Agreeing to Review a Grant?

There are three critical issues to consider before you agree to review a grant. First, do you have sufficient expertise in the area addressed in the grant proposal? Second, do you have enough time to provide a thorough review, and third, are you in conflict with the grant? Although the latter two are often the easiest of these issues to assess, a careful reading of the grant agencies' requirement for grant submissions will also help inform all these decisions. Each granting agency will identify the components of each proposal it would like to see considered in your review. This information is not only critical for conducting your review but can also provide important information for deciding whether you are well qualified to judge the merits of the proposal(s).

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. 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 other to fully assess both its strengths and weaknesses. Additionally, you will likely need to read substantial amounts of additional and supplemental materials, such as manuscripts supporting the proposal, human subjects, treatment manuals, and other appendices. A reasonable estimate to effectively review a grant is approximately 4–5 hours, depending on the experience of the reviewer and the grant mechanism under consideration.

Sometimes it can be more difficult to actually judge whether you have the expertise required for reviewing the proposal. If your main expertise is in the field of pediatric depression, for example, and the grant is on pediatric depression, you are likely well qualified to review that grant. However, 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. Thus, 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, for example, 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. Additionally, you need to judge your expertise relative to the reviewer role you are being invited to take up. You should be fundamentally versed in most aspects of the proposed work if you are being asked to serve as a primary or core reviewer. If the invitation is to serve as a tertiary reviewer, it may be that a defined expertise in specific components of the grant is exactly where the granting agency is hoping you will apply your expertise to your review. You would need to verify this first with those soliciting your reviewing expertise. 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.

Finally, before you agree to review a grant or grants, it is important to ensure 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 one's own institution, unless one is serving as reviewer for an internal grant hosted by the 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 coinvestigators 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.

What Should You Consider When Reviewing a Grant?

Costello, in a recent 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: (a) Is the goal relevant to the funding body's mission? (b) Will the proposed work make an important contribution to the field of inquiry? (c) Is the proposed work feasible, and can it be conducted within the time frame specified? (d) Does the principal investigator have the necessary expertise, track record, and experience to conduct the proposed work? (e) Do the coinvestigators bring additional complimentary expertise to bear? (f) Do the coinvestigators have a history of collaborating with the PI, and can they get the work done? (g) Are the design, methods, and measures appropriate to the aims and hypotheses of the proposal? (h) 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 that 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 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 disorder. Typically, innovation requires that the 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 time frame. This point raises a broad range of fundamentals that need to be in place for a proposed study to be viable and feasible and to facilitate the testing of the proposed hypotheses. These should all be considered in your review (see Cheat Sheet—Table 35.1). 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 dem-

onstrate 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 time frame? 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 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?

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 35.1, 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 our career, we are often finding our feet with respect to the zeal with which we review any academic

Table 35.1 Review guide

Essential elements checklist confirmed
Evidence of their past research and prior studies in the area is presented
Preliminary data that support the proposed aims, demonstrating their expertise and experience, as well as the feasibility of the proposed work are presented
Number of patients or subjects is reasonable to recruit in the given time frame
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

product, be it a grant, manuscript, or presentation. 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, early-career 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 above.

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 early-career faculty?

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How to Prepare a Poster

36

Manpreet K. Singh

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. This chapter will focus on 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. Next, the qualities of an effective poster and common pitfalls associated with an ineffective poster will be described. Finally, this chapter will outline a systematic approach to preparing and presenting a poster in a scientific setting.

Poster presentations in academic meetings are used to convey knowledge through visual representation by a wide spectrum of scientific subspecialties [1]. They may also be considered an effective vehicle for introducing new and soon to be published scientific data. The impact of posters on the transfer of academic knowledge is generally well accepted, with the visual appeal combined with effective author presentation of academic content being among the more influential factors on successful impact [2]. However, this impact is sometimes disputed, with concerns in some fields that data from poster presentations are too preliminary and may not survive the rigor of academic peer review [3–5]. Moreover, some have observed that poster sessions serve limited function compared to other components of an academic program benefiting mostly young investigators and poster chairpersons [6]. Nevertheless, most agree that poster presentations offer an ideal opportunity to disseminate research findings [7] and can assist in manuscript preparation [8]. They also help fellows and early-career faculty members think critically, develop a national reputation, network and develop collaborations, facilitate promotion in academic positions, and can even create new job opportunities [8]. For anyone considering an academic career, these benefits become apparent fairly early in academic tenure when scientific results can be shared in a nonthreatening and collegial atmosphere.

What makes a good poster? Many sources consistently suggest that readability, organization, and succinctness are qualities that make an effective and successful poster [9, 10]. Researchers 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 fairly succinctly to anyone viewing the poster. Smith et al. [11] argue that first impressions count and found that posters ranked as among the best were reliably identified based on factors such as presentation, message, and star quality. Facts, originality, and the science presented in a poster were less reliable indicators

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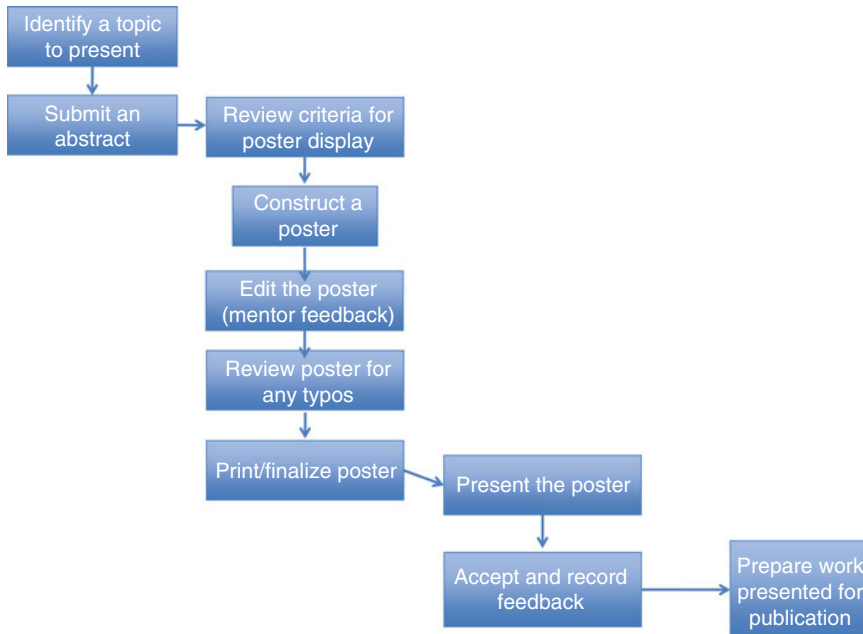
Fig. 36.1 Steps needed to prepare a poster

of top-ranked posters. Poster-scoring guidelines have been proposed based on these results.

Problems with posters most commonly arise when they are given less importance than oral presentations or published papers [12]. Miller et al. [10] outline several important pitfalls associated with ineffective posters. First, presenters may fail to appreciate the opportunity offered by a poster to convey their findings while interacting with individual viewers. In addition, they may neglect to adapt detailed narratives and statistical tables into readable text bullets and charts. These missteps render the poster difficult to read, and readers 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. Brief narrative descriptions summarizing one's work can serve to initiate a conversation with colleagues about the key message being conveyed, which may then lead to important feedback or collaboration. Presenters may also forget the range of specialties and training backgrounds to which they are presenting. Knowing your audience is essential for effective and respectful

scientific communication and does not leave those visiting your poster with the onerous task of interpreting your 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 [13].

I will now discuss the nuts and bolts of how to make an effective poster. Figure 36.1 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), evaluation of a method, device, or protocol, or present a case report or case series. Once a scientific question 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
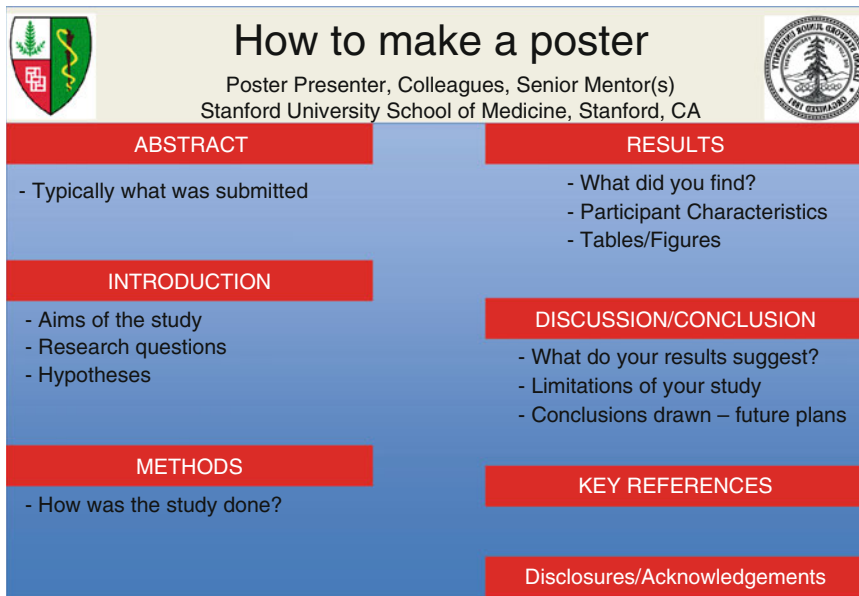
Fig. 36.2 General layout of a poster

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 impor-

tant 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.

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 broken down into separate sections of the poster (Fig. 36.2). 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 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 3 ft [9]. The title of your poster will correspond to the title of the abstract you submitted and should be relatively short but informative about the

nature of your study. Directly under your title would be the author names and then 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 typically 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, leading to discrepancies between abstracts submitted and published in proceedings handbooks and actual poster presentations. In fact, one study found that up to 76% of abstracts in a proceedings handbook were discrepant from their corresponding poster presentations, suggesting that attending the poster was the best way to get this information [14]. 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 follows generally under 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 predictions about the outcome of your study. These hypotheses may be informed by prior literature, which you should reference, or may be based on predictions of work you have

previously presented. When you are presenting this section of your poster, it is helpful to get 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 [9], but since space is limited, this may be an area that you expand on 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 his audience while presenting this component of the poster. Decide what is the most important aspect of the methods you need to communicate, 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 will likely receive relatively 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. 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.

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 more 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. Including references is an important gesture that adds to the validity of your work and acknowledges how your work may be related to the larger 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 as well as 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 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.

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 will likely 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 [15]. Your mentors will appreciate the advanced notice and the ability to provide you with meaningful feedback well before the meeting. Remember that they, too, will likely have to prepare for presenting at the same meeting. Moreover, if this is your first time presenting, your research team may be engaged 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 tremendous strides in poster production [12, 16, 17], which eventually may lead to more technologically advanced formats, eliminating the need for paper in the future.

The next step in the process is to actually present the poster. 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 try to remain at your poster as much as possible to be available to answer any questions by those viewing your poster. It is helpful to have a 2-min summary of your poster, when, if requested, you can walk people through the various components in a relatively efficient manner. Be open to interruption and feedback during this presentation because among other reasons, it may improve your study if you are preparing it for publication. A 2-min summary of your poster will become

easier to present as the session carries on 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 [18] makes a poster presentation unique and very enjoyable for both you and 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 simply move that work from poster to 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 prior to presenting your poster—they can improve the presentation of your poster and help you anticipate questions.
- 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

37

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. Earning the reputation of someone who can give an excellent talk often results in being invited to give keynote addresses at regional and national conferences, which increases a faculty member's visibility along with his or her 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 one's 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.

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 media to accentuate their talk such as PowerPoint slides, audio, video, or interactive demonstrations. All too frequently, novice speakers use media to give the talk instead of 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 37.1 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.

Audience

Before a speaker can engage an audience, he or she needs to ask, "Who is the audience?" This question is important because it will inform thespeaker 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?"

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Table 37.1 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 entire talk on slides—the speaker will be competing for the audience's attention because there is no way audiences 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, 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

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 he or she wants 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 feel 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. It is sloppy to fast forward slides because of a lack of time, or they are not needed because they were part of a longer talk. It is a distraction for the audience that is unnecessary. 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 hands fly up to ask questions to continue 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. 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 [2]. 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 distracting about your speaking style. Once speakers know the strengths and challenges of their style, they can build on their strengths and minimize their weaknesses 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, one

second to a speaker may seem like several seconds, whereas it seems like only one 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 his or her nonverbal communication. Too many hand gestures or 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.

Dealing with Speaker Anxiety

Any time an individual has to perform in an evaluative environment, there is going to be some level of anxiety. 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 [3]. In addition to these strategies, there are some strategies 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 were, 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.

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, don't apologize or get flustered, because 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. 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 he or she 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 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 he or she 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.

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'm giving?

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Part VI

Developing Administrative Skills

Co-Edited by Sabine C. Girod

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Academic leaders are often chosen based on their academic success and reputation in the core mission of research over teaching and patient care. 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, 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. 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, 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 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. 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 experience 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

Organizational Knowledge and Skills

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 towards 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. 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 [1] 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 Negotiate

Mickey Trockel

A popular dictionary definition of negotiation 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 falls a myriad of strategies, methods, and underlying goals, pressures, and ethical assumptions driving a large range of negotiation styles. An unenlightened perspective of negotiation may classify negotiation styles as hard or aggressive vs. 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 associated with doggedly digging in their heels to defend the position they presume paramount. They are inflexible and not given 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 circumstances. She may approach a negotiation with faculty as an opportunity to convince them of the necessity and urgency to implement her plan 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 to 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 suggests 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 a 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 open-minded, understand the financial constraints, and are willing to give his plan a try. These members of the faculty say nothing when he suggests his plan to require every faculty member to increase clinical revenue from direct patient care. Others are clearly upset and insist on finding another solution. Those who oppose an increase in clinical revenue targets propose an alternative strategy of increasing

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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 NIH research funding that will take at least 1 year to procure even if a well-executed increase in grant writing is perfectly successful. 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, his points with these faculty members are likely to be far spent if 1 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 the context of academic medicine take place within longer term interpersonal relationships and organizational structures. The long-term interpersonal relationship context makes both aggressive (hard) and passive (soft) negation styles more problematic. 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.

Foundations of Principled Negotiation

The enlightened view of negotiation is not the halfway point between the dysfunctional aggressive or passive extremes. Rather, an enlightened view of negotiation simultaneously and completely 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" [2]. 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 negotiation outcomes and good interpersonal relationship outcomes.

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. 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 partner's basic human needs for safety, social support and love, respect, autonomy, and mastery [3]. 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 towards 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 $3,000 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 exam-

ined the financial position of the department, including the compensation amount current faculty in her department were receiving. She determined she could offer $189,000 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 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 $155,000, to which he added $50,000, to represent the value he placed on being on call once per week at the smaller university department compared to once per month at his current larger institution. 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 $189,000 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 $221,000."

Department head: (Taken back by that figure as it exceeded her own salary by about $5,000). "While we would like you to join our faculty, unfortunately, we really can only offer $189,000."

Applicant: "My bottom line is $205,000."

Department Head: "I really can't offer you more than $189,000."

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 vs. 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 Options to Generate Mutual Benefit 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 vs. 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 location 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.

Insist on 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 $221,000 simply by doubling the distance between his bottom line and the department head's offer, hoping she would "at least" meet him half way. 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" vs. "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. 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 towards each other achieve fewer gains during negotiation and are less likely to want to work together in the future [4]. Consider your own experience. If you are like most people, you have not experienced your best thoughts, words, or actions when you were angry. In contrast, 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 [5]. 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 [6]. It may also be helpful to use "I feel" statements [7]. 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 negotiation 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 [8]. 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 [9].

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 [7]. 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 min 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 min 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. 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 underempowered negotiators in such circumstances is knowing their best alternative to a negotiated agreement (BATNA) [2]. 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 [10]. 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 towards oncoming traffic, a parent may need to forcibly change the toddlers 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, including those pertaining to negotiation. 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: Negotiation Agreement Without Giving In" [2]. In addition, consider evaluating your use of good communication skills during negotiation, using effective communication criteria such as those outlined by David Burns [7].

Words to the Wise

Strategies of principled negotiation [2]:

- Separate relationship issues from negotiated issues.
- Identify interests rather than fixate on positions.
- Identify several options to generate mutual benefit before deciding.
- Insist on outcomes based on objective standards.

Five elements of effective communication [7]:

- 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.
- 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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Additional Resources

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How to Think About Money in Academic Settings

40

Marcia J. Cohen

Achievement and fulfillment in academic medicine is enhanced with a basic understanding of how the "business" of academic medicine works.

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 FY2010, 52% of the revenues at the 126 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.

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Thus, clinical revenues are the source of the infamous *Dean's Tax*, a tithing from clinical 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 10%. 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 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 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 other 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 52.14% in 2010 [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%.

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 to 10% or less.

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 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 jeopardizing 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?

References

1. Source: LCME Part I-A Annual Medical School Financial Questionnaire (AFQ), FY2010. Prepared by AAMC June 2011. Contact: Kajal Nayyar, Senior Research Analyst, Medical School and Faculty Studies. (202) 478–9913 or knayyar@aamc.org. © Association of American Medical Colleges 2011. All rights reserved.
2. Federal Negotiated Facilities and Administrative (F&A) Rate: Source: LCME Part I-A Overview of Organizational and Financial Characteristics Survey. © Association of American Medical Colleges 2011. All rights reserved.

Additional Resource

Mallon William T, Vernon David J, and colleagues at the AAMC. The handbook of academic medicine—how medical schools and teaching hospitals work. 2nd ed. Washington, DC: Association of American Medical Colleges; 2008.

How to Engage in Departmental Strategic Planning

41

Robert C. Robbins, Diana Carmichael,
and David O'Brien

Departments are the fundamental academic units of any university. As the university and individual departments evolve, it is imperative that a clear strategic vision and roadmap for individual departments be developed and frequently monitored. Departmental strategic plans provide the necessary framework to realize the higher-level institutional strategic visions with the current and potential 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. Ideally, a strategic planning process should be completed in concert with changes in departmental leadership (both new appointments and renewals). 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 partners. 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 absolutely necessary for the strategic planning

process to be actively led by the department chair to ensure its success. However, it is also a community process and must involve all members of the department as well as other important partners and stakeholders outside the department. The use of professional strategic planners from within and outside the school will help to facilitate, bring order to the strategic planning process, and ensure an efficient and efficacious process. A comprehensive departmental strategic planning process will generally take approximately 6–9 months, and the majority of the work should be performed by a steering committee comprised of a small group of departmental members that will need to meet at least monthly. Once the plan has been developed, it should be presented to the entire department and other stakeholders prior to finalization.

Leadership

Academic departments function as small businesses led by department chairs who basically serve as *de facto* chief executive officers. The chairman's role in strategic planning is to unite and lead the faculty with a shared and compelling vision and oversee the tactical work required to execute the plan and achieve that vision. Although the department chair often has a clear vision for the department, a strategic planning process performed effectively will empower the faculty and staff to help shape the vision through specific goals and strategies to achieve the vision. Once

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completed, a strong departmental chair will delegate responsibility for many strategies to other faculty and staff leaders. The plan also should include metrics of success that can be utilized by the chairman to measure progress as the plan is executed.

Strategic Plan Components: Mission Areas

Clinical Programs

Strategic programmatic development is an important part of any strategic plan for clinical departments. The department must complete a comprehensive market and competitor analysis to fully understand unmet needs and opportunities for market share growth. These discussions should be done in conjunction with hospital partners, and ideally the clinical programs identified as strategic opportunities for growth will be well aligned with the department's research programs. The clinical section of a departmental strategic plan should include the following key components: (1) detailed marketing plans for targeted clinical programs using print, radio, television, web, and social media; (2) quality benchmark objectives should be developed in addition to clinical efficiency goals (both can be used in marketing plans and contract negotiations); and (3) clinical outreach strategies should be developed to maximize clinical referrals of profitable tertiary and quaternary cases.

Research Programs

The development of a detailed research program to discover new knowledge is central to any academic department's strategic plan. Opportunities in basic science, translational research, and clinical research should be considered. The research strategic planning deliberations should take into account current and potential research collaborators, current departmental strengths, and changing areas of investigation. Innovation and solutions to large problems will likely require interdisciplinary teams composed of investigators from other departments, schools within the university, other institutions, and corporate partners. 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.

Education Programs

Strategic teaching objectives are important for any academic department. Programs ranging from high school, undergraduate, graduate, post-doctoral, fellowship, continuing professional, to community educational programs should be considered in the department's strategic planning process. Curriculum changes should be carefully considered, and new educational programs should have clear goals, including funding sources. Simulation will continue to be an important part of any clinical educational program, especially for technically focused disciplines.

Strategic Plan Components: Resource Areas

Faculty

The recruitment, retention, and development of outstanding departmental faculty will be important to the success of the department, and plans for how to continuously help the departmental members evolve professionally should be a 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, departments that have poor financial performance will create a stressful environment that will lead to underperformance and heavy scrutiny and potential micromanagement by the dean's office. Careful budgetary control and fiscal responsibility are important to maintain the department's healthy balance sheets. The strategic planning process should also include discussions about departmental compensation plans and investment. Development of strategies to increase clinical, teaching, research, and philanthropic funds should be aligned with targeted programmatic development. Clinical departments should include hospital administrative leadership in their planning process for programmatic development. Additionally, funds flow principles should be developed to include hospital medical direction funding and strategic programmatic investment. Strategic plans will invariably entail the need for targeted strategic investments. The vision and strategies included in the plan should be strong enough to make the case for investment by institutional leaders and donors.

Space

A comprehensive environmental resource analysis should be central to any academic departmental strategic plan. Academic office space, research laboratory, and clinical and educational spaces, including simulation space, should be considered during the strategic planning process. Creating plans for expansion of departmental space should be aligned with targeted programmatic development. As digital data become more expansive and important for clinical, educational, research, and administrative programs, the strategic plan must include provisions for adequate information, technical and bioinformatics space, and infrastructure support.

Staff

The recruitment, retention, and development of outstanding departmental staff will be important to the success of the department, and plans for

how to continuously help the departmental members 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 the light of the department's vision, goals, and strategies. If necessary, a strategic plan should include a chart of the departmental organization that best reflects what the department hopes to be.

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

There should be a rigorous methodology to the strategic planning process, and this process should be facilitated by a strategy professional (Fig. 41.1). The department chair should assemble a diverse planning team, or strategic planning steering committee, that represents the various constituencies of the department. The orderly planning process should always begin with qualitative and quantitative assessments to establish where the department currently is and how it has gotten there over the past 3–5 years. The qualitative assessment should 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.
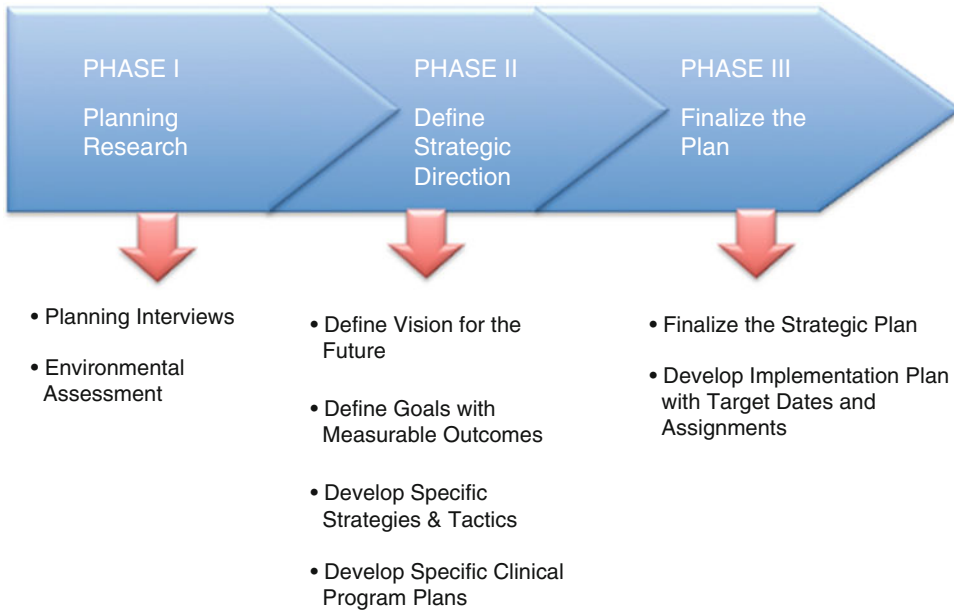
Fig. 41.1 The strategic planning process utilizes a three-phased approach with specific tasks assigned to each phase. The conclusions drawn from each phase established the foundation of planning for each of the subsequent phases. (Source: AMC Strategies, LLC)

In some instances, it may also be worthwhile to reach outside the institution in this assessment phase. Confidential interviews with selected thought leaders in the discipline can provide valuable insights into key global treads 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 activities, the next phase of the planning process involves creating a mission statement and capturing a vision statement for the department. The mission statement should be a concise statement of purpose, reflecting the overarching reason why the members of the department perform their jobs. The vision of the department should capture the moon shot or comprehensive goal that the department aspires to achieve and should differentiate the department from the thousands of peer departments that exist globally. 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 will be healthy debate and meticulous attention to every word in each of these simple yet elegant statements. The group should be deliberate with this initial process and patiently work toward group consensus since these 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 for the future. 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 move forward to 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 to implement the plan, and their sources of support.

The plan should be presented in a slide deck format to the entire department and key stake-

holders and then converted to a narrative that can be used as communication document for all the stakeholders and for fund-raising activities.

The execution of the strategic plan is obviously critical and will require focus and discipline by the leadership. Using metrics to assess the progress of achieving each goal is valuable, and the use of a timeline and dashboards to follow the progress on a quarterly basis is advisable.

Conclusion

Strategic planning is essential for the growth, evolution, and improvement of any successful academic department. This process should be performed with any changes in departmental leadership and at least every 5 years to ensure that the 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, have clear performance metrics, and should be used as documents for communicating the vision and goals of the department. 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.

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 Read a Basic Budget

42

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 program 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 often included in a budget except in the instance of federally funded and other extramural research

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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.

Fig. 42.1 Sample revenue and expense budget

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 42.1 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 an important principle to consider when 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*

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.

Fig. 42.2 Sample actual versus budget comparison and variance analysis

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 regardless 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. 42.2.

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.

Table 42.1 Measuring personnel effort

• Annualized full-time faculty or staff effort is considered to be 2,080 hours of work per year. When calculating an hourly rate of pay from an annualized salary, divide the annual salary by 2,080. For example, a $50,000 annual salary will equate to a $24.04 hourly wage ($50,000/2,080)
• 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

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 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. 42.2, 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 budget. Consequently, the reviewer can ask, does the faculty and staff effort identified match the work proposed? Table 42.1 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?

Evaluating Ongoing Performance

For evaluating another project or program's ongoing performance, the variance analysis as described in Fig. 42.2 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.

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 42.1, 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?
- 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 Strengthen Your Own and Others' Morale

43

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 43.1). These will be followed by a series of specific issues that require special attention.

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,

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Table 43.1 Essential qualities to strengthen morale

For the faculty member/supervisor	For the academic administrator
Engagement	Engagement
• Accept your role as a leader	• Lead by moral (not administrative) authority
• Recognize the people who depend on you	• Be visible, involved, and active
• Respect their roles and work	• Recognize the work and achievements of individuals
• Facilitate smooth working relationships	and groups
Support	Support
• Be respectful and empathic	• Know your trainees, faculty, and staff
• Emphasize the positive	• Facilitate personal and professional growth
• Avoid condescension and implied criticism	• Give priority to individuals' needs over administrative convenience
• Share your experience and perspectives	• Confront problems promptly and respectfully
Transparency	Transparency
• Be clear, fair, and consistent	• Build a culture of openness, fairness, and integrity
• Be specific about your expectations	• Seek input and consensus whenever possible
• Give prompt, specific feedback	• Be consistent and fair in setting priorities
• Accept feedback from others	• Explain the basis for decisions and policies
Balance	Balance
• Be clear and open about your interests and goals	• Know your trainees and faculty
• Seek areas of alignment between your interests and the needs of the department	• Be clear about the program or department's priorities
• Be responsible with the autonomy you are given	• Facilitate appropriate autonomous activity
	• Say "Yes," whenever possible; say "No," whenever necessary

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 work 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 acknowledgement 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 [6]. 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 [7]; 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 [8]. 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. 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 depart-

ment. 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 [9]. 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 relationship 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. For those issues that must be decided by a smaller group, take not one but two moments to explain your decisions: 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 [7, 10]. Professional satisfaction and effectiveness improve when the goals and methods of the group are clear to everyone and their efforts are united [11]. 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 [12–14]. 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 [15]. 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 [16], 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 careful 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 [17]. Give formative feedback regularly, including both positive and negative elements [18]. 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 [19]. Supervision is about direction, oversight, 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.

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 [12–14]. 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. 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.

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 [10]. 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 [20]. 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 smoldering 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.

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.

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

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 may involve 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 peer group, 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 [21].

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. 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, additional training, or treatment, 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. Your attitude 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.

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.

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- 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 2nd-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 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 rotation. 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 had worked hard to ensure that recent changes in ACGME work hours did not disrupt her residents' educational experience or clinical care. Her plan to create a senior resident night float and limit PGY-1 residents to the inpatient day shift seemed the perfect arrangement to stay 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 how much less they were working 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 overwhelmed by "scut work" of little educational value. 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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Part VII

Advancing Your Academic Career

Co-Edited by Cheryl Gore-Felton

How to Create Your Package for Promotion

44

Judith P. Cain and David K. Stevenson

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 such questions 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? Also, academic careers tend to be individualized in terms of breadth, depth, and focus, resulting in 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.

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. Chapters 45 and 46 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 the relative placement within a field or subfield nationally; Chapters 48 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—and since 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.

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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 curriculum vitae, 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. This is particularly important in the early years of the appointment since such sessions will 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 in such a role and inquire about the disposition of a particular dossier (see Table 44.1).

Table 44.1 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

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 or 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 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 the Appendix.

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, they should normally allow between 3 and 6 months to assemble the promotion package. They may need less, 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 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 curriculum vitae 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:

Curriculum Vitae

Chapter 5 of this book focuses on how to prepare the best possible curriculum vitae 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 whom.
– For teaching contributions, use a broad definition that includes the classroom, labora-tory 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 patents 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, 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.

A version of authorship requirements of the *Journal of the American Medical Association* [2], which includes the following categories, can be used as a model: (1) conception and design, acquisition of data and analysis and interpretation of data; (2) drafting of the manuscript and critical revision of the manuscript for important intellectual content; and (3) statistical analysis, obtaining funding, administrative, technical or material support, and supervision.

Candidates should anticipate that file reviewers will notice if there are unusual gaps in their CV and provide context for this 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, major contributions and accomplishments with particular emphasis on recent achievements, major publications and scientific discoveries and how they have impacted knowledge or further research in the field and/or patient care (including those that rank highly on citation indices), major grants and 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 implementation 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, conferences and symposia organized, and elected leadership positions and/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 publications 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 curriculum vitae and candidate's statement, there may be a prescribed format, which should be followed closely. Chapter 47 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 through 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, and sustain strong relationships with departmental colleagues and, given the evolving interdisciplinary nature of many fields, to 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 policies, 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 it receives 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, when you isolate 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 its Faculty Roster database, which is the only national database on the employment, training, and demographic background of US medical school faculty. Findings from this analysis were published in AAMC's Analysis in Brief, which included promotion rates for tenure and non-tenure-track assistant and associate professors, as well as the number of years to promotion (Table 44.2).

The relatively low promotion rates of 54.9% for tenure track and 35.2% for non-tenure-track assistant professors in the 1987–1993 hire cohort 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%. However, 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. And 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.

Table 44.2 Promotion rates for tenure and non-tenure-track assistant and associate professors and number of years to promotion from AAMC's Analysis in Brief

Study Group	First-time Assistant Professors						First-time Associate Professors					
	Average 10-Year Promotion Rates			Average No. of Years to Promotion for Promoted Faculty			Average 10-Year Promotion Rates			Average No. of Years to Promotion for Promoted Faculty		
	1967–76 Cohorts	1977–86 Cohorts	1987–96 Cohorts	1967–76 Cohorts	1977–86 Cohorts	1987–96 Cohorts	1967–76 Cohorts	1977–86 Cohorts	1987–96 Cohorts	1967–76 Cohorts	1977–86 Cohorts	1987–96 Cohorts
All Faculty	43.5	40.4	32.8	5.2	5.8	6.2	41.7	42.6	38.6	5.7	5.9	6.1
Clinical Departments												
M.D. or Equivalent	44.7	39.4	31.2	5.1	5.8	6.3	44.1	43.1	37.8	5.6	5.9	6.2
Ph.D. or Equivalent	37.9	37.6	30.8	5.6	5.8	6.3	28.9	35.3	33.0	6.0	6.2	6.2
M.D. and Ph.D. or Equivalent	55.0	52.1	48.1	4.9	5.6	6.0	51.2	54.0	49.8	5.6	5.7	5.9
Basic Sciences												
M.D. or Equivalent	39.0	37.0	33.2	5.1	5.9	6.2	46.9	43.4	40.1	6.1	5.9	6.0
Ph.D. or Equivalen	54.5	53.9	44.2	5.5	5.8	6.2	42.3	47.1	45.8	5.5	5.6	5.4
M.D. and Ph.D. or Equivalent	44.7	42.0	50.0	5.4	5.5	6.2	44.6	49.7	46.5	5.5	5.6	6.4
Men	45.0	42.6	35.6	5.1	5.7	6.2	42.9	44.2	39.8	5.7	5.9	6.1
Women	36.0	32.1	26.4	5.7	6.2	6.5	31.0	32.6	34.1	6.0	6.2	6.4
White (Not Hispanic/Latino)	46.3	42.6	34.9	5.2	5.8	6.2	42.7	43.9	40.2	5.7	5.9	6.1
Non-white	32.6	30.9	25.2	5.4	5.8	6.3	35.0	36.0	31.1	5.9	6.0	6.2
Tenure Track	71.8	51.6	46.8	5.0	5.7	6.2	52.2	51.2	48.6	5.6	5.9	6.0
Non-tenure Track	46.4	33.8	28.0	5.4	5.9	6.3	34.5	32.3	29.2	5.5	5.9	6.3

Words to the Wise
- Demystify the promotion process by reading the faculty handbook, studying websites, 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 department chair to track progress toward promotion. Incorporate feedback from midterm review into 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 promotion package to mentors and colleagues for review and advice.
- Determine which, if any, information can be provided post-promotion package submission (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?

Appendix: 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, 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.

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How to Understand Promotion Criteria for "Traditional" and "Research" Tracks

45

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 difficult for institutions to develop a single blueprint that will fit all of us. This said, 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 faculty in locating and understanding the criteria for promotion so that a compelling case can be made for advancement.

Locating Criteria for Promotion

Believe it or not, the best time to understand the criteria for promotion is before accepting the job offer. It is important to know what the time line, patient and education responsibilities, and scholarly productivity are at a particular rank and faculty track for promotion before the job starts, so that strategies can be put into place early for success. Not only will this information enable faculty to plan how to spend their time and where to put most of their effort, it might even impact whether or not a particular job offer is accepted.

Every institution has, in writing, criteria for appointment, reappointment and promotion, and most places have created a *faculty handbook*. It is important to read the faculty handbook and have a good understanding of its contents. Faculty should ask for clarification and explanation of the policies and practices prior to accepting a position. In fact, faculty might be able to negotiate some of the practices as part of the job offer. For example, an individual might successfully argue that because he or she has been an assistant professor elsewhere, an expedited advancement process is warranted and request an early evaluation for promotion to associate professor in their new position.

The faculty handbook at most places can be located online using common search engines (e.g., Google, Yahoo, Bing, etc.). If the handbook cannot be located 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 a specific faculty track from the Chair of the search committee or the department Chair. Once faculty have read through the handbook or written criteria, they need to make sure they understand what it means. This is a conversation that faculty can have with the Chair of the search committee, the department Chair, or some other designee working on behalf of the department Chair's office. For faculty members who have already accepted a job, a mentor or supervisor are good people to discuss the promotion criteria with. However, it is important to realize that policies change and mentors or supervisors may not be aware of these changes. So, faculty need to take responsibility for staying abreast of current academic policies and understanding how these policies may impact their career.

Professional Developmental Perspective

As faculty members begin their career, they should seek mentorship, explore their interests, and develop collaborative relationships with colleagues within and outside of their 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), establishing an academic reputation (see tips in Table 45.1), and providing service to the department. In contrast, mid- to late-career years are often marked by

Table 45.1 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
- Send your recent publications to individuals with shared interests in your field
- Attend ice-breakers 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)

consolidating and strengthening expertise, assuming leadership responsibilities, enhancing 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 the academic developmental process has been discussed in general terms, it is a good idea to understand the specifics that will move faculty 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 the department Chair and mentor or supervisor regarding progress and the time line for promotion.

Departments and institutions have some type 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 faculty materials. Traditional tenure and research positions in academic medical centers typically require excellence in the following key areas: (1) scholarship (publications), (2) research, (3) clinical service, (4) education, and (5) service. Each of these areas has unique evaluation criteria, and for faculty members who have a "mix" of responsibilities it will be important to understand how the criteria will be specifically reviewed for their unique situation.

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 a faculty member is devoting 80% effort to research and 20% to clinical service, the weight of the review will focus on achievements in research. This means that the faculty member's research productivity (i.e., publications and

funding) needs to reflect the fact that most of his or her time is devoted to those efforts. Similarly, if a faculty member devotes 80% to clinical service, the weight of the review will be on the achievements in 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 that will be used for review is important because it will serve as a guide, informing faculty on what they need to achieve to move through the academic ranks. Once faculty members have an idea of what the expectations are in their department, there are behaviors that can assist them and their department when it is time to put their materials together for promotion review.

Key Behaviors that Facilitate the Promotion Process

Peer comparisons are used to evaluate academic success. Faculty members typically find that it is helpful to understand how they compare to their peers when going through the promotion process. First, it is important not to guess or make assumptions about how the process is going. Departments set the standards for excellence and faculty can get an idea of what that "looks" like by reviewing the 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, faculty would be well served by thinking about the faculty in their department who have been recently reappointed or promoted and are similar to them 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 an exact blueprint, it will provide 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, and the program of research. It is important to understand "when the clock starts" for publications. For instance, some institutions may only count publications that occurred since the start of the initial appointment at that particular institution while others might count all of the publications no matter when they were published. 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 faculty move through the ranks, they 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 a particular department or institution regarding authorship order across the ranks is a detail that is important to get clarity on. Once faculty know what is expected, they can plan their publications and authorship order accordingly.

Research

Funding and impact are metrics that are typically used to evaluate the program of research. Consistent funding from peer-review sources like the National Institutes 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 faculty might have to do a little extra work to "educate" the reviewers on their funding sources if it comes from atypical sources or are not well known. Once faculty members get an idea of the level of achievement their peer comparisons have, they should ask themselves, "How do I compare with them?" Note the areas that are strong and the areas that need to grow or be developed. Discuss the "growth" areas with a

supervisor or mentor and develop a strategy along with a time line for addressing these areas.

Like any good goal, faculty need to be able to track their progress and hold themselves accountable. Reward systems work better than punishment, so when a goal is met find ways to reward the accomplishment. If a goal was not met, then try and figure out what the barriers to success were and then develop a plan to minimize them. Support from other people or sources may be helpful. For instance, if a faculty member is having difficulty writing papers there are plenty of resources (e.g., books, websites) that offer great tools that can assist in overcoming barriers to writing [2, 3].

Clinical Service

It is important to find out how clinical service will be evaluated so that a successful clinical practice can be developed. 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 and combines these components with an adjustment for geographic practice cost and a scaling factor that converts RVUs into a dollar amount, also known as a conversion factor, is used to determine the Medicare payment schedule [4]. Faculty need to find out if they have a billing target. If the answer is yes, then it is the faculty member's responsibility to develop a clinical practice that allows them to meet or exceed their billing targets while providing excellent service to the communities they 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. It occurs at a specific time with limited people over a period of time that does not lend itself to "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, typically are used to form the basis for evaluating a faculty member's effectiveness as an educator. It is important for faculty to keep track of their students and their accomplishments, particularly those that result from the faculty member's mentorship because this provides evidence of the faculty member's effectiveness as an educator.

Service

A rewarding aspect of faculty life is providing service to a community in which faculty work. Committees such as the institutional review board (IRB), faculty search, and 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 faculty can use their expertise will make the service interesting and will contribute to the overall functioning of their department or institution. Committees are also a good way to gain visibility and provide experience for leadership opportunities as faculty advance in their career. The challenge is finding a committee that is appropriate in terms of time commitment and value to their department. The department Chair or mentor can provide guidance and may be able to suggest opportunities that are a good fit for particular faculty to fulfill the service obligation.

Routines and Habits

No one knows their career and achievements better than the individual faculty member does. Therefore, it is important that faculty develop

routines to consolidate information they will need for promotion. Routines facilitate the development of habits that will help to keep information organized. For example, a faculty member might want to schedule a half hour each week where to update his or her CV. Searching for information can take up valuable time and lead to frustration, so put information that needs to be included on the CV in a file or a box. Alternatively, keep a "working" CV. This is an electronic document that has a running list of everything that has been accomplished that is updated on a regular and consistent schedule. It is a good way to have all of relevant information in one place on a computer, making it easy to retrieve important career facts. Remember, the CV is the primary document that is used in reviewing academic accomplishments, so spending some time developing habits that will enable faculty to capture their work and achievements on an ongoing basis is an important skill set that can effectively facilitate the promotion process.

Keep a copy of all of teaching evaluations in a file folder or box. If faculty members are invited to give a talk, they should ask the organizer to hand out evaluations and retrieve copies of the completed evaluations. Faculty members should also make sure they have contact information for students they supervise or mentor, so that their department administrators can get the students to complete evaluations on behalf of the faculty. Faculty need to manage their 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 of the promotion criteria.

After advancing from assistant to associate professor, faculty might ask, "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 an individual has been on the faculty, the more wisdom he or she is going to accumulate and he or she will be called upon to mentor junior faculty. At this point, the individual is acting like a full professor, so he or she 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 medical school faculty by rank and gender, illustrates the need to balance gender in leadership positions (see Fig. 45.1; adapted from [7]) 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 members to role model excellence and one of the best ways to do this is through academic advancement.

In summary, effectively managing time and planning for 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 supervisors, mentors, peers, colleagues, experts in a particular field, and institutional administrators. Every interaction and meeting faculty members have is an opportunity for others to get to know them and evaluate their potential as a leader in their 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, being mindful and respectful of professional relationships in every interaction is key to building an environment that fosters support and good will.

129,929 Medical School Faculty (35% Women & 65% Men)*

*Note due to rounding, percentages do not sum to 100%.
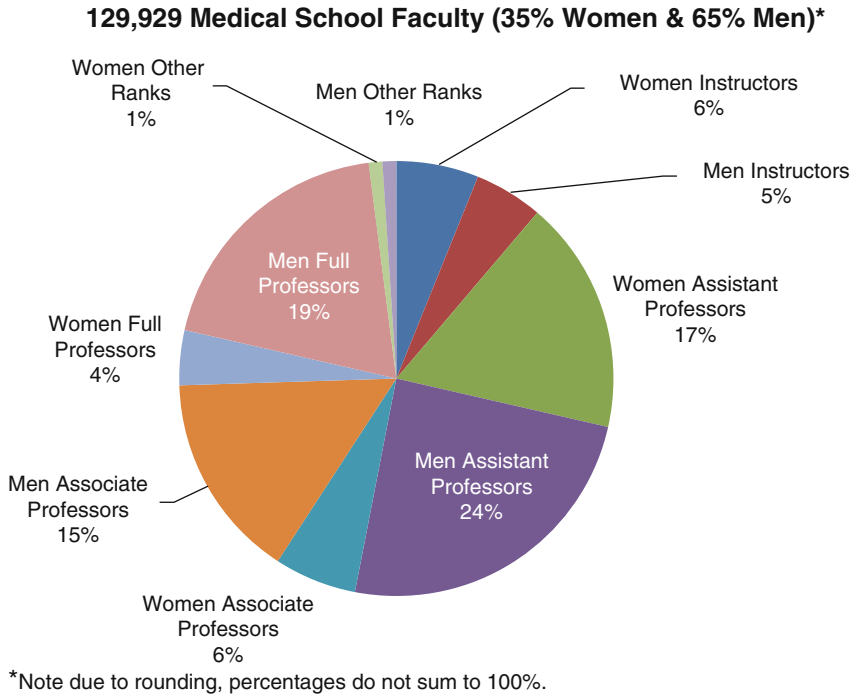
Fig. 45.1 US Medical School Faculty Distribution by Rank and Gender, 2010

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 supervised or mentored, 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 Colleagues
- 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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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]

<div align="right">Glen O. Gabbard</div>

Clinical educators transmit a body of clinical skills and core values from one generation to the next. Clinical educators can transform the medical school experience into an apprenticeships by providing face-to-face, immediate, one-on-one teaching—at the bedside, in the clinic, and in countless hours of formal and informal teaching. There are few professions that still offer this rich and varied learning environment. Moreover, clinician educators have a unique opportunity to integrate their knowledge, skills, and values into institutional curricula, thereby benefitting future generations.

The value of clinical educators to their institutions is more difficult to quantify compared to the number grants and publications produced by their research-focused colleagues. Therefore, clinical educators often worry about their chances for promotion, their ability to thrive in the academic medical environment, and their capacity to deliver high-quality teaching during demanding times [2, 3]. Since 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, surviving and thriving in the academic environment requires more than being a skilled clinician and teacher. It is imperative to know how to navigate the academic environment—understanding promotion criteria is a *sine qua non* for professional success and fulfillment. To that end, this chapter provides a framework for understanding the clinical educator promotion criteria and offers suggestions on how to prepare for promotion.

The Clinical Educator: Definition and Expectations

Prior to the mid-1980s, the "triple threat" faculty member who excelled in research, teaching, and clinical care was one model for success. Due to increased competition for funding, challenges in measuring teaching efficacy, and the pressures of meeting clinical productivity requirements, faculty gravitated towards distinct roles of clinician–educators or clinician–researcher [5, 6]. Similarly, medical institutions, in response to trends in academia [7] and to generate funds to support medical education [4], distinguished between teaching and research positions by developing specific career paths for clinician educators.

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From 1986 to 2005, the number of academic medical institutions with clinical educator promotion and tenure tracks nearly doubled from 61 to 100 [4, 8].

Currently, the faculty handbooks of most academic medical centers include definitions for the clinician educator also known as academic educator, teaching scholar, or clinician-teacher. The definition of clinical educator varies widely, so as mentioned in previous chapters, you should consult your institution's faculty handbook to understand how clinician educators are defined within your institution. The information provided in this chapter describes normative definitions and is not meant to reflect all possible definitions. It is important to note that the documented description may not entirely reflect the dynamic clinician educator role with all of its nuances. To determine what your institution expects is best accomplished by speaking with those within your institution who have successfully attained promotion.

On the surface, the clinical educator is someone who is primarily engaged in clinical care and teaching that advances the field of clinical medicine with evidence of excellence in their duties. For some institutions, clinical educators also engage in scholarly activities and serve in administrative and leadership roles, for others, it is a requirement for advancement. Therefore, clinical educators distinguish themselves in four domains—clinical care, teaching, administration/leadership, and scholarship. These performance areas are the benchmarks commonly used to demonstrate high achievement and form the basis for promotion (see Table 46.1 for instruments used to assess performance areas).

Specific Expectations by Performance Area

Clinical Care

The academic medical community regards successful clinical educators as beyond competent and as models of excellence in clinical care. The guiding principle for who is considered to be an exemplary clinical educator is often "The doctor to whom you would refer your family member."

Clinical educators differ in their clinical focus (generalist vs. specialist), ratio of responsibilities (clinical and teaching vs. clinical and administration), and the modalities by which they demonstrate their skills (teaching trainees clinical skills vs. patient education). Above all else, clinical educators demonstrate superb clinical care through accepted clinical proficiencies such as maintaining an up-to-date knowledge base of evidence-based practice and current standards of care, applying sound diagnostic and therapeutic reasoning and judgment, seeking consultation from other care providers and colleagues, meeting productivity requirements, and demonstrating reliability in meeting clinical commitments.

Teaching

Well trained and experienced clinical educators teach with carefully developed lectures, newly designed curricula, and innovative modalities and materials. Frequently having obtained additional training in effective teaching, these doctors (from *docere*, Latin "to teach") apply criteria from educational scholarship to their teaching. The key components of teaching include clear goals, adequate preparation, appropriate methods, significant results, and effective reflection [7].

Proof of excellence in formal didactics and "bedside" teaching should be amassed 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, learners, or approached to serve as neutral observers; audiences at grand rounds, patient education seminars, professional societies; and other allied professionals). Strong teaching evaluations serve as a metric for assessing teaching competence, which is then used 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.

Table 46.1 Areas of performance and methods of documentation for clinical educators

Clinical care	Curriculum vitae (CV)
	Letters of reference from colleagues or mentees
	Peer evaluations
	Trainee evaluations
	Record of clinical productivity
	Physician referrals and written recommendations
	Patient feedback
	Clinical competency evaluations
	Development of a program to improve the quality of clinical care, meet an institutional need, or improve clinical outcome with data
Teaching	CV
	Letters of reference from colleagues or mentees
	Peer evaluations
	Trainee evaluations
	Teaching awards
	Timely supervisee feedback
	Documentation of learner achievement: residency 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:
	1. Teaching
	2. Learner assessment
	3. Curriculum development
	4. Mentoring and advising
	5. Educational leadership and administration
Administration/leadership	CV
	Letters of reference from colleagues or mentees
	Peer evaluation
	Committee membership, leadership roles, documentation of completed work
	Documentation of positive change due to programs of benefit to clinical care, teaching, or institutional goals e.g. quality improvement measures
Scholarship	CV
	List of peer reviewed publications
	Letters of reference from colleagues, mentees, or 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
	Professional society membership, committee membership, leadership role in either and documentation of accomplishments
	Accepted abstracts/presentations/workshops at other institutions, community health care organizations, professional societies
	Peer reviewer for journal/journal editor

Faculty often seek or are identified by department leadership to seek responsibilities that will allow them to expand their work and influence. The types of responsibilities vary and include roles such as membership on a hospital committee for quality improvement in emergency room services, interviewer for residency and fellowship applicants, and Director for medical education. Pursuing leadership positions in service to your institution, a professional society, or the community is a creative opportunity to develop your professional interests and goals. At the same time, these efforts support your promotion application, help others, and improve the quality of clinical academic medicine through dissemination of knowledge and services. 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 application should provide evidence that your efforts have met a departmental or institutional need and add value.

Scholarship

Successful clinical educators develop a body of scholarly work to share with others via peer-reviewed journals, presenting seminars or 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. Several organizations and authors have suggested that the parameters regarding content be widened beyond research with original data to capture scholarly efforts addressing educational methods of teaching, applications to clinical care, and cross disciplinary efforts [7, 9].

A newer definition of scholarship also refers to work which is readily available to the public, subject to peer review and critique according to accepted standards, and is reproduced as well as foundational to other scholars [10]. 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 produced by a clinical educator.

In summary, developing a rich blend of skills in clinical care, teaching, administration/leadership, and scholarship requires clearly defined professional goals, and a systematic plan for academic achievement rooted in an understanding of the criteria for appointment, reappointment, and promotion. The clinical educator track at your institution may contain ranks requiring increasing demonstration of expertise in clinical care and teaching paired with evidence of scholarship and leadership. The rungs of this ranking ladder may be instructor, assistant clinical professor, associate clinical professor, and clinical professor. These titles differ across institutions and whether the position confers tenure (a secured position if promotion is achieved) varies at each institution. Importantly, the tenured clinical educator track is atypical 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 track), the initial appointment is not a life-time guarantee, therefor reappointment and promotion require that you continue to develop your skills and demonstrate excellence.

Promotion Criteria

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 46.2 for a list of questions to consider). First, it is important to begin with self inquiry about professional goals which all faculty should address regardless of their rank, aspirations, or track. By answering these questions in writing (your answers may change over time), you will create direction for your career and take control of your path rather than finding yourself in an undesirable 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 and money spent on your professional development is your responsibility, most academic medical centers set aside resources to support you. Do not give away "free" money earmarked to cultivate your professional skills. Asking your department to invest in you (e.g., sponsoring professional society membership, travel funds to lecture, sponsorship for conferences to improve your teaching, or research skills) is a reasonable request.

Self-reflection for some individuals comes through phoning a friend. Identify "buddies" (i.e., trusted individuals offering candid feedback and insight from their own experience) who will be your sounding board and provide you with guidance. Having at least one buddy at your

Table 46.2 Questions to ask oneself 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 them and 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 regularly as I do things or just when I need to circulate my CV? Do I have different versions of my CV for different purposes: promotion, bio sketch, recruitment? *Networking* How am I perceived by others in the workplace? 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 and national reputation regarding clinical care, teaching, and/or scholarship? How can I cultivate relationships extra-departmentally to build my local 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?
Clinical care	What is my focus and area of concentration? 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? What is my philosophy regarding patient care?
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 is my focus and area of concentration? To what extent 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 talk and teach externally (e.g., CME, Grand Rounds), and to write in peer-reviewed national contexts? What peer reviewed projects can I collaborate on or initiate? Could any include original data? Is my work reproducible and helpful to other educators? Do I want to apply for funding to support scholarship which may free up some of my time? Have I taken advantage of opportunities to advance my research skills?
Leadership/administration	What is my focus and area of concentration? Do my goals and contribution meet an institutional need? Have I taken advantage of opportunities to be in a leadership role, contribute to the institution, and to heighten my visibility? How is my leadership and contribution recognized and documented? How can I improve or broaden my administrative and leadership skills?

home institution, and another at a comparable academic medical center, ensures multiple perspectives with and without the bias of your workplace. Other aspiring faculty members contact the office of career development at their institution, meet with senior faculty, and consult with mentors for career counseling. 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.

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 directed 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."

The "Package"

In the "package" or promotion application, the A&P committee will find your updated CV, a summary of your job responsibilities, internal and external letters of reference, and your teaching and clinical evaluations. In some cases, a package will also contain a candidate statement, an educator portfolio, and evaluation forms from colleagues attesting to clinical excellence in core competencies.

A candidate statement is not always a requirement. It may be requested for those pursuing more

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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.
- 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.

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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 teacher's portfolio provides examples of your educational contribution.

When required, teaching portfolios typically include a statement of the clinical educator's teaching philosophy, short- and long-term goals, references for supervisees and mentees, and samples of teaching, learner feedback and assessment, curricula developed, and teaching material such as syllabi, and course descriptions or novel materials. Examples of candidate statements and portfolios can be found on-line (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 (Table 46.3).

Table 46.3 Components of the 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 reference
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

Controversies and Opportunities

Most clinical educators care for patients approximately 80% of the time though this can vary widely. This distribution creates a challenge whereby clinical educators feel that they do not have enough time to engage in high quality teaching while maintaining excellent clinical care. 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, and remaining current with advances in medicine can be overwhelming. Moreover, lack of protected time to devote to scholarly work can lead to faculty becoming dissatisfied with their careers. 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 [9, 11, 12].

In addition to institutional support for change, 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 into a writing project. 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. Each individual should gravitate towards those aspects of their job which are the most gratifying but avoid neglecting less desirable activities. To the best of your ability design your job to allow yourself opportunities in the areas which you find most meaningful and serve the mission of your institution. Then you will find joy in your work and be recognized and rewarded both personally and professionally.

Words to the Wise

- Consult with 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 reference, 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.
- 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.
- To create a "fit" between you and your employer, you must understand the unwritten rules of promotion which requires

(continued)

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 investing time to get training and experience in adult education.
- Take responsibility for the distribution and collection of evaluations every time you teach.

Ask Your Mentor or Colleagues
- What is my timeline for promotion?
- Where do I stand in relation to my peers within the department, 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 this institution?

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Additional Resources

Electronic Handbooks:

For clinical educators:

http://www.bcm.edu/pediatrics/?pmid=16210
http://download.book5.org/m/medical-school-based-career-and-leadership-development-programs-w1333.html

For trainees:

http://familymed.uthscsa.edu/ACE/pdf_chapters/Guidebook_Chp12.pdf

Articles on clinical care, teaching and research for clinical educators
- Kroenke K. Conducting research as a busy clinician-teacher or trainee: starting blocks, hurdles, and finish lines. J Gen Intern Med. 1996;11:360–65.
- Ende J. What if Osler were one of us? Inpatient teaching today. J Gen Intern Med. 1997;12 Suppl 2:S41–S8.
- McGee SR, Irby DM. Teaching in the outpatient clinic. Practical tips. J Gen Intern Med. 1997;12 Suppl 2:S34–S40.
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University Websites

UMDNJ:

http://cte.umdnj.edu/clinical_education/index.cfm

Harvard:
http://www.bidmc.org/MedicalEducation/Academic
CareersandFacultyDevelopment.aspx

Southern Illinois University:
http://www.siumed.edu/dme/academy/medical_educa-
tion.html

Other website resources:
https://www.mededportal.org/

Examples of the educator's portfolio:
https://www.aamc.org/members/gfa/faculty_vitae/
148574/educator_portfolio.html
http://www.ambpeds.org/education/educator_portfolio_
template.cfm
https://www.aamc.org/members/gfa/faculty_vitae/
150038/cv_cv_portfolio.html

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 have evolved from the concepts and principles that emerged from the Carnegie Foundation for the Advancement of Teaching, beginning with Scholarship Reconsidered [1] and Scholarship Assessed [2]. These scholars first 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 the domains associated with a scholarly approach. As teachers, these domains mirror approaches that have evolved from the field of education and include clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique. Over time institutions have adopted these domains and defined associated standards for documentation and evaluation of excellence in teaching [3]. This chapter will use these six domain areas as a framework for stepwise development and presentation of an Educator's Portfolio.

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Clear Goals

An Educator's Portfolio (EP) for academic promotion has one clear and specific goal which is to present the *best* evidence of excellence as an educator–scholar. While meeting the education mission requires all faculty, an individual faculty member's ability to achieve excellence in teaching, curriculum development, learner assessment, advising/mentoring, and educational leadership [4] is often challenged by other roles, responsibilities, and expertise. 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. The easiest approach is to use the worksheet provided in Appendix A of this chapter. Spend 5–10 min writing the 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 admission committee meetings, graduate studies council, rating a resident'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); 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); A/M = Advising/ Mentor (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 or an standardized patient checklist); Leader = Leadership and Management (e.g., course/clerkship/ program director, committee charge); and Oth = Other.

Step #3. Identify your major "valued added" activity categories. Most educators spend time in roles aligned with other institutional missions including clinical care, research, and/or community engagement. 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 Educator's Portfolio, the academic physician 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 internal websites in the same location as the promotion guidelines [5]. Other resources with examples are also available through professional societies and medical education organizations [6].

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 methods (e.g., participant response system, mobile app, virtual patient, PowerPoint presentation) and then prepare your instruction informed by the best practices in the field? This is important because as a faculty member seeking promotion, it is expected that the portfolio will provide evidence demonstrating that the faculty member has met the adequate preparation criteria as an educator–scholar.

The number of books, journals, and peer-reviewed forums in medical/health professions education is expanding and is easily accessible to faculty, ensuring that your approach to education is evidence-based [7]. 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. Often your library has purchased subscriptions to these journals and current issues are available on the web to browse.

Consistent with the Carnegie Foundation for the Advancement of Teaching's expanded view of scholarship, 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 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 and PERC for Prevention Education. 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.

Appropriate Methods

An Educator's Portfolio 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 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. 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, a CV entry under the "Teaching" activity category in a CV or 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), how many learners and frequency as shown

below under two teaching activity sub-header audiences:

Teaching—medical students	
10.2009–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	
10.2011–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

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/advising, and educational leadership for Drs. Anatoly and Vladimir).

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 LCME Workgroup on Medical Student Education (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 Educator's Portfolio 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, and reliability and

validity of an assessment instrument you developed. 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, these data may be collected using the same online management systems used by faculty to submit grades. Often evaluation results are provided 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). 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. 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 through institutional resources or through his or her own initiatives, data about the effectiveness of his or her activities. 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, 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 organization, accuracy, clarity (including the absence of grammatical and spelling errors), along with the appropriate utilization of visual displays are hallmarks of a strong

portfolio. Be sure to select the most effective presentation methods (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 and online education.

Once you have completed your portfolio, ask several colleagues to review. 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 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." From Donald Shön's now classic, Educating the Reflective Practitioner [8] to Lee Shulman's Signature Pedagogies in the Professions [9], the role of reflection as one of the common cross-cutting forms of instruction is emphasized. 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 [10]. 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 categories: teaching, curriculum development, learner assessment, advising/mentoring, and educational leadership.
- Evidence: Data, information, 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 is asked the same question, "How do you feel about yourself and your contributions as an educator?" Inevitability the answer is "Yes, I am amazing and very proud of my accomplishments as an educator… and I have so many new ideas about how to improve…" Ultimately what is presented in your Educator's Portfolio should highlight your value as a teacher and reaffirm your commitment that when you teach others—including teaching promotion committee members about what you do as an educators—you also continue to learn.

Appendix A   Educator's Portfolio Worksheet - 3 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, Nathan Anatoly, PhD, Assistant Professor Physiology

Role: Director Medical Education Council on Reintegration of Sciences Underlying Medicine into Clinical Clerkships—2011–present.
Initiative: develop an examination to provide pre–post data regarding degree to which medical students' link basic science concepts to clinical conditions

Problem	7.2011	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	9.2011	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	10.2011	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	11.2011	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	12.2011	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	3.2012	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 POGOe.	
Reflect critique	5.2012	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, Nathan Anatoly, 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 & Translational Science Award (CTSA)

Goal	9.2009 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	9.2009 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	1.2010 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	6.2011 to present	Relationships established: 15 active advisees—3 PhDs, 3 MSs, 4 residents; 5 pathway students ranging from M1–3 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	1.2012	*Grr5* presented to NIH-CTSA external advisory board as example of fostering collaborations; cited as institutional strength in follow-up report.
Reflect critique	2.2012	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 Isaac Vladimir, MD, Associate Professor Emergency Medicine

Initiative: Incentive Environment and Accountability in Medical Student Education

Role: Chair Medical Student Curriculum Committee (2010–12).

Problem	8.2010	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	9.2010	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	10.2010	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	11.2010	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	3.2011	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.
	10.2011	Dean and Faculty Council approve utilizing MCW financial support towards departments as revenue support for departmental clerkship curricular management/leadership.
	1.2012	List of teaching metrics provided to the Chief Financial Officer for the Enterprise Activity Performance System.
Reflect critique	2.2012	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.

Words to the Wise
- *Clear goals*. Your Educator's Portfolio 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 Educator's Portfolio as you would any other instructional material by first determining your objectives and then select how to present the achievement of those objectives.
- *Appropriate methods*. An Educator's Portfolio 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, accreditation notification that highlights a specific activity for which you had responsibility, and an invitation to talk with colleagues about an educational

(continued)

(continued)

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 Educator's Portfolio 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 portfolio submission by taking 20 min 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 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)?
- Have you started your Educator's Portfolio? Note, you should 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!

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How to Build a National Reputation for Academic Promotion

48

Sidney Zisook and Laura B. Dunn

At most academic institutions, promotion from assistant to associate level in clinical, research, or any other academic track requires the individual to demonstrate that one has developed an outstanding local and regional reputation in an area of expertise. 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 to best position themselves to seize and capitalize on opportunities to 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 the interviews such as "Do trainees have opportunities, dedicated time, mentorship, and available resources to develop areas of interest most important to them?" "What do residents do after graduation?" "How many go into the most competitive fellowships?" "Where do they go for fellowships?" "How many graduates assume leadership positions in the field and develop national or international reputations?"

For trainees interested in basic, translational, or clinical research, a research-oriented department with top 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.

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Table 48.1 Academic tracks

		Track		
		Research scholar	Clinical scholar/ educator	Clinical
Accomplishments/ reputation	Example title	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

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, while others 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.

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 48.1 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 seeing patients.

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 Chap. 46, teaching innovations and creative curricular development may be more important than original research or the number of publications in this track. Finally, the clinician is judged primarily on clinical excellence, often less so on teaching and minimally on research. 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.

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 to 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, following them, while being open and flexible to emerging attractions.

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 towards 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 towards 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 front-line clinical

treatment and care. Moreover, faculty often have responsibilities related to patients, students, colleagues, supervisors, mentors, organizations, and communities and 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 time 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]. 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 super hero; none of us are. If someone such as a Chair, the Dean or another important "boss" is asking, and especially if 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 (for more on "saying no" see Chap. 18).

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 [3]. Research has found that mentorship in academic medicine has an important influence on personal development and productivity [4], perhaps especially for women [5] and minorities [6]. 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 important, 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. Be proactive. Awards, fellowships, and scholarships are available for residents, fellows, junior residents, and junior faculty. Do not assume that just because your training director, mentor, or chair has not nominated you that you are not competitive, or even that they know what is 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 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.

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

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. There a variety of postdoctoral research training programs available to residency training graduates [7]. Among them, NIH funded institutional T32 Training Grants (http://grants.nih.gov/training/nrsa.htm) providing 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. 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 [8]. 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. 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."

Embrace Failure

> *I've failed over and over and over again in my life and that is why I succeed.*
>
> Michael Jordan
>
> *Success consists of going from failure to failure without loss of enthusiasm.*
>
> Winston Churchill

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. For one thing, you never know and for another you often receive feedback to improve the quality of the work. It 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 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 of 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. Trying may mean that you may sometimes fail but, more importantly, that you will also 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 do I need to do here to succeed?
- What is most likely to derail me from developing a national reputation? How can I best avoid those roadblocks? Are there examples of either you can share with me?
- How do I ensure 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?

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How to Recognize and Address Unconscious Bias

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Daisy Grewal, Manwai Candy Ku, Sabine C. Girod, and Hannah Valantine

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. For that reason, it is important to understand what unconscious bias is and how it might influence one's career.

The medical field has become increasingly diverse in the past 50 years. Women now make up half of all medical school students. The number of racial minorities in medical school has also increased: between 2010 and 2011, enrollment grew by 9% among Hispanics, 2.9% among African-Americans, and 24.8% among Native American students. Despite these changes, a 2010 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 only 35% of all medical school faculty and just 19% of faculty at the rank of Full Professor. African-Americans and

those of Hispanic origin make up only about 7% 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. In fact, the data for women's career advancement in academic medicine show greater resemblance to a funnel than a pipeline (see Fig. 49.1). 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

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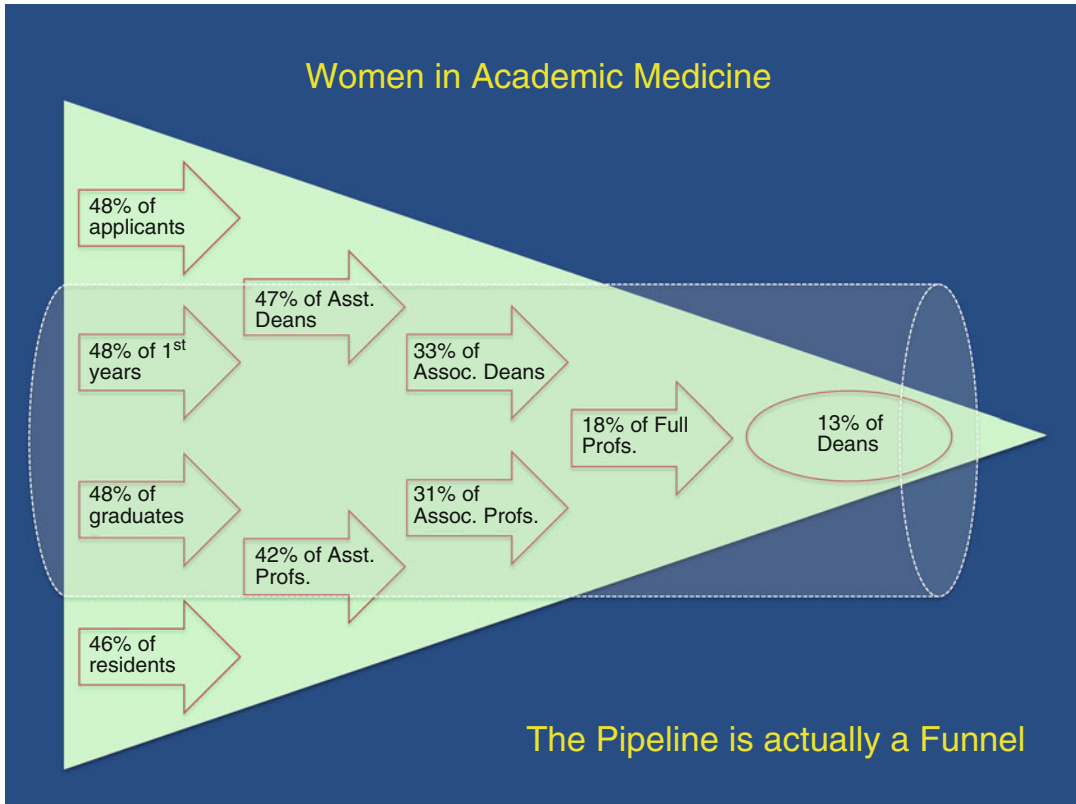
Fig. 49.1 The career advancement of women in academic medicine resembles a funnel rather than a pipeline

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* or *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 all of us 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.

This *unconscious stereotyping* occurs because of our tendency to automatically sort people into

categories. When we encounter somebody who is new and familiar, 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 Caucasian-American man in a white 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 Caucasian-American 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 Caucasian-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. A number of studies suggest that the IAT has the ability to predict future behavior. For example, scores have been used to predict how close someone who is White will choose to sit next to someone who is Black and the likelihood that a woman will pursue a high-status career.

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 Caucasian 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

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, thereby limiting their influence on our thoughts and behavior. Here are several suggestions for a faculty member on how to counter the effects of unconscious bias in academic medicine.

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 findings that show how unconscious bias can affect important decisions. 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.

There is growing evidence that the widespread education of faculty members about unconscious bias may help remove barriers that prevent underrepresented groups from succeeding. 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 participated in the workshops showed significantly higher odds of increasing their percentages of women faculty than departments where no one participated.

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 members of his or her department 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.

Adopting 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 towards 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.

Expanding 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. 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. Recent 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 Recommendations

Although we have outlined a number of recommendations in this chapter that individuals can act upon, a long-term 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. 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 committees. 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.

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 Address Challenges and Opportunities as an International Medical Graduate

50

Nyapati R. Rao

International medical graduates are physicians who received their medical education in schools outside the United States and Canada. International graduates are underrepresented in office-based practice, and their participation in teaching and research, two major components of academic medicine, is underrecognized [1]. Some international graduates were born in the United States. This chapter gives emphasis to the international graduate who was born outside of the United States.

This chapter represents the experiences and thoughts of the author and may not generalize to all international graduates. These graduates 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, 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 are more clinical in their identity.

International graduates have made noteworthy contributions to academic medicine. For example, they have been elected presidents of professional organizations; appointed directors of federal agencies; and, by and large, have become more visible

in the field as chairs, training directors, researchers, and clinical faculty. In addition, international graduates receive prestigious awards and challenging grants. 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. Some obstacles are due to international graduates' lack of familiarity with academic medicine, language and cultural differences, and the highly competitive nature of academic medicine in the United States.

In this chapter, my sense of the main characteristics of U.S. academic medicine will be presented and contrasted with what is practiced abroad. The obstacles encountered by international graduates, as they seek to integrate themselves into academic medicine will be discussed. Finally, strategies to succeed in academic medicine as an international graduate will be enumerated, and the key points will be highlighted.

Professional Identity

Starr [2] 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 [3]. Professional socialization is the

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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 international graduate in acquiring identity as an academic physician will be described. Being a faculty member exposes international graduates 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, relative 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 critical analysis of clinical phenomenon, search for evidence for treatment efficacy, refusal to blindly accept opinions, and a questioning and nonemotional approach to patient care. The primary goal of academic medicine is expansion of knowledge. While, historically, an academic medical center referred to the dyad of a medical school 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 [4] in the 1910s. Flexner's recommendations turned what some perceived to be a chaotic, unregulated, corrupt, pecuniary, 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' acceptance 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 priority of research over teaching, and publication and scholarship over clinical work. This process was aided by generous governmental and philanthropic support while other parts of the world that lacked such financial and intellectual resources focused mainly on clinical work and teaching in their medical schools.

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 ([5], see also Chaps. 45 and 46). 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 enquiry without fear of administrative or ideological pressure [5].

In comparison, in some international medical schools, faculty ranks are assigned based on one's seniority in the civil service employment system. There is only one track—clinical administrator/educator track. Grant-funded research is rare, scholarship and publications are not as valued, and tenure does not exist. An international graduate seeking a career in academic medicine must thoroughly learn these basic concepts in order to have a successful career in the United States.

Faculty compensation in U.S. academic medical centers is generally multisourced. For example, a portion might be earmarked as a base salary, whereas the rest might come from practice-plan 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, expert testimony, etc. 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, and it is important for international graduates seeking careers in academic medicine to develop a positive relationship with their supervisors and the chairman.

In the following, I will mention some of the obstacles that international graduates have to overcome in order to succeed in academic medicine.

1. *Lack of a Model*. International graduates may lack a model of academic medicine from their educational background prior to arriving in the United States. Bedside and classroom teaching are the predominant activity of academic medicine in many source countries of international graduates. As a result, many capable international graduates may not even seek a career in academic medicine. The generally lower salaries of academic medicine and the complex requirements that govern one's professional life may discourage an international graduate 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 a high profile academic job. International graduates might feel that professional life in an academic medical center is somewhat isolating and lonely due to the general paucity of international graduates in academic medicine. In addition, their lack of experience in obtaining grants and publishing before arriving in the United States might act as a deterrent.

2. *Employment Setting*. By virtue of immigration requirements, for instance, working in underserved areas for those on J-1 visas, international graduates may take clinical and service-oriented employment in areas of the country where their intellectual aspirations cannot be easily nurtured.

3. *Type of Residency Program*. A majority of international graduates receive their training in community hospital-based residency programs. Such residency experiences do not adequately prepare them for a career in academic medicine. Residencies with excessive clinical loads, absence of research-oriented faculty, and low priority to do research do not allow the international graduate to hone 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 adversely affect readiness to seek a career in academic medicine.

4. *Discrimination*. The United States is very welcoming to international graduates. Nevertheless, systemic issues may block and thwart the progress of some international graduates in academic medicine. One such issue is discrimination at the workplace, which takes many forms, including denial of desirable positions, promotions, patient referrals, and leadership positions in professional advancement. International graduates may face discrimination in spite of having the necessary qualifications and the requisite skills. Some factors stem from misunderstandings by teachers based on culture, absence of mentors who can advocate for the international graduate, and damaging stereotypes about international graduates' intelligence, medical education, and cultural, technical, and linguistic competence. Some international graduates have faced discrimination, for example, based on caste, social standing, and race in their home countries. In the United States, legal protections exist against discrimination.

Strategies to Developing a Professional Identity

In order to succeed as a faculty member, an international graduate needs to manage the following areas efficiently: know the terrain; manage all relationships with respect, empathy, and tact; expand one's relationships through participating in professional organizations; find mentors; develop specific skills in teaching, research, grant writing, and presentation; and develop cultural competence [6].

Know the Terrain

The international graduate must become familiar with critical issues in academic medicine by reading journals and joining professional organizations and subspecialty organizations. Seeking advice from senior colleagues in the field will be beneficial.

Be proactive and volunteer

As an early-career member of the department, the international graduate must volunteer to participate in a wide variety of activities, for example, by offering to teach medical students, supervise residents, and teach courses in the residency curriculum. One should ask to be included in educational committees that have experienced faculty and academic leaders as its members. One should also learn how to apply for a grant and try getting as many as possible. Each grant application writing process provides substantial education. Teaching and research must not be viewed as distractions one cannot afford but as opportunities to substantiate one's academic identity and advance it further. Management of time is critical to one's success, and one should complete a project by the deadline agreed upon.

Polish presentation and public speaking skills

One can use any number of courses given on public speaking at professional meetings or those available on the internet to improve one's public presence, speaking style, and anxiety. It is better to practice multiple times to perfect one's presentation. Accent and diction issues must be addressed for some international graduates, perhaps by imitating the standard speech patterns of newsreaders, for example, on National Public Radio.

Key Concepts
- *International Medical Graduates* are physicians who received their medical education in schools outside the USA and Canada.
- *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 standards, 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 nonthreatening and nonexploitative relationship with a junior colleague with a view towards 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.

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> In medicine, available tracks are academic medicine, clinical medicine, health management, etc.
>
> • *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.

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 be persistent until your work is accepted. It is important that a faculty member who is an international graduate offers services as a reviewer for as many journals as possible and learns from the review process how a paper was modified from the first version to the final one. 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, using grammar software and copy editors to improve one's manuscript. Develop mastery over written English, expand vocabulary, and advance grammar and syntactical skills.

Assuming the role of a researcher in clinical settings involves two distinguishable professional identities and related roles and relationships: (1) researcher-participants and (2) clinician-patients [7]. 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.

Finding a Mentor

Finding a mentor is a critical step for an international graduate [9] who aspires for an academic career. A mentor is an experienced colleague who shares his or her knowledge and skills in a nonthreatening and nonexploitative relationship with an early-career colleague with a view towards advancing the interest of the early-career colleague. It is important that faculty members who are international graduates develop one or more mentorship relationships. Finding a mentor whom one can trust and benefit from is not easy. Some international graduates 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 international graduate to leaders in the field. The international graduate 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.

Participating in Professional Organizations

In an unpublished survey exploring the attitudes of international graduates towards organized medicine, 70% of the respondents indicated that they are not members of the AMA [10]. The likely

reasons include (1) many international graduates do not have experience with organizational medicine in their countries of origin and (2) 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 considerable say in how medicine organizes itself. Consequently, international graduates may not have models of autonomous professional societies. Professional organizations, when they exist, may limit their interactions to social occasions and rarely take a public stance on issues. When international graduates come to the United States, it takes time for them to truly appreciate the nature of professional life here. Many are bewildered to learn that the US government has very little control over the profession of medicine.

Professional organizations offer 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 towards providing overviews on many topics. Becoming familiar with the leadership team of professional organizations gives the international graduate the chance to get to know the personalities, the politics, the priorities, and the policies of the organizations. Offer to participate in committees and task forces and to conduct workshops and give presentations.

Management of Interpersonal Relationships in Academic Settings

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 tend to be paternalistic. In the United States, greater clarity of boundaries and communication, including disagreements, is more the norm. It may surprise international graduates 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 stir up considerable anxiety in students.

Developing 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 [11]. 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. One must do everything that one requires to overcome cultural barriers. Life-work balance issues including relaxation techniques and exercise must be considered on the journey to cultural competence in the United States.

Words to the Wise
- 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.
- Consult with colleagues, read, and think.
- Look into the future if you are thinking of returning to the country of origin.
- Become familiar with the rules of the game.
- Be proactive and volunteer.
- Polish presentation and public speaking skills.
- Become involved in publishing and other scholarly activities.
- Find a mentor.
- Participate in professional organizations.
- Attend professional meetings.
- Manage interpersonal relationships in academic settings.
  Develop cultural competence.

Ask Your Mentor or Colleagues

- Do you know who is an IMG? Have you had any dealings with IMGs 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?
- Am I a token IMG or are there others?
- 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?

Conclusion

This chapter has described professional identity development in academic medicine specifically for faculty members who are international graduates. Obstacles to the process and recommendations have been offered according to the experience of the author and may not be generalizable to all international graduates. For an international graduate, developing and succeeding in an academic career, although challenging, is often fun, enriching, and deeply gratifying.

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How to "Pitch" a Nontraditional Career Path

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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 clearly communicate 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.

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

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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 to most efficiently 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 Meyers-Briggs Type Indicator, now is the time to do it. A free Keirsey Temperament Sorter [1], based on the Meyers-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 so as 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. But, you first need 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 clearly articulate 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 start 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 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 is important not only 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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Part VIII

Balancing Professional and Personal Life

How to Have a Healthy Life Balance as an Academic Physician

Christine Moutier

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 his or her family members and community but may also affect that physician's life professionally. Moreover, on a larger societal scale, physician wellness also likely 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 time left to create change that could lead to improvement in health or well-being. This chapter will provide strategies to address this particularly vexing problem many academic physicians face: how to optimally balance work and personal life to enhance the outcome on both sides.

Physician Distress

The literature on physician and trainee distress has shown an association between various forms of distress and both professional commitment 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 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]. Among medical students, burnout has been associated with lower levels of empathy and increased incidence of unprofessional behaviors such as cheating [4]. When burnout is severe and chronic (>12 months) even more severe forms of distress, such as suicidal ideation, occur at higher rates [5]. Unfortunately, physicians have higher rates of completed suicide than their age-matched non-physician peers [6]. While suicide comprises a narrow and very extreme sequelae of underrecognized, untreated, or undertreated psychiatric illness, it is an important and tragic outcome along the continuum of physician distress.

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Efforts in Medical Education

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 U.S. 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 Accreditation Council for Graduate Medical Education 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.

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 every

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.

day personal and professional life of physicians. In a dynamic way, the day-to-day and even moment-to-moment thoughts, 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 [7] (see Fig. 52.1).

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, 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
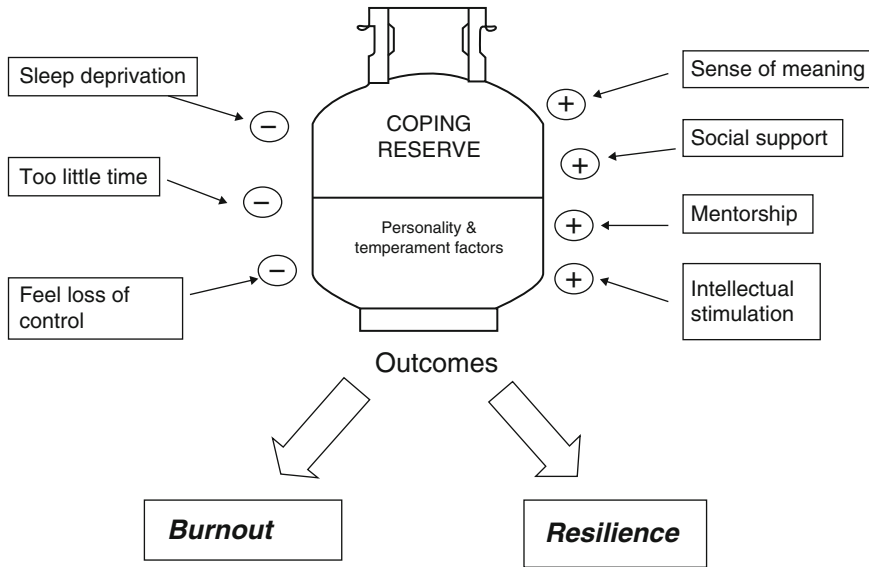
Fig. 52.1 Conceptual model of a coping reservoir. Adapted from [7]

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 which physicians may experience at any age or stage of career. These include personal or family illness, divorce or the break-up 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.

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 or 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, such as a physician who has made a major medical error, but not acted in accordance with his or her conscience or ethical guidelines, or a gay medical student who has not come out yet to family or community. 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 control 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 and students 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 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 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 reg-

ular 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 are 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 completely intuitively but, rather, benefits from introspection and an attempt to objectively be a student of oneself and one's own life. How has it worked in the past? 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, 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, frustra-

tion, burnout, and, eventually, depression. While the topic of suicide prevention in physicians warrants much greater focus, the prevention of depression and recognition and treatment of symptoms of depression 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, 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:

1. 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, other high-impact activity outside of medicine, may allow professional demands and scheduling to be more balanced.
2. Have an inner circle of 1–3 trusted individuals with whom you can safely disclose concerns, e.g., partner, friend, mentor, colleague, therapist, pastor.
3. Establish care with a physician if you don't have one.
4. Pay attention to red flags: irritability and losing one's temper are often the first signs of imbal-

ance; short-term memory slips are another sign of increased stress. Big red flags include increasing alcohol consumption or self-prescribing.

5. Take at least one real vacation each year.

6. 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 acknowledgement 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.

7. 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.

8. 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.

- 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

Conclusion

An important challenge to each physician and trainee is to be as serious a student of oneself as she/he is 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 requires a process of reflection, awareness, planning, and intention.

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

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.

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, Health

Christopher 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 undermining 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.

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

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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 recent survey conducted 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 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 change [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

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 black-out 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.

Dos and Do Nots 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 provides 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 function [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 mid-section has been linked to increased risk for a number of diseases including cardiovascular disease, pre-diabetes, and diabetes [35, 36]. 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) [37, 38]. 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 a 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: 1,800–2,600) and women

(average calorie range: 1,400–2,200) to ensure meeting various nutrient needs [39]. 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 [39].

Carbohydrates

Carbohydrate sources include grains (rice, breads, pasta, etc), fruits, and some vegetables. In midlife 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 [39]. 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 [40].

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: mono-unsaturated fatty acids (MUFAs; olive oil, avocados, etc), poly-unsaturated 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 pre-packaged 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 [41]. 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, and reducing blood pressure.

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 3,500 cal equals about 1 lb (0.45 kg) of fat, one needs to burn 3,500 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 = 3,500 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 [43]. The four main guidelines for activity are: (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 [44].

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

54

Andreea L. Seritan

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. Up to 60% of practicing physicians and half of residents and medical students may experience burnout at any given time [2–4]. Several medical specialties are at higher risk due to the intense emotional burden intrinsic to their practices: oncologists, psychiatrists, and veterinarians. Burnout has an insidious onset and is often recognized too late. Sadly, faculty members may leave institutions, turn to substance abuse, 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. Physicians who experience burnout also report lower patient satisfaction and adherence to treatment plans.

The research discussed in this chapter refers to M.D.s, but it may be applicable to academic

faculty members who are not physicians as well, and our suggestions are intended to benefit all academic medicine faculty. The following paragraphs will highlight selected factors that may increase the risk of 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 taking more than one call night per week [5]. Additionally, long hours may create work-home conflicts, contributing 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 experience interpersonal conflict at work, creating a ripple effect of negativity and demoralization around them. Lack of support from coworkers, especially superiors, will further deepen burnout and feelings of isolation, thus creating a vicious cycle (see Fig. 54.1).

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Fig. 54.1 The work–burnout cycle
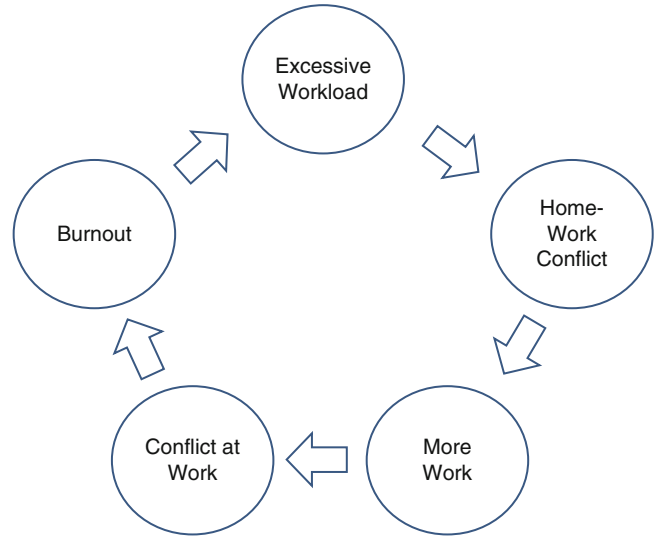
Effort–Reward Imbalance

Academic physicians' stress level is generally very high since they are ultimately responsible for the care delivered to their own patients and all of their team's 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 physicians may thus yield little reward besides altruistic satisfaction. Age and experience are inversely correlated with burnout, placing early-career faculty members at highest risk. Nevertheless, department chairs, residency training directors, and academic health center (AHC) leaders also face budget constraints, low reimbursement rates for clinical services, faculty and staff furloughs, strict requirements for medical school accreditation, and tapering federal support for graduate medical education. In a recent survey of Anesthesia chairs, more than half met criteria for moderate or high burnout; risk factors included low job satisfaction and reduced self-reported spousal support [6]. With the Affordable Care Act, more pressure may unfortunately be placed on physicians to respond to cost containment measures, increased demands for documentation, and higher patient volumes.

For faculty primarily supported by research funding, this is a very difficult environment as well.

Lack of Flexibility

Even though burnout is a work-related phenomenon, personal life events may enhance the risk of reaching this state by creating additional pressures. Single parents and those with young children are more vulnerable to burnout. Although gender per se is not a strong predictor of burnout, the interaction of gender and family responsibilities correlates with stress levels in academic physicians [7]. Burnout is higher among those who have an external locus of control and tend to attribute events to powerful others or to chance [1], therefore lack of control over one's schedule compounds the burnout risk.

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

Table 54.1 Burnout signs

Early	Late
Cynicism	Thinking often about retirement
Cutting corners	"Wishing that one would get seriously ill or in an accident in order to avoid going to work
Poor sleep	Clinical judgment errors
Irritable/labile mood	Professionalism lapses
Minor accidents	Mental health problems (anxiety, depression, substance abuse, suicidality)

than 20% time on their preferred activity [8]. In the current AHC climate, it is very difficult to balance all clinical and educational responsibilities while protecting time for creative endeavors.

Recognizing Burnout

A very important step in avoiding burnout is learning to recognize its signs. Being an academic requires immense patience to accommodate 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 than 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 to work, and mental health difficulties (see Table 54.1). If faculty members are thinking often about their retirement package (even though retirement is years away) or making daily efforts to remind themselves why they even joined academia, something is probably not going well in their professional life. Of course, one does not need to start dropping things or missing steps in order to realize that he or she is not optimally functioning, but the presence of these signs will illustrate the impact of the job stress on one's life. We strongly encourage faculty members to seek help, if they have reached this stage (see section "Dealing with Burnout").

The most widely used instrument for exploring burnout in health practitioners is the Maslach Burnout Inventory (MBI, see section "Additional Resources"). 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.

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 students and physicians [2, 9–11].

These suggestions are summarized in Table 54.2.

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 min and can be revisited as often as necessary (see Appendix, Emotional Equation). There will always be aspects of one's work that one dislikes, and others that keep faculty "hooked" in academia. It is important to closely examine both the positives and negatives. They 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, ser-

Table 54.2 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 your time and energy	Family-friendly policies and flexible work arrangements	Encourage development and dissemination of best practices
Practice positive reframing	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 Words to the Wise)	Develop supportive programs to monitor impaired physicians	Consider self-care competency

vice 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.

Next, it is crucial for faculty members to be able to communicate their goals clearly to their division chief, chair, or dean. This is especially hard for early-career faculty, who face a power imbalance in any of these situations. We recommend taking advantage of faculty development workshops on communication skills, difficult conversations, or negotiation strategies. 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 the 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. In departments where not enough senior colleagues are available, peer mentoring groups have proven effective [12]. These steps will ensure that the faculty members have done their part to minimize misalignment and maximize the effort–reward balance.

Another useful strategy, especially for those with an external locus of control who tend to see themselves as passive victims, is positive reframing. Schwartz [10] suggests trying to view the situation through three different lenses. The reverse lens brings up the question, "What would the other person in this conflict say and in what

ways might that be true?" The long lens involves asking, "How will I most likely view this situation in 6 months?" The wide lens helps focus on the question, "Regardless of the outcome of this issue, how can I grow and learn from it?" These new perspectives can help individuals cultivate more positive emotions and feel empowered.

The following suggestions are not entirely applicable to clinical faculty but may have some value for those in administrative positions. Schedule adjustments based on the faculty member's Myers-Briggs Type Indicator profile (see section "Additional Resources") may be beneficial. Extravert 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 will feel like nothing got done while they were away from their desks. Feeling ineffective and overwhelmed will render faculty members more prone to burnout.

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 reduce burnout may include promoting physician autonomy through participation in decisions affecting medical practice and increased control over schedule; adequate support services and sufficient coverage to allow physician time off; appropriate vacation time and periodic sabbaticals [2]. 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 culture. 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. For example, the University of California has such family-friendly policies, available at: http://www.ucop.edu/acadadv/family/site-map.html (also see section "Additional Resources").

Institutions may also help physicians to become more aware and active in pursuing their own health through faculty development efforts, mentoring programs, offering extended hours childcare and fitness facilities on campus, and educational Web sites and workshops on burnout recognition and prevention, work–life balance, and other wellness-related topics. There is solid evidence supporting mindfulness-based stress reduction training as a burnout prevention strategy for health care professionals. For example, a 52-week curriculum for primary care physicians that included mindfulness meditation, self-awareness exercises, narratives about meaningful clinical experiences, and appreciative inquiries was associated with short-term and sustained improvements in provider burnout, empathy, and mood stability [13]. Many institutions have comprehensive faculty wellness programs (see section "Additional Resources").

Strategies for Professional Organizations

Professional organizations, state medical boards, and AHC accrediting bodies may 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 [11]. The Canadian Medical Association has developed a policy on physician health and well-being [14]. Perhaps US professional organizations will follow suit in expanding the understanding of physician responsibilities to include a duty to maintain one's own health. Once again, policies should not just put more pressure on physicians but, rather, encourage institutions to help doctors attain and maintain wellness and reward innovation, leading to the discovery of best practices that can be disseminated nationally. Making resources available for the implementation of best practices is another way in which professional organizations can help promote a culture of health among providers. Additionally, concerns for repercussions on medical license are real barriers to getting care. In a recent study, 6% of approximately 8,000 surgeons reported having suicidal ideation in the previous year, but few sought psychiatric or psychological help [15]. 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 license or professional identity would greatly reduce stigma and encourage help seeking behavior.

Dealing with 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 one's patients and the projects one will fall behind on. Faculty members will be happier and more productive once they have made some changes and restored their physical and emotional balance.

In addition, 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 occur (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 accessibility are paramount in order to facilitate utilization of resources.

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 organizations to become more active in raising awareness and developing programs for burnout recognition and prevention. Broad culture changes will be necessary to combat this epidemic that threatens the vitality of our profession and, ultimately, of our society.

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
- Get adequate sleep
- Take email-free vacations
- During the first year of your child(ren)'s life, take as much time off as possible and accept that you will be less productive academically
- Try to avoid multiple family transitions at the same time (e.g., relocation, new school for your child(ren), and starting your new academic position the same week)
- Try to avoid overlapping deadlines for you and your spouse/partner
- Don't expect to fulfill any role perfectly (spouse, parent, physician, adult child)
- Don't take on too many projects at once; prioritize

- Don't accept or reject a new project immediately: take 24 hours to think about it
- Consult mentors, coaches, and trusted colleagues about difficult work situations
- Ask for help!

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 that you strongly dislike about your current work situation.

Emotional Equation

Review the positives and the negatives.

Make a Commitment

Write down one thing you will change in your work situation.

Next, start planning how you will accomplish this change.

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?

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David J. Peterson and Roger 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 post-doctoral 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 the short and long term. 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.

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

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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, 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 $1,000 now at an interest rate of 6%, the money will double to $2,000 in approximately 12 years (72/6 = 12). At a 12% interest rate that sum will grow to $2,000 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 plans 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" is usually a good financial strategy. 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"—requires 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 $1,000 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 × 2% for each year × 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 × .02 × $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 containing 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 Roth IRA 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 $1,500–$5,000 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 is 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 carry 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 cover 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, is 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 $1,000,000 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: 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.

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 and joining various insurance plans.

Moving beyond the base salary, faculty need to think about saving and investing for both the short and long term. 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 the short and long term 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 and asset allocation strategy, checking portfolios no often than quarterly or semi-annually 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 $1,000 and $2,000.
- "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?

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How to Develop Professional Relationships

Oscar Salvatierra

The physician who has just accepted an academic appointment following residency and/or fellowship training is often overwhelmed and stressed by the incurred greater responsibilities, obligations, and expectations that span the broad spectrum of patient care, research, teaching, and varying administrative activities. Stress is also commonplace amongst medical students as they tackle expanding medical school curricula that reflect the current explosion of medical knowledge. In addition, medical students are confronted with an increasing competitiveness for residency training positions.

The ultimate overall long-term career goal for the new physician is to have meaningful favorable impact on improving the human health condition. However, accomplishing this goal appears to be slowly becoming somewhat more difficult with passing years. Looking back on the 50 years following my medical school graduation, I have found that there are certain distinguishable key elements that tend to facilitate and provide helpful positive influence not only in the critical early phases of a career, but also throughout one's career. I consider the following five key elements as having the greatest potential for ensuring success and happiness in one's career: (1) Recognizing and living out the concept that *Life Is About People*;

(2) Mentorship; (3) Focus; (4) Organization and Time Management; and (5) Discipline.

Life Is About People

The concept *Life Is About People* is extremely important. Recognizing and living through this concept provides one with what I call the *Great Facilitator* for success. Respect, sensitivity and compassion for one's fellow human beings is, first and foremost, something we must all strive for, but secondly, it greatly facilitates success across a number of different arenas such as in the development of professional relationships and maximizing meaningful patient–physician interaction. As former President Jack Kennedy once stated, "Civility is never a weakness"—instead, it facilitates and enhances human interaction. A physician can have a superb knowledge base and be technically highly skilled, but if he/she has difficulty with interpersonal relationships, people will avoid working with him/her and this can indirectly adversely affect patient care. An example of contrasts are a surgeon who repeatedly yells at operating room personnel so that an atmosphere of fear and tension exists that impairs the all important focused concentration necessary during the surgical procedure, versus the surgeon who promotes a pleasant working environment during the conduct of a surgical procedure so that the assistant surgeon, nursing personnel, and the anesthesiologist are fully and totally focused on the operative procedure being carried out. In the

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former situation, the patient may be at risk for a lesser-than-expected outcome, whereas in the latter case, the patient is most likely to have the optimal opportunity for a successful outcome.

Another example of contrasts is the handling of hurtful remarks. One can retaliate with an equally confrontational knee-jerk response, or one can try to capture whatever insight the remark might provide to improve one's behavior or character and then move on. It is important to remember that the individual making the hateful remark may not have intended it to be so and might himself/herself be under some undue stress. Plato provides good perspective with the following quote: "Please my friends be kind, for everyone you meet is fighting a hard battle." The bottom line is that a physician who is respectful and sensitive to the needs of his/her fellow human beings will likely be able to effectively and efficiently carry out both patient care and other related activities in a manner that engenders superb team cooperation and enthusiasm, with the result of high-level productivity and success. Also contributing to a coordinated and successful team effort are other manifestations of optimum interpersonal relationships such as patience, listening, and respect of dissenting opinion. One should not criticize dissenters so that people are afraid to talk to one, but instead should encourage their involvement so that proposed projects and initiatives are fully vetted and enriched by incorporating the best collective thinking and analysis. A physician should not only directly administer to those patients with health care needs, but he/she should aspire to become an effective and inspiring leader who will promote equitable access to quality health care to all in need, as well as take the necessary steps to proactively support the welfare and morale of the medical staff. And it all begins with the physician fully incorporating the concept that *Life is About People* to complement his/her patient care skills.

Mentorship

Mentorship is probably the most important of career relationships for a junior faculty member, a resident in training or medical student. It is critical to future career success, since it provides informed guidance along the long career trajectory that will minimize and/or correct pitfalls and unwanted twists and turns. I was blessed with mentors and advisors who greatly influenced me and supported my progress during the early part of my career in many meaningful ways. They offered me wisdom and knowledge gained through their own experience and education. At times I was unsure of myself or my choices, but my mentors bolstered my confidence by pointing out my strengths and abilities, and in addition, they encouraged me to *think out of the box* and to *Think Big*. They were available to guide me and help me find my own way to success. They taught me to believe in myself and that espoused an amazing transformation—I progressively became more confident in what I could do. Confidence is conspicuous and powerful; it is the visible face of success and leadership.

Now that I am in the later phases of my career, it is "pay back" time. I am thus now also committed to helping those beginning their careers to realize their dreams. I perceive and accept the role of mentor and advisor as a responsibility. I try to be patient and understanding as I encourage new physicians and medical students to reach beyond any limitations that they might perceive to have so that they can realize their own self-worth and strengths and help grow their confidence. I encourage and challenge them to learn, to grow, to persevere, to work hard and to respect their fellow human beings. I want them to excel in both their careers and life, and I take great satisfaction in seeing them attain both success and happiness.

Having a relationship with a committed and reliable mentor is invaluable and akin to having a *Champion* who will stand by you and advocate for you in time of need and difficulty. A mentor can do many things to help ensure success of a junior faculty member or medical student. To begin with, a mentor can help with career counseling and cultivate a vision for the future. A mentor is generally familiar with faculty of different medical specialties and would thus be of considerable help in arranging for shadowing experiences that could provide the impetus for establishing future professional relationships in

either the clinical and/or research arenas. A good mentor will listen with patience, will inspire and challenge, will support and cheerlead, will help resolve conflicts, and, very importantly, should serve as a role model.

Focus

Sayings such as "Jack of all trades and master of none" and "If you chase two rabbits, you catch none" well portray the importance of focus. Focus is especially important with the practice of medicine, where one strives to be the very best physician that one can be in order to provide the highest quality care to patients. Primary and secondary priorities need to be established that would best lead to attaining and maintaining one's ultimate career goals. In this regard, focus on well thought out priorities is probably more important than stand alone intellectual capacity. One of my mentors, Dr. Fred Belzer, insisted that all of his surgical trainees should focus on performing "perfect surgery". He relegated the time it took to perform a surgical procedure to a far lower level than the attempt to perform the surgical procedure to perfection. He would judge how good a surgeon you were by the take-backs to the operating room for surgery related complications. This greatly influenced me to set my own priorities to those things that would tend to make me the best surgeon that I could become and to carry out research that would improve both surgical and overall clinical outcomes. I acknowledge that there is no perfect surgeon, but with that as my goal and the setting of my priorities to achieve that goal, I knew I would come close to doing "perfect surgery". This approach resulted in a very low complication rate and the highest national 3-year graft survival rate of any organ transplant being performed (according to the national Scientific Registry of Transplant Recipients on our pediatric kidney recipients).

There are two considerations that influence the vigor of fulfilling established priorities, one in positive fashion and the other in a negative manner. *Passion* definitely augments the vigor of one's focus and approach to priorities. For example, it really makes a difference if you truly love or are very passionate about what you are doing in clinical care and research. When I was working with Albert Gore to draft the National Organ Transplant Act, which set up the current national system for organ transplantation in the USA, he taught me that if you believe in something and it is a good thing, and you are passionate about it, you can essentially overcome any obstacle and get it accomplished. We had to overcome the opposition of both the American Medical Association and the Reagan Administration to get the transplant legislation passed [1, 2].

The enemy of focus is *worrying*. It is understandable that an early-career faculty member or medical student would have some worries related to career direction and whether one is going to be successful. The problem with worrying is that much of it is needless and it distracts us from what we should primarily be concerned with, which is to both do quality work with our primary priority and provide quality time for family and friends. Much of what we may worry about we cannot do anything about and it self-corrects with time. It is thus important to be able to tell the difference between what really matters most for the moment and what does not. And most of all, one should not allow worrying to assume primacy in one's thinking because in its extreme form, it can impede focus, impair concentration, disrupt sleep, and unfortunately beget more worrying. The first question I ask early-career faculty members or medical students who are having difficulty with performance is how many rabbits they are chasing. I have found that being engaged in many different things at one time is a major cause of worrying for new physicians and medical students because of their expected inability to do everything very well in so many projects. This scenario especially dilutes the focused attention one needs to relegate to primary priorities such as the medical school curriculum. Fortunately, this particular type of worrying can be actually easily eliminated by not chasing so many rabbits so that better focus can be applied to where it is most needed.

Organization and Time Management

Organization and time management are absolutely essential in order to achieve life balance with optimal success and happiness in both medical career and personal life. Most physicians and trainees have demanding career obligations that will require a daily time commitment. Time is limited to 24 precious hours/day and thus needs to be carefully allocated through a schedule that commits time not only to career related activities, but also to personal life activities that include family, exercise, relaxation, and sleep. Since there are only 24 hours in a day, one can readily ascertain that there is little time for things such as the needless worrying previously discussed. I consider exercise to be very helpful in providing stress relief as well as maintaining stamina to not only carry out the day's work but to also have some stamina left for the family at the end of the day. Adequate sleep is also essential for maximum effectiveness in carrying out one's established priorities.

How one might organize one's day is certainly subject to individual variation. For example, one might develop certain practices to protect the proportionate time to be relegated to predetermined areas of focus, both career and personal life. In my role as a transplant surgeon, I usually had a number of patients in the Intensive Care Units. I would routinely on arising in the morning call into the ICUs at about 6 am and speak to the nurses taking care of my patients. Since they had spent the night with my patients, these nurses had the most up to date clinical information on these patients. I would thus become aware early in the day of those patients that needed urgent attention so that management plans could be adjusted, imaging studies ordered, surgery scheduled if needed, etc., well before routine patient rounds. This was best for the patient, but it also allowed me to give timely and early attention to the problems encountered so that I did not have the management of patient issues extend my day at the hospital and shorten my planned time for family. In regards to emergent or urgent surgery, one's turn on the surgery wait list is determined by the order that such cases are scheduled. Scheduling a surgery early in the day will usually result in that surgery being performed during day time hours, whereas a surgery scheduled early in the afternoon will result in that surgery being performed in the evening with considerable delay of one's intended go home time.

Discipline

The described preceding key elements together provide the principal ingredients for career success. Their effectiveness is in turn dependent on the self-discipline that is employed to ensure their full utilization. Self-discipline provides the drive and power to see all of these elements realized to their full potential. However, since discipline is generally not a well-developed character trait, it needs to be cultivated. Developing and nurturing a "can do, will do" attitude, with emphasis on the "will do," should result in the evolvement of self-discipline. It is really only a matter of getting started and confronting each task in a timely manner by not putting off what needs to be done, which means having the commitment and courage *to just go ahead and do it*! Discipline should become a way of life so as to provide a more structured day in order to successfully, effectively and efficiently shepherd both career and personal life goals into reality and accomplishment. If one is disciplined with establishing and meeting priorities, along with good organization and time management, preservation and allocation of time for both career and personal life goals will be obtained and a balanced life will be achieved. In order to achieve the greatest possible overall success when setting goals and priorities, it is helpful to *Think Big* and *shoot high*. The exact target goals may not be completely reached, but if not, one should come very close to their realization and be much better off than if the bar was not initially set high.

Conclusion

There are other considerations, besides the described five key elements, that are important in attaining career and personal life success and

happiness. These include character traits such as determination, perseverance, resiliency, work ethic, initiative, integrity, and selflessness. These will likely all be incorporated into one's daily life, but when it comes to defining the ultimate core ingredients that will best promote career and personal life success and happiness, one will very likely achieve the most by showing respect and compassion for one's fellow human beings, by having a relationship with a trusted, knowledgeable and experienced mentor, by maintaining focus and establishing priorities, by being organized and judiciously managing the limited precious time available in a 24 hours day, and by being disciplined to incorporate and carry out what is collectively portrayed by the foregoing key core elements that I have described. This in turn should greatly enhance new physicians' and medical students' self-esteem and confidence, which should further fuel and inspire what one can do to improve health care delivery with continued great favorable impact on the human health condition.

> **Words to the Wise**
> - Life is about people
> - Having a relationship with a committed and reliable mentor is invaluable
> - Passion augments the vigor of one's focus and approach to priorities

> **Ask Your Mentor or Colleagues**
> - What relationships have been key in your career development?
> - What organizational principles work best for you?
> - How do you recommend I manage my time?

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