Succeeding in Academic Medicine

A Roadmap for Diverse Medical Students and Residents

John P. Sánchez
Editor

Springer

Succeeding in Academic Medicine

John P. Sánchez
Editor

Succeeding in Academic Medicine

A Roadmap for Diverse Medical Students and Residents

Springer

Editor
John P. Sánchez
President
Building the Next Generation of Academic Physicians Inc.
Executive Director
Latino Medical Student Association Inc.
New York, NY
USA

ISBN 978-3-030-33266-2 ISBN 978-3-030-33267-9 (eBook)
https://doi.org/10.1007/978-3-030-33267-9

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

I would like to dedicate this book to my parents, Irma Sánchez and Nelson Sánchez; my brother, Nelson Sánchez; my early faculty mentors, Elizabeth Lee-Rey and Nilda Soto; BNGAP board members; and the family of BNGAP authors and leaders who have championed diversifying academic medicine.

Introduction

Succeeding in Academic Medicine: A Roadmap for Diverse Medical Students and Residents is about providing core information and inspirational stories and motivating graduate trainees, in particular, groups underrepresented in medicine (UIM), to consider careers in academic medicine.

Since 2010, there has been significant growth in the number of allopathic medical schools in the United States, with the opening of 23 new schools while another 2 are now candidates seeking accreditation from the Liaison Committee on Medical Education (LCME) [1]. The rapid proliferation of medical schools has been accompanied by an increased number of faculty tracks [2, 3] and evolving criteria for promotion in the areas of education and service [4, 5]. With these staffing shortages and culture changes, development of a robust upstream pipeline for the academic medicine workforce deserves careful attention [6]. Currently, medical trainees often lack formal or structured instruction on how to become faculty members. In addition, many medical students and residents report hearing discouraging or inaccurate career information from ill-informed or disgruntled faculty [7].

Increasing diversity in the academic medicine workforce has been identified and embraced as a core value of institutional excellence at nearly all academic institutions and professional associations. Despite increasing diversity among all ranks within the academic medicine physician workforce, certain groups such as Black-/African-American-, Latino-/Hispanic-, and Native American-identified individuals, commonly referred to as underrepresented racial and ethnic minorities (URM), and women are present in lower proportions compared to the general population [8, 9]. Although Asian-identified individuals are well-represented in academia in relation to the general population, that level of success has not carried through to senior administrative positions (e.g., dean positions) [10]. Over the past decade, the lesbian, gay, bisexual, transgender, and queer (LGBTQ) community has gained greater state and federal protections, but their presence and inclusion within the academic medicine workforce are unclear due to the historical lack of sexual orientation and gender identity data collection among pre-health trainees to faculty [11]. There are differences in the experiences of these groups but also similar challenges in their recruitment, retention, and promotion. Similar contributory factors include a lack of knowledge of academic career tracks or outcomes, insufficient concordant role models and mentors, 'isms (e.g., racism, sexism, heterosexism, homophobia, transphobia, etc.), and a diminished sense of worthiness in being faculty [7, 10–13].

National organizations and medical schools have started working toward enhancing trainees' consideration of academic careers, but greater attention is necessary to meet the growing need for diverse faculty. The Careers in Medicine Program of the Association of American Medical Colleges (AAMC) provides information on specialties with comparisons of clinical and academic practice, highlighting differences in responsibilities and salaries [14]. The Physician Researcher Initiative of the Student National Medical Association seeks to educate the SNMA membership about careers in academic medicine and to establish a network of mentors in addition to mentoring opportunities that will initiate and enhance students' research experiences. Many medical schools and residency programs are developing tracks on academic medicine, research, and education to help trainees develop fundamental knowledge and skills to be effective and successful future faculty. With recent research indicating that diverse candidates are less likely to consider academic medicine on starting medical school and that interest often diminishes over medical school, dedicated efforts to promote *pre-faculty development* among diverse trainees are crucial to improve current faculty recruitment trends. Pre-faculty development is defined as providing trainees with foundational self-efficacy, knowledge, skills, and experiences to be successfully engaged and appointed to a faculty position within an academic institution. (Sánchez J.P. and Williams V., 2019).

Reflections

I first heard the inspirational statement "I want you to be a faculty member!" from my role model, mentor, and champion Dr. Elizabeth Lee-Rey. She was a family medicine faculty member and co-director of the Hispanic Center of Excellence at the Albert Einstein College of Medicine (Einstein). She respected trainees and faculty alike, was accessible, and exhibited compassion and understanding when students had personal or professional challenges. As a woman who valued her own Chinese and Puerto Rican identities, she recognized, embraced, and respected the intersectional identities of others. As a mentor, she would meet frequently, was cognizant of mutually important milestones to meet, and provided advice in a nonjudgmental manner. She heralded my achievements and encouraged her peers and senior administrators to view me as a future faculty member and leader – championing my career trajectory. Her presence, and unfortunately premature departure from academia, flamed "the fire in my belly" to follow in her footsteps and support other trainees, in particular diverse trainees, in considering academic careers.

Building the Next Generation of Academic Physicians Initiative

Before her departure from academia, I recall meeting with her to review faculty diversity statistics at Einstein and across the country, being reminded that only 7% of faculty were URM and agreeing that there was a lack of evaluation of current faculty-directed efforts to catalyze stagnant trends. Concurrently, Jeffe et al. published a seminal study in the *Journal of the National Medical Association* on the evolution of medical graduates'

academic medicine career intentions [15]. In investigating medical students' career intentions during medical school by comparing responses to the AAMC Matriculating Student Questionnaire and Graduation Questionnaire, it was found that URM students have less intent to enter academia on entering medical school and lose interest in academic medicine careers throughout medical school. The combined findings drove us to focus on building the *pre-faculty pipeline*. We decided to initially focus on URM medical students and be partnered with the Latino Medical Student Association (LMSA) and the Student National Medical Association (SNMA) with the help of Dr. Gezzer Ortega (Howard College of Medicine graduate) and Dr. Dennis Spencer (Weill Cornell Medical School graduate), respectively. An initial exploratory study of URM interest in and preparedness for academic careers was conducted among participants of SNMA's and LMSA's regional conferences in the Northeast. Approximately, 60% of the survey respondents reported interest in an academic medicine career and desired additional guidance. SNMA and LMSA members represented a distinct network within the population of Dr. Jeffe's study and were inclined toward academia, a potential source to broaden the pool of future diverse faculty. Soon after, through the encouragement of Assistant Dean of Diversity Nilda Soto (Einstein), these exploratory findings were shared with Dr. Marc Nivet, former chief diversity officer of the Association of American Medical College Diversity Policy and Programs (AAMC-DPP), and a new initiative emerged entitled Building the Next Generation of Academic Physicians (BNGAP) Initiative. The initiative focused on assessing diverse trainees' perceptions of academic careers, implementing strategies to reduce barriers and promote facilitators toward academia, and evaluating outcomes and impact of activities.

With the continued support of SNMA, LMSA, and AAMC (leaders: Dr. Laura Castillo-Page, Dr. Gwen Garrison, Dr. Norma Poll-Hunter) and new collaborations with the National Medical Association (leader: Dr. Brandi Kaye-Freeman), the National Hispanic Medical Association (leader: Dr. Elena Rios), the American Medical Association (leaders: Dr. Baligh Yehia and Dr. Mitch Lunn), the Association of American Indian Physicians (leaders: Dr. Donna Galbreath and Dr. Nicole Stern), the Association of Native American Medical Students (leaders: Dr. Missy Begay and Dr. Andrea Garcia), GLMA: Health Professionals Advancing LGBT Equality (leaders: Dr. Henry Ng, Dr. Jesse Joad, and Dr. Travis Gayle), and the Asian Pacific American Medical Student Association (leader: Dr. Lindy Zhang), the initial exploratory study was expanded to a national mixed methods study to explore the perceptions of academic careers among diverse trainees who identified as Asian, American Indian/Alaska Native, Latino/Hispanic, African-American/Black, women, and LGBTQ. Irrespective of identity, trainees encountered at diversity-related organizations expressed a high interest in academia [7, 10–13]. *Common barriers* included lack of information on academic medicine as a career option; lack of competency to perform scholarly research, teaching, or service work; and secrecy regarding the promotions process. *Common facilitators* include mentored teaching, research, service, and leadership experiences throughout training; information about academic career development resources (e.g., grants, presentation opportunities); promoting diversity in academia through awareness of trends and academic career pipeline/pathway programs; and modifying promotion processes to recognize teaching and service activities. Distinct for *women* was managing the

competitive nature of academia and family interests and accessing women faculty role models and mentors, especially in the higher ranks [13]. Distinct for *LGBTQ-identified individuals* included poor institutional recognition of LGBT scholarship, a paucity of concordant mentors or networking opportunities, and a hostile or non-inclusive institutional climate [11]. Distinct for *American Indian/Alaska Native-identified individuals (AI/AN)* was a feeling of isolation on many campuses, self-doubt in own ability to serve as a credible faculty member, lack of positions in rural areas, lack of clinical or research specifically focused on AI/AN identity, lack of congruent role models and mentors, and uncertainty on how to manage academic and AI/AN cultures [12]. Distinct for *Hispanic/Latinos and African-Americans/Blacks* was understanding how community service and academia overlap; accessing congruent faculty role models and mentors, especially in the senior ranks; sensing an enhanced institutional infrastructure to support diversity and inclusion; and developing self-worthiness to pursue academia [7]. Distinct for *Asians* was accessing concordant role models and mentors, enhancement of communication skills, and informed career discussion between parents and trainees [10].

These fundamental findings led BNGAP to bring together 33 distinguished diverse trainees, faculty, and senior leaders from across the country to develop a core curriculum to enhance diverse medical students' and residents' awareness of, interest in, and preparedness for academic careers. Between Fall 2015 and Spring 2019, the curriculum has been implemented at 34 medical schools across the United States.

This book features the core knowledge and skills provided through the curriculum, complemented by inspirational and motivational stories by diverse academicians who have served as facilitators of the curriculum. The book is divided into 12 chapters.

Chapter 1: Diversity and Inclusion in the Academic Medicine Workforce

In this chapter, we'll explore the value of diversity and inclusion in academic medicine. The data is presented demonstrating a current "sense of urgency" that underscores the challenges of diversifying its academic workforce. The chapter will end with a general overview describing the array of pathways into academic medicine and a reflection activity for readers to consider when choosing a path that best aligns with their personal and professional interests.

Chapter 2: Academic Career Roles and Responsibilities

The focus of this chapter is to describe some of the more common faculty roles and administrative and leadership roles in academic medicine. The advantages and disadvantages of academic careers are discussed so you can reflect upon your own personal values and professional interests to see if there is a match. And lastly, this chapter will focus on describing the three academic job components of research, teaching, and service to lay the groundwork for subsequent chapters on academic promotion and scholarship.

Chapter 3: Introduction and Transparency to the Academic Appointment and Promotion Processes

The purpose of this chapter is to address the "sense of secrecy" around faculty promotion and bring transparency about the process of applying for and succeeding in a faculty career. The information in this chapter will be supplemented with career reflection exercises to help readers learn how to (1) define core terms related to academic appointment and promotion processes, (2) compare data elements for a curriculum vitae (C.V. or literally story of their academic life) and education or clinical portfolios (compilations of samples demonstrating teaching skills or clinical skills), and (3) become aware of the common steps in submitting a promotion package. Most critically, the reader can immediately begin to document what they have accomplished and what they are now doing in medicine as content for their first academic C.V. which compiles all relevant life experience related to becoming a medical professional.

Chapter 4: Community Service Scholarship

The goal of this chapter is to give an outline of how trainees can create scholarship from community service. The chapter begins with basic definitions of community service, community engagement, service learning, and opportunities for scholarship through community service. It will highlight trends in service activities engaged in by trainees, as they progress from their premedical to resident training, to show the myriad of possibilities and potential alignment with personal and professional interests. The concept of value-based alignment will be introduced to help readers align their activities not only with personal and professional interests but also community needs and institutional mission and strategic planning, yielding greater fulfillment and advancement. The chapter then introduces examples of frameworks and models to help transform community service work to scholarship with case scenarios to showcase how frameworks and models can be applied to achieve scholarship.

Chapter 5: Educational Scholarship

The goal of this chapter is to give an outline of the clinician-educator pathway for undergraduate and graduate medical trainees with a focus on how to create scholarship from educational activities. The chapter will begin with the basic definitions and discuss different educator activities as defined by the Association of American Medical Colleges (AAMC). It will give a brief overview of curriculum development and design, assessment, mentorship and advising, teaching activities, and educational leadership. It will delve into a discussion of the scholarship of education as defined by Boyer and Glassick. You will learn about the necessary tools needed to utilize educational scholarship as a promotional tool in academic medicine. The chapter also includes case scenarios and worksheets for interpretation. The main focus of these case scenarios will be to highlight how everyday activities

can be transformed into scholarship. The chapter will conclude with a section on the steps needed to publish educational literature and the necessary resources along with a few examples from recent literature.

Chapter 6: Research and Scholarship

The following chapter is an overview of how research and scholarship can pave a way to an academic medicine career. It outlines steps that can be made through undergraduate education, medical school, and residency. We will define terms and discuss the role that mentors play in developing research goals and expertise. We will identify skills necessary to consider when trying to enter the research field, including literature searching, study design, and empirical analysis. We will then describe how a clinician builds research into their career, accompanied by real-world experiences as presented by the authors' personal experiences.

Chapter 7: The Significance of Mentorship

In this chapter, we highlight the importance of mentorship in the pursuit of a career in academic medicine; describe the role of mentors, sponsors, and coaches/advisors; provide evidence-based tools to help you identify a mentor and establish effective mentoring relationships; and discuss the key components that are essential in the maintenance of a mentor-mentee relationship. We end this chapter with a discussion of the Liaison Committee on Medical Education (LCME) and Accreditation Council for Graduate Medical Education (ACGME) mandates on mentorship as a requirement for all accredited medical training institutions. We present you with a description of potential challenges that mentor-mentee relationships may face. Lastly, we discuss the cycle of mentorship for the purpose of expanding growth and the constant support to students interested in academic medicine.

Chapter 8: Leadership

Health-care leaders can help to improve population health, increase adoption of new technologies and medical knowledge, and improve access to services. Today's health-care environment calls for a different type of leader – a leader with an ability to stretch his or her comfortable patterns of leadership style to promote collaboration among a diverse group of health-care providers and adopt a culture of change and continuous improvement. To help diverse trainees become more effective leaders, this chapter describes some key leadership terms and theories. In addition, it includes exercises to help trainees reflect on their current or potential future leadership activities and uses case scenarios to help readers comprehend how they can become effective leaders in their daily activities.

Chapter 9: The Intersection of Health Policy and Academia

After reading this chapter, learners will be able to define important terms in health policy and academia, identify a framework for health advocacy created by the Centers for Disease Control and Prevention (CDC), and understand how that framework was implemented in historical examples such as the AMA Medical Student Section efforts in ending AMA advertising relationships with tobacco companies, White Coats for Black Lives movement, and LGBTQ+ advocacy within Latino medical student organizations. Throughout these vignettes, the overlap between health policy and academia will be featured, ensuring learners understand how patient advocacy can lead to academic success and augment careers in academic medicine. This chapter ends with a review of additional training and professional opportunities that integrate skills in health policy and academia.

Chapter 10: Finding an Academic Residency Program

The preceding chapters in this book presented knowledge and insight into the field of academic medicine and why diversity and inclusion are vital to medical education. This chapter provides information on how medical students can select an appropriate residency with the goal of preparing them for a career in academic medicine.

Chapter 11: Finding an Academic Position After Residency

Demystifying the process of the critical transition from trainee to academic physician is an important goal in efforts to attract and retain talent in academic medical centers. Providing you with knowledge, skills, and resources that allow for informed decision-making when pursuing a position in academic medicine may help you gain greater self-efficacy toward obtaining an academic physician job. In this chapter, information about finding an academic position after residency is provided along with important considerations for selecting an academic position and preparing for successful academic career progression and promotion.

Chapter 12: Financing a Career in Academic Medicine

This chapter provides an overview of how to successfully pursue a career in academic medicine while paying back loans accumulated during medical school. It addresses commonly perceived financial barriers in academia and sources of funding that support this career pathway. Also included is a description of several types of loans, loan repayment plans, and factors that may affect the process of financial planning. Additionally, a sample scenario illustrates an example of loan repayment strategy and planning. With greater knowledge of loan repayment programs and financial planning, as discussed in this chapter, the students can make informed decisions about entering the field of academic medicine.

In summary, I hope that this book helps build your knowledge of fundamental academic medicine career information including terms, definitions, and policies; opportunities to reflect on how academia aligns with your personal and professional interests; and opportunities to analyze case exercises to help you understand how your current activities can be translated into meaningful activities to promote your awareness of academia and achieve academic scholarship. Most importantly, I hope that the diverse authors' personal narratives enhance your self-efficacy toward an academic career. *We need you to consider serving as faculty!*

References

1. Medical school directory. Liaison Committee on Medical Education website. http://lcme.org/directory/. Accessed 20 May 2017.
2. Coleman MM, Richard GV. Faculty career tracks at U.S. medical schools. Acad Med. 2011;86(8):932–37. https://doi.org/10.1097/ACM.0b013e3182222699.
3. Mayer AP, Blair JE, Ko MG, et al. Gender distribution of U.S. medical school faculty by academic track type. Acad Med. 2014;89(2):312–217. https://doi.org/10.1097/ACM.0000000000000089.
4. Kuhn GJ. Faculty development: the educator's portfolio: its preparation, uses, and value in academic medicine. Acad Emerg Med. 2004;11(3):307–11. https://doi.org/10.1111/j.1553-2712.2004.tb02217.x.
5. Goldstein AO, Bearman RS. Community engagement in US and Canadian medical schools. Adv Med Educ Pract. 2011;2:43–49. https://doi.org/10.2147/AMEP.S16823.
6. Sánchez JP, Castillo-Page L, Spencer DJ, et al. Commentary: the building the next generation of academic physicians initiative: engaging medical students and residents. Acad Med. 2011;86(8):928–931. https://doi.org/10.1097/ACM.0b013e31822220df.
7. Sánchez JP, Peters L, Lee-Rey E, et al. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013;88(9):1299–1307. https://doi.org/10.1097/ACM.0b013e31829f87a7.
8. Yu PT, Parsa PV, Hassanein O, Rogers SO, Chang DC. Minorities struggle to advance in academic medicine: a 12-y review of diversity at the highest levels of America's teaching institutions. J Surg Res. 2013;182(2):212–18. https://doi.org/10.1016/j.jss.2012.06.049.
9. Xierali IM, Fair MA, Nivet MA. Faculty diversity in U.S. medical schools: progress and gaps coexist. Analysis in Brief. 2016;16(6).
10. Zhang L, Lee E, Kenworthy C, Chiang S, Holaday L, Spencer D, Poll-Hunter, N, and Sánchez JP. Southeast and East Asian Medical Students' perceptions of careers in academic medicine. Submitted to Journal of Career Development – Nov 30, 2017.
11. Sánchez N, Rankin S, Callahan E, Ng H, Holaday L, McIntosh K, Poll-Hunter N, Sánchez JP. LGBT Health Professionals perspectives on academic careers – facilitators and challenges. LGBT Health. 2015, 2(4); 346–56.
12. Sánchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewster C. Balancing two cultures: American Indian/Alaska native medical students' perceptions of academic medicine careers. J Community Health. 2016.
13. Sánchez NF, Soto-Greene M, Alexander A, Holaday L, Spencer D, Poll N, Sanchez JP. Attracting diverse talent to academia: perspectives of medical students and residents. J Career Dev. 2017, pages 1–18.
14. Careers in Medicine. Association of American Medical Colleges website. https://www.aamc.org/cim/. Accessed 1 June 2017.
15. Jeffe DB, Andriole DA, Hageman HL, Whelan AJ. Reaping what we sow: the emerging academic medicine workforce. J Natl Med Assoc. 2008;100(9):1026–1035. https://doi.org/10.1016/S0027-9684(15)31439-5.

Contents

Contributors

David A. Acosta, MD Diversity Policy and Programs, Association of American Medical Colleges, Washington, DC, USA

Edward J. Callahan, PhD University of California, Davis School of Medicine, Sacramento, CA, USA

Kendall M. Campbell, MD East Carolina University, Brody School of Medicine, Greenville, NC, USA

Joel Dickerman, DO National Board of Osteopathic Medical Examiners, Inc., Chicago, IL, USA

Julie Gilbert, BS Association of American Medical Colleges, Washington, DC, USA

Conair Guilliames, MD Department of Family and Social Medicine, Albert Einstein College of Medicine, The Bronx, NY, USA

Daniel E. Guzman, MD University of California, San Francisco, CA, USA

Pooja Kothari, BA Rutgers New Jersey Medical School, Newark, NJ, USA

Ray Lucas, MD School of Medicine and Health Sciences, George Washington University, Washington, DC, USA

Bonnie Simpson Mason, MD Graduate Medical Education, University of Louisville School of Medicine, Louisville, KY, USA

Gezzer Ortega, MD, MPH Center for Surgery and Public Health, Brigham and Women's Hospital, Boston, MA, USA

Brandon Patterson, MSI, MA Spencer S. Eccles Health Sciences Library, The University of Utah, Salt Lake City, UT, USA

Margaret S. Pichardo, MPH, MD Candidate Center for Surgery and Public Health, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Howard University College of Medicine, Washington, DC, USA

Yale School of Public Health, New Haven, CT, USA

Norma I. Poll-Hunter, PhD Human Capital Initiatives, Association of American Medical Colleges, Washington, DC, USA

José E. Rodríguez, MD Department of Family & Preventive Medicine, University of Utah School of Medicine, Salt Lake City, UT, USA

Eneida O. Roldan, MD, MPH, MBA Florida International University Herbert Wertheim College of Medicine, Miami, FL, USA

John P. Sánchez, MD, MPH President, Building the Next Generation of Academic Physicians Inc., Executive Director, Latino Medical Student Association Inc., New York, NY, USA

Nelson Sánchez, MD Weill Cornell Medical College, New York, NY, USA

Orlando Solá, MD, MPH Department of Family Medicine, State University of New York Downstate Medical Center, Brooklyn, NY, USA

Dennis Spencer, MD, PhD Boston Children's Hospital, Harvard Medical School, Boston, MA, USA

Harsh Sule, MD, MPP Rutgers New Jersey Medical School, Newark, NJ, USA

Renee Williams, MD, MHPE Division of Gastroenterology, NYU School of Medicine/Bellevue Hospital Center, New York, NY, USA

Valerie N. Williams, PhD, MPA University of Oklahoma Health Sciences Center, Center for Learning and Leadership/UCEDD, Oklahoma City, OK, USA

Diversity and Inclusion in the Academic Medicine Workforce

1

David A. Acosta and Norma I. Poll-Hunter

Personal Story – David Acosta

Educating others has always been part of my life. Whether it was being a biology teaching assistant in college or the chief resident, every opportunity to teach along my path to medicine validated my passion for the practice. It was after spending eight remarkable years as a Latino family practice physician in rural Northern California that my journey to academic medicine began in earnest. I practiced medicine at a community health clinic that provided health care to the poor and underserved populations in the region, two Native tribal communities (Maidu and Northern Paiute), and to a large number of migrant farmworkers. My first opportunity to serve as a clinical instructor was offered by the University of California Davis (UC Davis) School of Medicine. Their medical students, physician assistant students, and residents visited the clinic for up to six weeks to train in rural medicine. This provided me the opportunity to serve as a role model to those students and residents from minority and disadvantaged backgrounds like me. I attended the faculty development workshops that UC Davis held for all their rural clinical preceptors. These workshops introduced me to the concept of curriculum development, constructive feedback and evaluation, and the art of bedside teaching. In addition to my role as a clinical preceptor, I served as co-medical director of the clinic, vice chief of staff at the local community hospital, and chaired several hospital committees.

Eight years of rural practice and teaching at the clinic motivated me to pursue teaching full-time. As I applied for several faculty positions, I was revisited by the irrational, yet familiar, imposter syndrome that I had frequently experienced throughout my education. I began to question whether I was smart enough or had enough clinical experience to be a good teacher. At the time, my insecurities about attaining a faculty position were due in part to my lack of research experience, not having authored any publications, and my limited experience with writing grants.

D. A. Acosta (✉)
Diversity Policy and Programs, Association of American Medical Colleges, Washington, DC, USA
e-mail: dacosta@aamc.org

N. I. Poll-Hunter
Human Capital Initiatives, Association of American Medical Colleges, Washington, DC, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_1

Fortunately, I was rescued from my doubts when I was hired by the family residency program at the University of Washington School of Medicine (UWSOM). I was chosen to develop a rural health curriculum for the program and to launch a new fellowship in rural medicine. The residency program director who recruited me was also a rural family physician whose experiences in rural health mirrored my own. He enrolled me in a faculty development fellowship program offered by UWSOM. By the conclusion of the fellowship, I felt empowered to develop a rural health curriculum and several new initiatives for the residency program.

After thirteen years as a residency faculty member, I was honored to become the first Doctor of Medicine named as assistant dean for multicultural affairs at the UWSOM. This new role was a pivotal point in my career. This gave me the opportunity that I had been waiting for – the chance to dedicate my services full-time to enhance URM recruitment to and retention in medical school. I had to make the difficult decision to leave my patients and the practice of medicine to transition full-time to administrative medicine. My decision was supported by the realization that I was deeply satisfied with my career achievements and had done everything that I had planned to do as a practicing physician. The newly implemented ruling on restricted duty hours for residents was also a factor in my decision. The ruling made the faculty responsible for replacing residents to sustain hospital services. One year of experiencing the extra duty hours that faculty inherited, including an increase in call coverage, influenced my final decision to leave the residency program and enter administrative medicine.

It was during this time that I experienced significant professional successes and transitions. As assistant dean for multicultural affairs, my focus shifted from rural medicine to workforce development through the recruitment and retention of underrepresented minorities into medicine. I served as principal investigator for three pipeline initiatives: The Minority Medical Education Program, the Health Career Opportunities Program, and the Center of Excellence Faculty Fellowship and Medical Student Pathway Program. At the same time, I was promoted to associate dean for multicultural affairs due to an infrastructure change. This resulted in my former residency program director becoming my supervisor once again when he was named the new vice dean of academic affairs. I was invited to participate in a number of important admissions, curriculum, student progress, and diversity committees that enhanced my abilities to advocate for students of color. Nationally, I was invited to become a member of the Association of American Medical Colleges (AAMC) Holistic Review Advisory Committee and the AAMC MCAT Comprehensive Review Committee.

My unconventional path to a career in academic medicine, with all the challenges and opportunities that I was blessed to experience, contributed to my success as a senior administrator and faculty. My passion for helping the underserved and the underrepresented as a Latino physician has continued to guide me to each new opportunity. It has always been about the people that I have encountered as a practicing physician, educator, and administrator during my journey. I will always be grateful for the unselfish support and guidance they provided me along the way.

Personal Story – Norma Poll-Hunter

While working on this chapter, I was reminded about the importance of faculty in developing the next generation of educators and researchers. I was born and raised in the South Bronx by Puerto Rican parents. In many ways, I was more fortunate than my neighbors. I had a stable family upbringing with two loving parents, my father worked, and I had the opportunity to attend Catholic school. Still, living in public housing, I was surrounded and influenced by extreme poverty, drug culture, and frequent street violence. Growing up in my zip code, no one would not have predicted that I would be in the position I am today.

Ultimately, I give all credit to Mami and Papi for my success. While they always encouraged education, they were unable to advise me on what to do. I was fortunate to have incredible professors at Lehman College, City University of New York. One professor in

particular contributed significantly to my career trajectory – Vincent Prohaska, PhD. While in his Learning Psychology class, he approached me about the opportunity to participate in research. Initially, his research focus on learning and memory did not sound exciting. I was in my junior year and interested in going to graduate school. I had no idea where to start but I knew that this was a good opportunity to firm up my resume. I was already working at a community-based non-profit with a youth program. So, the research was a nice complement for graduate school applications.

Working in the lab, data collection, hypothesis testing, and data analysis came to life. With his grant, he sponsored me and a group of students to attend the Eastern Psychological Association, and the American Psychological Society conferences. I met peers with similar goals which was important since none of my friends were interested in psychology, much less research. These experiences opened up a different world, and the realization that there was a lack of diversity in psychology research. Many times, I felt out of place, but I did not miss any opportunity to learn more. Dr. Prohaska increased my awareness of the importance of my voice in research, and his mentorship helped me to feel like an important member of the research community.

Dr. Prohaska encouraged me to submit a scientific paper and it was accepted for presentation. I was so nervous to present my research and I was completely shocked when I was selected for the best paper award. Dr. Prohaska exposed me to the range of possible career opportunities as a psychologist. I learned how the research was another avenue to help my community. Dr. Prohaska also debunked quite a few myths about graduate school, and he was a major advocate of going to school outside of New York City. These experiences increased my confidence and I applied to several doctoral programs. Although the distance was not far, I did leave the confines of NYC and attended the University of Albany, SUNY. That was a culture shock…a story for another time.

Dr. Prohaska's mentorship and sponsorship is the foundation for my research passion and knowledge. My success to date, including having the opportunity to share this story with you, is a testament to the power of academic faculty. This is why we all have shared our stories, knowledge, and experiences to hopefully inspire you to become a member of the faculty in academic medicine.

Definition of Diversity

When thinking about diversity, some may only consider differences based on race and ethnicity, particularly groups that have been historically underrepresented in medicine – African American/Black, American Indian and Alaska Native, and Hispanic/Latino. In fact, prior to June 26, 2003, the term URM consisted of Blacks, Mexican-Americans, Native Americans (i.e., American Indians, Alaska Natives, and Native Hawaiians), and mainland Puerto Ricans. However following Grutter v. Bollinger 539 U.S. 306 [1], underrepresented in medicine (UIM) became popularized and revised to include racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population. Today diversity has a broader focus.

> Diversity as a core value embodies inclusiveness, mutual respect, and multiple perspectives and serves as a catalyst for change resulting in health equity. In this context, we are mindful of all aspects of human differences such as socioeconomic status, race, ethnicity, language, nationality, sex, gender identity, sexual orientation, religion, geography, disability and age. [2]

This definition reminds us that we all possess multiple identities that define us. At any given moment we are not defined by just one of our identities but by the intersection of our identities (also referred to as intersectionality). This intersection influences our perceptions of the world, and impacts how we interact with people, how we communicate, how we make decisions, and how we value differences [3]. In academic medicine, for example, this plays out in a variety of ways. For example, the admissions process will be influenced by the intersectionality of the identities of the individuals who are involved in the screening and selection of applicants. This includes the unconscious biases that are associated with the multiplicity of these identities [4]. In clinical practice, intersectionality influences how health care providers may interact with patients, e.g., when confronted with cultures, traditions, customs, and beliefs different than their own, and how this might influence clinical decision making. Keeping this framework in mind will help in understanding the value that diversity brings to academic medicine.

The Value of Diversity

Academic medicine "…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…highlighting the interrelationships among teaching, research and service.…" [5]. Medical schools and teaching hospitals must also be responsive to the evolving societal health care needs in the United States. Diversity and inclusion play an integral role in assisting academic health centers (AHC) respond to these needs especially for marginalized and vulnerable population groups.

Key research findings from clinical medicine, higher education, and workforce studies demonstrate the benefits of diversity and the value diversity brings:

- Historically underrepresented minorities in medicine (URM) graduates from medical school (MS) are three times more likely to serve minority and underserved populations than non-URM and White MS graduates [6, 7].
- Racial and ethnic concordance between patients and physicians enhances patient's experiences with the perception of receiving better interpersonal care (especially in primary care and mental health) [8].
- Language concordance between patients and physicians enhances patient's experiences with the perception of receiving better interpersonal care, greater medical comprehension, and greater likelihood of adherence with treatment plans [8].
- An institution that includes hired people from a given racial/ethnic community in their institution may be perceived as more trustworthy and approachable to members of the local community they serve [6, 7].
- Women and faculty of color more frequently employed active learning in the classroom, encouraged student input and included perspectives of women and minorities in their course work [9].

- Diversity in the classroom encouraged faculty to include themes relating diversity in their research and teaching and provided students with opportunities to confront racial and multicultural issues in the classroom and extracurricular settings [9]. Students who interacted with racially and ethnically diverse peers both informally and within the classroom showed the greatest engagement in active thinking, growth in intellectual engagement and motivation, and growth in intellectual and academic skills [10, 11].
- Diverse teams have been demonstrated to be more productive, creative, and innovative than homogenous teams [12–14], and demonstrated that ideas generated and the level of critical analysis of decisions and alternatives were of higher quality [15–18].
- Diverse researchers help broaden the health research agenda, and lead to greater contributions to science as measured by impact factor and citations [19].

The State of Diversity in the Academic Medicine Workforce

Distinct from diversity is inclusion, which is defined

> as a core element for successfully achieving diversity. Inclusion is achieved by nurturing the climate and culture of the institution through professional development, education, policy, and practice. The objective is creating a climate that fosters belonging, respect, and value for all and encourages engagement and connection throughout the institution and community [2].

Based on 2018 AAMC data [20], the total URM faculty make up approximately 9.4% of the full-time faculty workforce in US allopathic (M.D.-granting) medical schools and teaching hospitals. 63.9% percent of faculty identified as White; 19.5% identified as Asian; 5.5% identified as Hispanic/Latino; 3.6% identified as Black/African American; 0.16% identified as American Indian/Alaska Native; 0.1% Native Hawaiian or other Pacific Islander. 1.9% of faculty identified as more than one race or ethnicity (non-Hispanic), and 4.3% as "race and ethnicity is unknown" (Table 1.1).

Males represent 58.2% of all faculty; women represent 41.6%, and 0.1% did not report sex [21]. There is currently no national data that reports on LGBT identity

Table 1.1 Faculty demographics by race and ethnicity, 2018

Category	Percent
White	64
Asian	19.5
Hispanic/Latino	5.5
Black/African-American	3.6
American Indian/Alaska Native	0.16
Native Hawaiian or other Pacific Islander	0.1
Multiple race – Non-Hispanic	2
Unknown	4.3

among faculty in MD granting institutions. Recent estimates from the AAMC StandPoint Faculty Engagement Survey find that approximately 3.4% of faculty identify as LGBT (372/10,804 collected from a sample of 24 U.S. medical schools from 2017–2019) [22]. By contrast, the number of biomedical research scientists that make up the medical school faculty is even lower. URM basic science faculty make up only 3–4% of the total medical school faculty in the USA [23]. In addition, there is a significant maldistribution of racial and ethnic minority faculty with the majority being at historically Black colleges and universities and Hispanic Serving Institutions [23].

By comparison, the diversity of the medical students in MD granting institutions is far greater than the faculty diversity as demonstrated in Table 1.2. Based on 2018 AAMC data, 64.9% of medical students who graduate from MD granting institutions were identified as White; 23.1% identified as Asian; 8.8% identified as Hispanic/Latino; 5.8% identified as Black/African American; 0.7% identified as American Indian/Alaska Native; 0.2% Native Hawaiian or other as Pacific Islander [24]. Approximately 2.9% of medical school graduates were identified as other and 1.7% as non-US citizen and non-permanent resident.

Men represent 50.9% of all medical school graduates; women represent 49.1% (although recent data demonstrate that this will change by 2022 given AAMC enrollment data in 2018 where women enrollees were in the majority). In terms of sexual orientation, 6.8% were identified as gay, lesbian, or bisexual and in terms of gender identity 0.4% reported a different gender identity from the sex assigned at birth.

By contrast, the number of URM enrollment in graduate programs in STEMM (biological sciences) has steadily increased in the USA since the year 2000 (from 3444 in 2000 to 5992 in 2013). But URM doctoral graduates have demonstrated a decreasing trend with only 11% attaining the status of postdoctoral fellows [23].

These data reveal not only a shortage of URM and women faculty and invisibility of LGBTQ faculty in all academic clinical and research fields, but also highlights the crisis that the nation faces now and in the near future of enhancing and sustaining the diverse academic faculty workforce that AHCs need to continue to serve the health care needs of a multicultural, global society. That leads us to the purpose of this book - to motivate you to join academic medicine as a faculty member and help build the next generation of academic faculty.

Table 1.2 Medical school graduates by race and ethnicity, 2018

Category	Percent
White	65
Asian	23
Hispanic/Latino	9
Black/African-American	6
American Indian/Alaska Native	0.7
Native Hawaiian or other Pacific Islander	0.2
Other	3

What Does It Take to Enter Academic Medicine?

> *I don't know that my grades are as stellar as they should be because I picture an academic medicine teacher [as] somebody with excellent grades and I'm just kind of a floater. I'm not really someone who stands out academically. I mean, obviously we all stand out as medical students, but among those I'm pretty average. I would love to do it but I don't think I have the research or the academic excellence* [25].

This is a common sentiment and mindset expressed by many medical students and residents who have contemplated academic medicine as a career. It is especially prevalent among women and racial and ethnic minorities. Here are some tips to consider:

1. *Meet the imposter syndrome head-on*. This is commonly known as "the imposter syndrome" and is something to be aware of, understand where it comes from, and learn what to do to overcome it. The imposter syndrome is a pervasive feeling of self-doubt, insecurity, or fraudulence despite often overwhelming evidence to the contrary. It strikes smart, successful individuals. It also does not discriminate: people of every demographic suffer from feeling like a fraud, though racial and ethnic minorities, women and other marginalized groups are hardest-hit [26]. One of the first steps to consider in taking the path towards academic medicine is to recognize that imposter syndrome is real, you are not alone, and there is evidence-based research that will help you address it (see Fig. 1.1)
2. *Separate myths from facts*. There are studies that show that individuals who have early research experiences are more likely to lead to a career in academia [27]. The truth is that there is no one right pathway to a career in academic medicine. There are many (see Fig. 1.2)

This will be discussed in further detail in Chap. 2. You will undoubtedly hear opinions from many faculty and peers about "the best route" and "a specific timeline" when you are supposed to accomplish all the work. You will also hear that you need to have a resume that all academic institutions are looking for that "fits" their

Fig. 1.1 Nine steps to combat the imposter syndrome. (Adapted and modified from Henriksen E., Scientific American, 2015.)

1. Know that feeling like an imposter is normal.
2. Remind yourself of what you've accomplished.
3. Disclose your feelings to a trusted friend, a close colleague or faculty member.
4. Seek out a mentor for guidance.
5. Build your confidence by teaching or becoming a mentor.
6. Accept that sometimes it's OK not to know what you're doing.
7. Compliment yourself occasionally for your efforts and resilience.
8. Build in an expectation of initial failure.
9. Stay humble and practice authentic modesty.

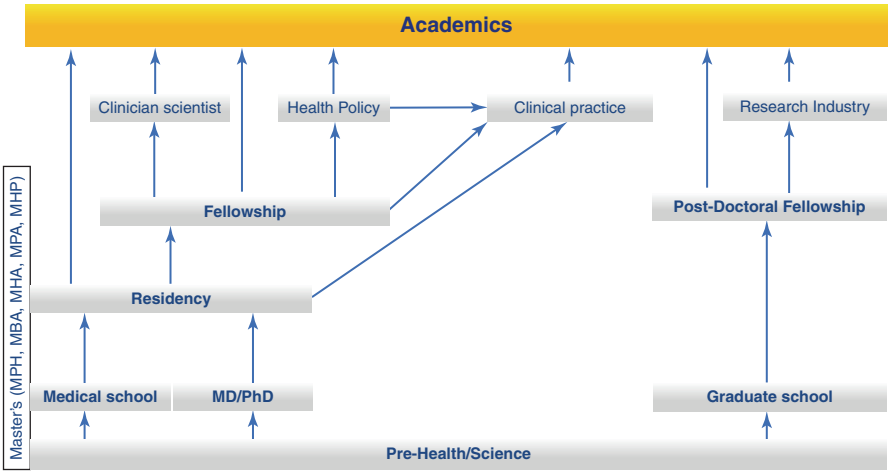


Fig. 1.2 Pathways to careers in academic medicine

ideal candidate profile. Although these opinions may have good intentions, attempt not to be swayed or blinded by them. Suffice to say that there are many different pathways to academic medicine, and the goal of this book is to share what you can do now, as a medical student or resident, to pursue academic medicine and provide some clarity on what might enhance your success.

3. *Clarify for yourself what it is you value most*. Your decision to choose a career in medicine will be heavily influenced by your preferences (e.g., where you see yourself practicing, the type of practice you picture yourself in, the colleagues you envisioning working with, the patient population you wish to serve), past experiences (both positive and negative experiences you have had during your education and training), individuals who have been influential in your life (e.g., your mentors, sponsors, faculty), and real circumstances that will impact your success (e.g., the need to be financially stable, the need to be close to family or your aging parents, the needs of your spouse or significant other).

   Sometimes what we really want isn't what we think we want, or what we think we ought to want. (UCSF Postdoc) [27]

Studies have shown that job satisfaction is influenced by how well the job is aligned with the employee's values [28]. Two aspects about work-related values are important to keep in mind:

1. *Values need to be prioritized*. There are trade-offs among values when considering a career path and it is important to weigh some values against others. For example, earning potential (salary, incentives, benefits) may be initially important to pay off loan indebtedness. That salary may require that you work more hours per week or take more call than what you were hoping for. Are you willing

to sacrifice your time with family or your significant other in exchange for this higher salary? Which attribute do you value the most? Or you may value the opportunity to work in a community health clinic serving underserved communities but find that the salary being offered is much lower than the salary offered by a private multispecialty group. Are you willing to forego your dream of serving the underserved? Which attribute do you value the most?

2. *Values change with stages of our life*. As the priorities in your life change over the years, so do your values. For example, initially in your career when you had no children, your earning potential may have not been as important. But now that you have children, it has required you to move to a community that not only has a better school district with excellent educational opportunities but has necessitated that you live in a neighborhood where the cost of living is much higher so that your children can attend the local school. Your salary is now much more important for your livelihood.

There are several value assessment tools that are available to assist you in clarifying what you value most. For example, the Individual Development Plan created by the Federation of American Societies for Experimental Biology and sponsored by the American Association for the Advancement of Science, includes a comprehensive values assessment tool (37 questions) to help you to identify, clarify, and prioritize your career-related values [29]. A simpler tool that may assist you in clarifying what you value most is called the "Values Exploration Exercise". We offer this brief exercise for your own self-reflection to consider where your interests and passions lie and whether they are in alignment with your career goals and aspirations. We recommend that you also consider sharing this with others in your support network to gather their insights. Ask yourself the following questions:

1. What is your life's mission? How does diversity and inclusion align with this mission?
2. What motivates you each day?
3. How can you align your life's mission with your career goals? How does diversity and inclusion align with these goals?
4. What type of environment will you thrive in? What does the physical environment look like, what activities will you be engaged in, who are you working with? How important is it that you be working with diverse colleagues? How important is authenticity and intersectionality to you in your future workplace?
5. Who do you need or want to help you succeed?
6. What are the potential barriers or concerns with pursuing your path? What tools or resources do you need to overcome them?
7. What about academic medicine is most interesting to you? What role can diversity and inclusion play in enhancing your interest, e.g., health disparities research? Pipeline programs? Mentoring URM students? Community engagement with underserved and/or racial/ethnic communities?
8. What factors may dissuade you from pursuing a career in academic medicine? Does the shortage of URM faculty and women concern you?

3. *Find a mentor and possibly a sponsor.*

> *One woman in particular was just really good about being a strong Indian woman and teaching us good medicine – Western as well as Traditional – and just how to speak to elders, and how to go back to the community, because this whole process [medical school] kind of removes you from the community you want to go back to…and so I think it is really important…and that would be one of the reasons why I would want to go into academic medicine* [30].

Research has demonstrated that women, racial/ethnic minorities, and LGBT medical students purposely seek out role models, advisors, and mentorship from faculty who have similar backgrounds [25, 31]. Studies have also shown that these mentors may not always be readily available given the lack of diversity at our AHCs, but there are several organizations and innovative projects that have been created to help trainees (e.g., pre-health students, medical students, residents) network with women, URM, and LGBT faculty. The organizations in Table 1.3. operate on the institutional (e.g., chapter), regional, national, and even international level and

Table 1.3 Diversity-related organizations with individual members and their mission statements[a]

Building the Next Generation of Academic Physicians (BNGAP) www.bngap.org	Our mission is to help diverse medical students and residents become aware of academic medicine as a career option and to provide them with the resources to further explore and potentially embark on an academic medicine career.
Asian Pacific American Medical Student Association (APAMSA) www.apamsa.org	The Asian Pacific American Medical Students Association (APAMSA) is a national organization of medical and pre-medical students committed to addressing the unique health challenges of Asian and Pacific Islander American (APIA) communities. APAMSA serves as a forum for student leaders to engage these health issues and develop initiatives and projects addressing those needs. APAMSA provides an important venue for medical students to meet, exchange experiences, and develop personally and professionally through leadership and service.
National Council of Asian Pacific Islander Physicians (NCAPIP) www.ncapip.org	NCAPIP is a national organization of Asian American, Native Hawaiian and Pacific Islander (AANHPI) physicians that advocate for the health and well-being of our patients and communities. NCAPIP board members are comprised of leaders in national, state, and local physician organizations and medical groups.
Association of Native American Medical Students (ANAMS) www.anamstudents.org	The Association of Native American Medical Students (ANAMS) is a student organization representing Native American graduate health professions students throughout the US and Canada. The goals of ANAMS include providing support and a resource network for all Native Americans currently enrolled in various allied health professions schools.
Association of American Indian Physicians (AAIP) www.aaip.org	The Association of American Indian Physicians (AAIP) was founded in 1971 as an educational, scientific, and charitable non-profit corporation. A group of 14 American Indian and Alaska Native physicians sought to establish an organization that would provide both support and services to the American Indian and Alaska Native communities.

Table 1.3 (continued)

Latino Medical Student Association (LMSA) Lmsa.site-ym.com	The Latino Medical Student Association unites and empowers medical students through service, mentorship, and education to advocate for the health of the Latino community.
National Hispanic Medical Association (NHMA) www.nhmamd.org	The *mission* of the organization is to empower Hispanic physicians to lead efforts to improve the health of Hispanic and other underserved populations in collaboration with Hispanic state medical societies, residents, and medical students, and other public and private sector partners.
Student National Medical Association (SNMA) www.snma.org	Student National Medical Association (SNMA) is committed to supporting current and future underrepresented minority medical students, addressing the needs of underserved communities, and increasing the number of clinically excellent, culturally competent and socially conscious physicians.
National Medical Association (NMA) www.nmanet.org	The NMA promotes the collective interests of physicians and patients of African descent. We carry out this mission by serving as the collective voice of physicians of African descent and a leading force for parity in medicine, elimination of health disparities and promotion of optimal health.
Medical Student Pride Alliance www.pridealliance.net/MSPA	The Medical Student Pride Alliance (MSPA) is an activist and social organization committed to empowering sexual and gender minority medical students.
GLMA Health Professionals Advancing LGBTQ Equality http://glma.org/	GLMA is a national organization committed to ensuring health equity for lesbian, gay, bisexual, transgender, queer (LGBTQ) and all sexual and gender minority (SGM) individuals, and equality for LGBTQ/SGM health professionals in their work and learning environments. To achieve this mission, GLMA utilizes the scientific expertise of its diverse multidisciplinary membership to inform and drive advocacy, education, and research.
American Medical Women's Association (AMWA) www.amwa-doc.org	The American Medical Women's Association is an organization which functions at the local, national, and international level to advance women in medicine and improve women's health. We achieve this by providing and developing leadership, advocacy, education, expertise, mentoring, and strategic alliances.

[a]Disclaimer: This list is limited to organizations with individual members and does not include those organizations with institutional or societal membership

engage members from the pre-health (e.g., college students) to senior administrative level. Activities often include regional and national conferences, mentoring initiatives, webinars, local workshops, research competitions, and scholarship awards. For diverse trainees, these organizations provide an opportunity to meet and remain engaged with congruent role models, advisors, or mentors over their educational and professional journey. Table 1.3 provides the name and associated mission for a few diversity-related organizations:

More recently, digital platforms to facilitate networking and mentoring have emerged such as *MiMentor* and *MentorNet* [32, 33]. Mentors play a critical role in

helping medical students and residents navigate the complicated educational system successfully and have a lot to offer in overcoming the many challenges and barriers they themselves encountered along their own personal journey. Hearing their cultural narrative and why they went into academic medicine and learning about the many benefits that they have received being an academic medicine faculty member will inspire you. In addition, they can help build your network by introducing you to other academic medicine faculty who might share some of the same interests and aspirations as you. These faculty may eventually become your sponsor and provide you with opportunities that might enhance your future academic career, e.g., working in their research lab or clinical facility.

Conclusion

Academic medicine needs you – diverse talent to generate solutions for today's and tomorrow's health and health care challenges. Academic medicine needs transformational leaders of the future who are change agents and understand the health care needs of a multicultural and global society. Academic medicine offers a range of opportunities to make change – through policy, teaching, research, clinical work, and leadership. There are few professions that tap into varied skills and allow for life-long learning, knowledge generation, sharing and application. Academic medicine must also be prepared for the impact that the changing demographics of our future US population will bring. The value of diversity in the health care workforce cannot be overstated. Academic medicine must have a sharper focus and be intentional in its efforts to bring diversity and inclusion to the forefront not as a problem, but as a solution to the problems we will be facing in health care. It is our hope that our new generation of medical students and residents will be part of that solution.

References

1. Grutter v. Bollinger, 539 U.S. 306 (2003) https://supreme.justia.com/cases/federal/us/539/306/. Accessed 29 Aug 2019.
2. AAMC Group on Diversity and Inclusion, Definition of Diversity. https://www.aamc.org/members/gdi/about/. Accessed 29 Aug 2019.
3. Collins PH, Bilge S. Intersectionality: key concepts. Malden: Polity Press; 2016. AAMC (2010) Roadmap to Diversity: Integrating Holistic Review Practices into Medical School Admission Processes. Available at https://store.aamc.org/downloadable/download/sample/sample_id/195/. Accessed 29 Aug 2019.
4. AAMC and Kirwan Institute Proceedings of the Diversity and Inclusion Innovation Forum: Unconscious Bias in Academic Medicine How the Prejudices We Don't Know We Have Affect Medical Education, Medical Careers, and Patient Health, 2017. https://store.aamc.org/downloadable/download/sample/sample_id/168/
5. Kanter SL. What is academic medicine? Acad Med. 2008;83(3):205–6.
6. Saha S, Shipman SA. The rationale for diversity in the health professions: a review of the evidence. Rockville: U.S. Department of Health and Human Services, Health Resources Administration, Bureau of Health Professions; 2006.

7. Saha S. Taking diversity seriously: the merits of increasing minority representation in medicine. JAMA Intern Med. 2013;174(2):291–2.
8. Institute of Medicine. Unequal treatment: confronting racial and ethnic disparities in health care. Washington: The National Academies Press; 2003.
9. Milem JF, Chang MJ, Antonio AL. Making diversity work on campus: a research-based perspective. Washington: Association of American Colleges and Universities; 2005.
10. Gurin P. The compelling need for diversity in higher education: Expert testimony in Gratz et al. v. Bollinger et al. Michigan J Race Law. 1999;5:363–425.
11. Gurin P, Dey EL, Hurtado GG. Diversity and higher education: theory and impact on educational outcomes. Harvard Education Review. 2002;72(3):330–66.
12. Herring C. Does diversity pay? Race, gender, and the business case for diversity. Am Sociol Rev. 2009;74:208–24.
13. Chang MJ, Witt D, Jones J, Hakuta K. Compelling interest: examining the evidence on racial dynamics in colleges and universities. Stanford: Stanford University Press; 2003.
14. American Council on Education and American Association of University Professors. Does diversity make a difference? Three research studies on diversity in college classrooms. Washington, DC: ACE and AAUP; 2000.
15. Nemeth CJ. Dissent as driving cognition, attitudes, and judgments. Soc Cogn. 1995;13:273–91.
16. Schulz-Hardt, et al. Group decision making in hidden profile situations: dissent as a facilitator for decision quality. J Pers Soc Psychol. 2006;91:1080–93.
17. Sommers SR. On racial diversity and group decision making: identifying multiple effects of racial composition on jury deliberations. J Pers Soc Psychol. 2006;90:597–612.
18. Antonio AL, Chang MJ, Hakuta K, Kenny DA, Levin S, Milem JF. Effects of racial diversity on complex thinking in college students. Psychol Sci. 2004;15(8):507–10.
19. Valentine HA, Collins FS. National Institutes of Health addresses the science of diversity. Proc Natl Acad Sci U S A. 2015;112(40):12240–2.
20. AAMC U.S. Medical School Faculty Data 2018. https://www.aamc.org/download/494992/data/18table3.pdf. Accessed 21 Aug 2019.
21. AAMC. U.S. Medical School Faculty by Sex and Rank, 2018. https://www.aamc.org/download/495040/data/18table9.pdf. Accessed 29 Aug 2019.
22. Dandar VM, Bunton SA. An Exploratory Study: Creating an Inclusive, Academic Workplace Environment for Faculty Who Identify as LGBT. Poster presented at the LQBT Health Workforce Conference, New York, New York; 2018.
23. Meyers LC, Brown AM, Moneta-Koehler L, Chalkley R. Survey of checkpoints along the pathway to diverse biomedical research faculty. PLoS One. 2018;13(1):e0190606. Accessed 29 May 2018 at https://doi.org/10.1371/journal.pone.0190606.
24. 2018 AAMC Graduation Questionnaire. https://www.aamc.org/download/490454/data/2018gqallschoolssummaryreport.pdf. Accessed 28 Aug 2019.
25. Sanchez JP, Peters L, Lee-Rey E, Strelnick H, Garrison G, Zhang K, Spencer D, Ortega G, Yehia B, Berlin A, Castillo-Page L. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013;88(9):1299–307.
26. Hendriksen E. What is imposter syndrome? Scientific American, Behavior & Society, 2015. https://www.scientificamerican.com/article/what-is-imposter-syndrome/. Accessed 28 May 2018.
27. Andriole DA, Jeffe DB. The road to an academic medicine career: a national cohort study of male and female U.S. medical graduates. Acad Med. 2012;87:1722–33.
28. Lindstaedt B, Clifford PS, Fuhrmann CN, Hobin JA. What do you care about? Science. 2012, https://doi.org/10.1126/science.caredit.a1200135. https://www.sciencemag.org/careers/2012/12/what-do-you-care-about. Accessed 29 Aug 2019.
29. Individual Development Plan. https://myidp.sciencecareers.org/Values/QuickTips. Accessed 29 Aug 2019.
30. Sánchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewster C. Balancing two cultures: American Indian/Alaska native medical students' perceptions of academic medicine careers. J Community Health. 2016;41:871.

31. Sanchez NF, Rankin S, Callahan E, Ng H, Holaday L, McIntosh K, Poll-Hunter N, Sanchez JP. LGBT trainee and health professional perspectives on academic careers – facilitators and challenges. LGBT Health. 2015;2(4):346–56.
32. MiMentor. https://www.mimentor.org. Accessed 28 May 2019.
33. MenterNet. https://mentornet.org. Accessed 28 May 2019.

David A. Acosta, MD Chief Diversity and Inclusion Officer

Norma I. Poll-Hunter, PhD Senior Director, Human Capital Initiatives

Academic Career Roles and Responsibilities

2

Ray Lucas

Emma is a third-year medical student just finishing her internal medicine rotation. She came to medical school thinking she would become a family physician and return to her community in Chicago to provide much-needed care at a public health clinic. She has always seen herself as a community provider and not much of an academic type. However, she was impressed with her ward attending Dr. Lisa Howard. Dr. Howard seemed to know so much about the latest evidence to guide patient care and was the compassionate and caring type of doctor Emma aspired to become. More importantly, however, Dr. Howard was a gifted teacher. Dr. Howard created an environment on the ward that made learning fun and interesting. She explained things in ways that made so much sense. Emma is sure she will be a better doctor thanks to Dr. Howard. After watching Dr. Howard make a difference in the lives of her patients AND of future doctors, Emma now wonders if an academic rather than community-based career is right for her. She thinks….. what is involved? How do I prepare? How would I learn to teach? Would I have to do research too? What are the career options?

Emma is not alone in wanting to know more about a career in academic medicine. In fact, a lack of understanding career options and what is required to succeed as a faculty member is often a barrier in making the choice for an academic career [1]. This may be particularly true for trainees who grew up without exposure to family or friends who were in academia or professional careers. The focus of this chapter is to describe some of the more common faculty roles and administrative and leadership roles in academic medicine. Advantages and disadvantages of academic careers are discussed so you can reflect upon your own personal values to see if there is a match. Lastly, this chapter will focus on describing the three academic job components of research, teaching, and service to lay the groundwork for subsequent chapters on academic promotion and scholarship.

R. Lucas (✉)
School of Medicine and Health Sciences, George Washington University, Washington, DC, USA
e-mail: rlucas@gwu.edu

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_2

Faculty Career Roles

Faculty members, by definition, are people who teach in institutions of learning. Traditionally, in US medical schools, physician faculty members were expected to be engaged equally in the areas of teaching, research, and clinical care – the so-called "triple threat" [2]. However, as clinical care has become more complex and demanding, teaching expectations have gone beyond just a traditional lecture, and research funding is increasingly competitive, the triple threat is harder to achieve [3–5]. In order for medical schools to continue to achieve their mission, faculty roles have become more specialized. Most schools now hire faculty into various career "tracks" that are focused on clinical care, teaching, and research or some combination thereof. Table 2.1 describes the work focus,

Table 2.1 Description of common faculty tracks in medical schools

Track	Work area of emphasis	Advantages	Disadvantages
Clinical Track	Emphasis on patient care, some clinical teaching, no expectation for research	Practicing in a stimulating academic environment, some opportunities to teach	Fewer advancement options in an academic environment, possibly lower salary than private practice
Clinician Educator Track	Significant amount of patient care and teaching May lead programs and design curricula. Performs education research and scholarship	More opportunities to teach and play key roles in an educational program Career advancement opportunities as program directors or educational deans	Need to gain additional training in education to optimize success, limited funding opportunities for education research, less prestige than traditional biomedical research
Clinician Investigator	Some patient care but at least half time devoted purely to research which may be based on lab, clinic, or community	Highly valued faculty that bring in grant money and prestige to a medical school Opportunities to improve patient care through new discoveries Often ascend to become department chairs and deans	Additional training, experience or mentorship needed for success Constant need to apply for grants in a competitive research funding environment
Research	Nearly all focus is research Often are PhDs or MDs with limited patient care. Emphasis in obtaining research grants and publishing research papers	Predictable work schedule without demands of clinical work	Requires effort for continues funding for research

advantages, and disadvantages of some of the more common faculty tracks found in medical schools.

Administrative Roles in Academic Medical Centers

As healthcare organizations become more complex, there is an increasing demand for physicians to assume leadership roles [6]. Academic physicians and leaders spend a majority of their time in administrative roles supporting various functions of a medical school or hospital. Doctors often respond better to physician administrators and leaders [7] as they have credibility due to their first hand working knowledge of patient care, teaching, and research. The advantages of administrative roles include the ability to have greater influence on the strategic direction and management of a school or hospital. Administrative work is often more predictable than clinical work. Administrators may have significant salary offsets to "buy out" their time from clinical work. Disadvantages include the need to obtain additional training to be effective. This may be another degree such as an MBA or MHA or other leadership development training. Administrative roles can be high stress and often involve difficult decisions related to finance, budgeting, and personnel issues. However, successful physician administrators and leaders play a big role in the success of the academic health center.

Deans

The dean of a medical school provides overall leadership for the teaching, research, and clinical functions of a medical school. Deans may also hold vice president titles in the university or large healthcare systems. Deans play a significant role in fundraising for the school and managing external and alumni relations. Most deans must give up clinical care and research due to the demands of the job.

Associate and Assistant Deans

Most medical schools have other senior leaders such as associate and assistant deans to oversee their medical education programs [8] and other functions such as research, admissions, faculty affairs, diversity and inclusion, and others. The advantage of these roles is that they allow you to positively influence an important area of operation of the academic health center, but often still allow time for a limited amount of clinical care and/or scholarship. Associate and assistant deans are often the face of the administration and directly interact with students, faculty, and others more often than the dean. Assuming these roles too early in your career may hinder your time for scholarship required for academic promotion. Success in these roles may make you a candidate for a dean position later in your career.

Department Chairs

The chair oversees the teaching, research, and clinical operations in their department in the school. Additionally, department chairs serve important roles as mentors and have responsibility for the recruitment and career development of their faculty. Chairs are often expected to have been successful academicians but their role is increasingly managerial [9]. As important "pivot points" in academic health centers between the administration and the faculty, chairs help align the department with the strategic direction of the school and build inter-departmental relations. Chairs often are paid higher salaries and are in a position to build highly successful and visible programs. However, chairs often are increasingly evaluated with quantitative metrics related to finance, patient satisfaction, quality measures, and research productivity of their faculty. Business, team building, and communication skills are important for success in this role.

Other Administrative Roles

There are a variety of other important administrative and leadership roles for physicians and researchers in academic health centers beyond deans and chairs. The general advantages and disadvantages of these types of roles have been described above. These roles allow you to combine your particular area of interest and expertise with a mid-level leadership role. Often you can perform these roles and still participate in clinical care and research. These roles, when done well, have high impact on the organization's success. Examples of these roles include:

- Research Center Director
- Director of Community Outreach
- Hospital or Clinic Medical Director
- Chief Physician Information officer
- Vice President or Director of Quality
- Medical Director of Utilization Review

> Luis is a second-year Obstetrics-Gynecology resident who hopes to do a fellowship in gynecologic oncology. His mother died of ovarian cancer which was diagnosed late because she did not have healthcare insurance. He has a passion for clinical care and aspires to became a doctor committed to helping underserved populations. His program director has advised him he needs research experience in order to be competitive for a fellowship position. Although not enthusiastic about it, he was able to work in the lab of a basic science researcher who studies tumor markers. Once engaged, he actually found the work very interesting. He became an important part of the research team by recruiting patients with ovarian cancer to give blood samples for use in the research. He found the connections between his work in the clinic and work in the lab very rewarding. He is beginning to wonder if a research rather than clinical career is right for him. Can he do both? Can he keep up

surgical skills if he spends a lot of time in the lab? How will he fit in his desire to help underserved patients? Does he have what it takes to really be a successful researcher? Will an academic research career provide enough salary to allow him to pay off his student loans and start a family? Luis is unsure what direction to go.

Values and Career Choice

There is a body of literature which has identified factors associated with choosing an academic career [10–12]: early exposure to research, an expressed interest in teaching, gender, and exposure to academic mentors are among them. However, your motivations, interests, and values play important roles in career decisions [12]. So in addition to looking out, and seeing what type of academic careers are possible, *it is equally important to look in*, and reflect on your own interests and values in order to make the career choice that is best for you.

Below are some questions to ask yourself to help clarify your interests and values that might motivate you to seek an academic career.

- *Personal interests and values*: How important are the following items to you in your career choice?
  - Autonomy (freedom to pursue your own interests, set your own schedule, "be your own boss")
  - Prestige
  - Opportunities for community service and outreach
  - Social justice
  - Opportunities to influence public policy
  - Providing direct patient care
  - Opportunities to teach
  - Opportunities for research
- *Job Characteristics:* How important are the following job attributes to you?
  - Intellectually stimulating
  - Technical or procedurally oriented
  - Having authority or responsibility
  - Job stress levels
  - A team-oriented work environment
  - Opportunities to work with people in other professions
  - Opportunities for career advancement
- *Lifestyle implications:* How important are the following?
  - Predictable work schedule
  - Time to spend with family
  - The ability to "leave work at work"
  - Living in a city versus rural area
  - Salary

Once you clarify your values, matching them up with the attributes described above for faculty and administrative roles may help you decide if an academic career is for you. For example, if you like patient care, want to have opportunities to teach, and you like a team-oriented environment with opportunities for career advancement, then an academic career as a clinician educator may be the best fit for you. However, if a high degree of autonomy, a higher salary, and providing patient care over teaching or research are important to you, private practice may be your best fit.

There are no right answers and no absolutes. You can be true to your values related to things such as community service, predictable work schedules, and job stress in a variety of careers, but with each career path there may be trade-offs. Having an awareness of potential academic careers and aligning them with your values is only one component of choosing a career. Observe your faculty and ask them about their career. Get a mentor. Consider shadowing physicians and scientists in a variety of settings. Participate in career fairs. These activities will all help you match your personal interests and values with a career that is right for you.

Academic Currency – Scholarship, Teaching, and Service

If considering an academic career, it is important to understand the trifecta of academic life-scholarship (or research), teaching, and service. Even in specialized faculty career tracks, almost always you will be expected to engage in an all three to some degree in order to achieve promotion to higher academic ranks. Understanding what types of activities in your position are considered scholarship, teaching, and service will help you determine if an academic career would be rewarding for you and which faculty track best fits your interests.

Scholarship

Scholarship may come in many forms, but at most institutions it is synonymous with some sort of research and publication or scholarly writing. It may be biomedical research, translational or clinical research, community-based, health policy, or public health research. Often faculty compete for external funding to support their research and scholarship and spend significant time writing academic papers, and presenting their work at scientific meetings. Being a scholar satisfies values related to creativity, a desire to advance the field of medicine or medical education, and discovering ways to improve the health of individuals, communities, and larger populations.

Teaching

Teaching is inherent to the practice of medicine as doctors continually teach their patients. Becoming a faculty member, however, requires a desire and commitment to help train the next generation of doctors, scientists, allied health professionals,

and others. Teaching comes in many forms including traditional lectures, facilitating small groups of learners, teaching at the bedside or in clinic, and mentoring students and trainees. Teaching experiences can be very meaningful for faculty. Teaching is also a way to keep up with current practice in order to be an effective doctor and teacher.

Faculty are often required to construct a "teaching portfolio" to document their activities and achievements as a teacher for purposes of academic promotion. Although each medical school may dictate the exact contents of a teaching portfolio, typical components include: a listing of teaching activities; examples of lectures or learning activities that are your "best work" as a teacher; learner evaluations of your teaching; teaching awards; descriptions of your contributions to educational curricula or assessment methods; education research; and demonstrating a commitment to growth or improvement as a teacher. For faculty in educator tracks, a robust teaching portfolio is a must. For faculty in other tracks, enough of a teaching portfolio to document your excellence as a teacher may still be required.

Service

Service comes in many forms. Faculty in clinical tracks may document achievements in their clinical service such as successful quality improvement projects in patient care, developing new clinical service activities for their department or school or by being recognized in some fashion as an outstanding clinician.

Some level of institutional service is typically expected of faculty members. Institutional service allows you to build relationships with other faculty across departments and to help make improvements in the day-to-day operations of your school or academic medical practice. Institutional service could include serving on committees in the hospital or medical school related to quality, community outreach, education, or other areas.

Professional service to your field allows you to engage with others outside of your home institution. It can be a way to demonstrate you have a regional or national reputation your field which may be a requirement for academic promotion. Examples of service to your profession would include service as an officer or on a committee for scientific or medical societies; involvement in organized medicine or licensing and accrediting bodies; or serving as reviewer or editor for a scientific journal.

For women and underrepresented minorities (URM), service commitments are sometimes burdened by what has been called the "minority tax" [13, 14]. This is the extra burden placed upon minority faculty members in efforts to achieve diversity [15]. Women and URM faculty, who may be in limited numbers, are often called upon to sit on committees and tasks forces to ensure representative diversity. They also are often asked to help lead diversity and inclusion efforts at medical schools. These activities, while rewarding, often take time away from other things such as scholarship required for academic promotion, which women and URM faculty achieve at lower rates than their white male peers. If you are a woman or identify with an under-represented group, be mindful of the minority tax and take advantage

of mentoring and other career development programs often available to faculty to help achieve success. Most importantly, consider how to transform the "minority tax" into "minority capital" by either publishing your efforts (e.g., holistic review efforts in admissions) or fulfilling other metrics that align with the institution's accreditation standards.

Wrapping It Up

You entered your PhD program, medical school, or residency in order to gain specific knowledge or skills to graduate. Attending to your studies and mastering the content of your program is of paramount importance. However, consider a variety of extra-curricular activities that may help you decide if an academic career is for you. Performing some sort of research or co-authoring a journal article may help you learn if engaging in scholarship is rewarding for you. Senior medical students and residents often teach more junior learners – seek out these opportunities, or consider becoming a tutor to see if teaching resonates with you. And lastly, get involved in service areas where you may have a passion. Join a student group, become a student member of medical or scientific society, interview potential applicants through the admissions office, or participate in the education committee in developing new curricula. Consider volunteering for a community-based organization or a medical mission. Not only may you have fun, but you may meet interesting people, make a difference in the lives of others, and learn that a variety of activities will help you achieve a rewarding career in or outside of academia.

Personal story – Ray Lucas

Entering an academic career was a late decision for me. I grew up in a family of modest means and I was the first person in my family to graduate from college, much less enter medical school. Academic life was an elusive prospect for me. I had no academic role models growing up, beyond some very talented teachers who provided me encouragement to follow my dreams to become a doctor. I thought it was a stretch to even get into medical school, much less to end up in a career where I teach others to become doctors.

When I began to teach medical students and junior residents during my emergency medicine residency I learned that I love to teach. Although taking care of patients in the ER was rewarding to me, teaching medical skills to others allowed me to touch the lives not only of my patients, but future patients of my students. I have continued on my trajectory as a teacher, becoming residency program director and now a dean with responsibilities for developing teaching skills in other faculty.

I sought advice from a faculty mentor about getting an academic job. He encouraged me to work with him on a clinical research project to help to prepare me for what an academic job might entail. I had done some bench research in medical school. My motivation then was mostly to "check the research box" on my residency applications and quite honestly working the lab was not my cup of tea. I learned that research focused on patient care and teaching interested me and has since become an important part of who I am as a professional.

After becoming a faculty member, I came out of the closet as a gay man and found my "work family" to be equally supportive as my own family. Serving as a mentor and role model for LGBTQ students and residents who may be hesitant to enter an academic career has been another source of professional satisfaction for me.

If you are potentially interested in an academic year, a few items from my story may inspire you. First, academic medicine needs all kinds of people to join its ranks – regardless of upbringing, background, class, race, ethnicity, or sexual orientation. Do not let unfamiliarity with academic life be a barrier. Our healthcare system needs a diverse pool of faculty to prepare future doctors and scientists to reduce health disparities and provide culturally competent care. Second, follow your heart. If you love to teach, if you like research, if you want to make a difference in ways other than direct patient care – then consider an academic career. And lastly, engage with your faculty and find a faculty mentor. They each have a story of their journey from which you can learn. They can provide invaluable guidance and often are a key influence on your career choice.

References

1. Sanchez JP, Peters L, Lee-Rey E, Strelnick J, Garrison G, Zhang K, Spencer D, Ortega G, Yehia B, Berlin A, Castillo-Page L. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013;88(9):1–9.
2. Coleman M, Richard G. Faculty career tracks at US Medical Schools. Acad Med. 2011;86(8):932–7.
3. Jones R. Clinician-educator faculty tracks in US Medical Schools. J Med Educ. 1987;62:444–6.
4. Levinson W, Rubenstein A. Integrating clinician-educators into academic medical centers: challenges and potential solutions. Acad Med. 2000;75:906–12.
5. Hall A, Mills S, Lund P. Clinician-investigator training and the need to pilot new approaches to recruiting and retaining this workforce. Acad Med. 2017;92(10):1382–9.
6. Straus SE, Soubah C, Levinson W. The impact of leadership training programs on physicians in academic medical centers: a systematic review. Acad Med. 2013;88:710–23.
7. Fairchild D, Benjamin E, Gifford D, Huot S. Physician leadership: enhancing the career development of academic physician administrators and leaders. Acad Med. 2007;79:214–8.
8. Barzansky B, Etzel S. Educational programs in US medical schools, 2003–2007. JAMA. 2004;292(9):1025–31.
9. Grigsby R, Hefner D, Souba W, Kirch D. The future-oriented department chair. Acad Med. 2007;79(6):571–7.
10. Strauss SE, Straus C, Tzanetos K. Career choice in academic medicine: systematic review. J Gen Intern Med. 2006;21:1222–9.
11. Borges N, Navarro A, Grover A, Hoban JD. How, when, and why do physicians choose careers in academic medicine? A literature review. Acad Med. 2010;85:680–6.
12. Greenberg R, Ziegler C, Borges N, Elam C, Stratton T, Woods S. Medical student interest in academic medical careers: a multi-institutional study. Perspect Med Educ. 2013;2(5–6):298–316.
13. Rodriguez J, Campbell K, Pololi L. Addressing disparities in academic medicine: what of the minority tax? BMC Med Educ. 2015;15:1–6.
14. Cyrus K. Medical education and the minority tax. JAMA. 2017;317(18):1833–4.
15. Fernández CR, Lucas R, Soto-Greene M, Sánchez JP. Introducing trainees to academic medicine career roles and responsibilities. MedEdPORTAL. 2017;13:10653. https://doi.org/10.15766/mep_2374-8265.10653.

Ray Lucas, MD Associate Dean for Continuing Professional Development, School of Medicine and Health Sciences, George Washington University

Introduction to Transparency in the Academic Appointment and Promotion Processes

3

Edward J. Callahan

> *If I'm at an institution for 10 years looking for tenure [promotion], I have to sit in front of these guys and they are nothing like me, don't know where I'm from nor have the same background. I mean we have similar interests but we don't have similar goals per se. I have to sit there and they say whether or not I receive tenure, whether my family will have stability, or permission to be considered part of their clique or organization...I don't like that*. (Male student, Hispanic-identified) [1].

This is an intriguing time for you to consider pursuing a career in academic medicine. While growth in the number of medical schools in the United States increases the number of faculty openings for trainees to consider, other changes work against increasing diversity. The increased number of medical schools combines with the increased number of faculty tracks and evolving criteria for promotion to create greater obscurity about what it takes to succeed. These changes combine to increase the need for transparency around academic appointment and promotion processes. Most vulnerable are first-generation and diverse medical students and residents, the upstream pipeline of the academic medicine workforce. Diverse medical students express less interest in academia because of perceived obstacles in appointment and promotion processes. The purpose of this chapter is to share with you information about applying for and succeeding in a faculty career. The information in this chapter will be supplemented with career reflection exercises to help you:

(1) Understand core terms related to academic appointment and promotion processes

E. J. Callahan (✉)
University of California, Davis School of Medicine, Sacramento, CA, USA
e-mail: callahan@ucdavis.edu

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_3

(2) Understand what to put in your curriculum vitae (C.V. or literally, the story of your academic life) and what you put in your educational or clinical portfolios (compilations of samples demonstrating your teaching skills or clinical skills)
(3) Understand the common steps in submitting your first and later promotion packages

Most importantly, you can start today to document what you have accomplished and what you are currently doing in medicine to create your first academic C.V. This first C.V. should document your relevant life experiences marking your journey to becoming a healthcare professional. Some of these same items will also help you form your initial portfolio(s). Your portfolio will contain a compilation of descriptions of professional experiences, strategies, and evaluations which tell your story of commitment to and accomplishments in leading research, education, clinical, or service excellence. Over time, both your C.V. and your portfolios will provide the critical information needed to create your first promotion packet even if you will not need it for years.

The information presented here is for each of you, whether you are underrepresented in medicine or from a majority background and are interested in changing medicine to make it more effective for those experiencing health disparities. It is critical that you have as much information as possible as you decide what role you want to play in increasing and supporting faculty diversity in academic medicine. Diversity in medicine is necessary if we are ever to eliminate or reduce the health disparities that plague the United States. *In the spirit of recognizing diversity, this author declares his status as an older gay, white cis-gender male who entered academia as a first-generation college graduate whose family was lower middle class. My background initially led me to believe I could never be a faculty member, never mind taking on a leadership role in academic medicine. Receiving empathic and warm mentoring was a surprise in graduate student after barely speaking to professors as an undergraduate. That mentoring opened career possibilities I never considered. That early mentoring established a standard for how a career in teaching and guiding learners ought to be done, emphasizing core values that ought to guide it as it unfolds. Hopefully, you can experience some of the warm and caring mentoring I felt through the pages of this book. Many of you will recognize the meaning of the sections that follow as they apply to your own family and friends; others may recognize the families and friends of your fellow trainees. You will all recognize your patients and the communities you will have the privilege of serving if you commit to that path.*

The Necessity of a Diverse Faculty

While the U.S. spends more per capita on healthcare than any other nation, it has lower life expectancy than many other nations [2]. Despite U.S. healthcare spending and the fact that the U.S. has a lower average age, the U.S. has the lowest average longevity among comparable industrialized nations, reflecting significant health

disparities in the nation [3]. Each subpopulation with significant health disparities is also a group subject to stigma in the U.S. [3] and is underrepresented on medical school faculties. For these reasons, the accrediting body for academic medicine, the Liaison Committee on Medical Education (LCME), holds medical schools accountable for developing plans to diversify their faculty to more closely reflect the populations which they serve [4]. Thus, there is a great need for faculty from populations underrepresented in medicine, for women, for disabled, and for sexual and gender minority (SGM) faculty. This need continues to grow even as the number of medical schools in the nation expands, creating a greater need for diverse faculty. As you read this book, consider what role you wish to play in this new healthcare workforce which can better meet the needs of the U.S. populations.

Since 2010, there has been significant growth in the number of allopathic medical schools in the United States, with the opening of 23 new schools while another 2 are now candidates seeking accreditation from the Liaison Committee on Medical Education (LCME) [5]. This rapid proliferation of medical schools has been accompanied by an increased number of faculty tracks [6, 7] and evolving criteria for promotion in the areas of education and service [8, 9]. The proliferation of tracks has triggered modifications to promotion criteria that you will need to investigate. These changes bring a greater need for transparency about academic career paths and evaluation processes [10]. This growth means more need for you and your colleagues as faculty members.

Building the most competent and effective faculty for the academic medicine workforce can become possible only if each institution works to establish a climate that is warm and welcoming to all. In such a future, broad dissemination of information about the variety of academic career paths available will help you recognize the role on faculty which will fit you best. If you wonder whether you can find a home in academia, remember that you can learn what is required for promotion in part by seeking effective mentoring. That information is ordinarily most readily available to majority and male trainees. To make things worse, you may hear discouraging or inaccurate career information from ill-informed or disgruntled faculty [1].

In the face of increasing complexity around promotion, most academic health centers are trying to provide greater transparency and technical assistance in the promotion process. Broad sharing of this information increases the chances of equitable promotion. If you feel some sense of imposter syndrome (which most of who are first-generation college graduates encounter), it can leave you vulnerable to misinformation and discouragement [10]. Faculty development efforts are critical for everyone who is underrepresented in medicine in some way, including women who would like to reach senior leadership positions [11]. Also vulnerable are racial and ethnic minorities joining faculty [12, 13]. If you are most drawn to scholarship based on community-based programs you build, disability work or Lesbian, Gay, Bisexual and Transgender (LGBT)-based scholarship, you may feel vulnerable [14]. For all groups underrepresented in medicine, unclear promotion criteria can feel like huge impediments. It is critical that you understand expectations of institutional culture you join as you go through recruitment and retention efforts [10, 15].

In a recent study of diverse medical students' awareness of academic medical careers, only 1/3 of respondents "agreed" or "strongly agreed" that they knew what personal activities and achievements are needed for a career in academia [1]. How would you rate your awareness? Several participants reported being dissuaded from academia because of perceived obstacles in the promotion process, including a lack of transparency regarding promotion criteria and policies, the length of time required to achieve tenure, uncertainty about non-tenured faculty series, and fear of the existence of "a good old boys club." Others were concerned that activities such as teaching, mentoring, and community service would not be valued in the promotion process. A similar study among American Indian students and faculty highlighted concerns regarding transparency in the promotion process [13] while LGBT students and faculty reported fear of bias against LGBT-related work and scholarship in the promotion process [1]. A better understanding of which activities to document and of the promotion process may help you nurture your interest in academia into a career. What you learn can help you build your confidence in your ability to build a successful academic career.

Document, Document, Document…But the Right Way

Throughout your academic journey, you will be called on to document your scholarly and extracurricular activities in detail to showcase your most significant accomplishments. Documentation of your accomplishments and efforts within a structured format will give you an early understanding of the metrics likely to be used to evaluate your achievements, your career trajectory, and your "fit" for a program or institution as a home.

As a pre-medical student, you summarize this information on resumes and on your American Medical College Application Service (AMCAS) application [16]. Once in medical school, you record it on your curriculum vitae (C.V.) and your Electronic Residency Application Service (ERAS) application [17]. As a Resident, you continue to document such information on your C.V. which becomes part of your first academic employment applications. Finally, when you become a faculty member, you continue to update your C.V. and portfolios [17–19]. Some components are similar (e.g., documenting scholarship) while others are unique to your training level (e.g., the AMCAS application prompts you to describe your most meaningful experience, [16] whereas as a clinical educator, you will be asked to develop an educator portfolio, including your personal statement of your philosophy as an educator) [17–19]. Documenting professional growth and evolution of interests allows you to engage in self-reflection about your growth and leads you toward your career and life goals.

As such it is important for you to be able to compare and contrast a resume, C.V., and portfolio. Each is described in Table 3.1 below [20].

Portfolios can be tailored for individuals focused on teaching, research, or service (Table 3.2) highlights similarities and differences between these three types of portfolios:

Table 3.1 Characteristics of the resume, C.V., and portfolio

Resume	C.V.	Portfolio
Tends to be 1 page	2+ pages depending on experience	2+ pages
Name, contact information, education, work experience, and relevant work-related skills. *Focus is on work experience,* especially content to the specific job you are applying. Listed in reverse chronological order.	Name, contact information, education, work experience, and relevant work-related skills. Includes a summary of academic background as well as teaching and research experience, publications, presentations, awards, honors, affiliations, and other details.	A collection of materials documenting the quantity and quality of your activities. Should accurately demonstrate work related to your academic track: (a) Quantity of effort (b) Impact of effort Evidence of scholarship (know what your institution values for the respective rank)
Job applications.	In the U.S., your C.V. is used primarily when applying for academic, education, scientific, or research positions.	

Table 3.2 Characteristics of the teaching, research, or service portfolio

Teaching	Research	Service
Collection of materials that document your teaching performance and how a faculty member works to be a more effective educator.	Collection of materials that document your research performance.	Collection of materials that document your service performance.
Teaching philosophy Teaching responsibilities Teaching methods Educational activities Educational leadership/committees Mentoring activities Evidence of teaching excellence Medical education research Personal education development	Research philosophy Research responsibilities Research leadership/ committees Mentoring activities Evidence of research excellence Research presentations and manuscripts Personal research development	Service philosophy Service responsibilities Quality assurance Service leadership positions Service committee membership Mentoring activities Evidence of service excellence Personal educational development

While your C.V. is the most common coin of the realm for appointments and promotions, you may be expected to create one or more portfolios documenting your clinical skills or educational skills for promotion at your institution [17–19]. As a new faculty member at a school, you will need to learn what documentation your new school requires for promotion and how it triggers consideration for promotion. This information is often available in faculty development trainings and through mentoring, emphasizing the importance of you identifying and using solid mentors who can assist you in multiple aspects of your career [21, 22].

Your mentors will use your C.V. or portfolio in reviewing and guiding you along your professional journey. Quality mentoring is critical for all, especially if you are a

women or a person of color [21, 22]. If you develop a solid appreciation of how resumes, C.V.s, and portfolios are different yet build on one another, it can strengthen your planning and success along your educational and career journey through training to faculty appointment and promotion. Developing good habits throughout your evolving journey is essential. You grow as a health professional by sustaining and building your habits and applying a continuing structure as your roles evolve. Your thoughtful preparation is core to forming consistent organizational habits to produce an intentional focus on recording the documentation you will need for career advancement.

Faculty Tracks, Lines, or Series

As you embark on your faculty career, you will find that academic health centers have career advancement pathways, often called faculty tracks, lines, or series Table 3.3. Think about what track fits you best.

These pathways are a way of classifying you as a faculty member by your primary duties and evaluation metrics (Table 3.4). Your assignment to your academic track (e.g., clinician-educator) depends upon a number of factors, including your interests, your areas of expertise, credentials, and expectations.

Table 3.3 Common track types and definitions: Think about what track(s) fits you best

Track type	Definition
Traditional tenure	You are expected to concentrate their efforts in the areas of teaching, research/scholarship, and service. Patient care is usually more limited than in other tracks. Scholarship is based on original research and publication of your research in peer-reviewed medical and scientific journals.
Clinician-educator	You have primary responsibilities in teaching or in teaching and patient care. Research or scholarship may or may not be required for promotion; publication of original research in peer-reviewed medical and scientific journals may not be required for promotion to qualify a track for this category.
Research	Some faculty hold a primary appointment in another medical school and a secondary appointment in the reporting medical school; some schools do not allow their faculty to hold secondary research appointments elsewhere. Learn what is acceptable when you are appointed.
Adjunct	Faculty hold a primary appointment in another medical school and a secondary appointment in the reporting medical school. However, throughout the University of California system, the title Adjunct Professor is a research professor who is responsible for obtaining their salary through grants and contracts and are not allowed to be appointed at another school.
Emeritus	This is an honorific title you earn at retirement at many schools. Learn the requirements for earning the Emeritus title at your school at the time of retirement. Requirements vary across schools.
Visiting	Faculty hold full-time appointments at another medical school or university. Appointments in a visiting track type are of limited duration.
Volunteer	Faculty are not paid by the medical school or associated university. These faculty engage in patient care and teaching activities in the medical school.

Table 3.4 Examples of medical school faculty tracks with associated primary responsibilities and source of salary support

Tracks	Primary responsibilities	Primary source of salary support
Clinical or clinician-educator	Patient care and teaching	Clinical revenue
Clinical scholar	Clinical research, patient care, and teaching	Clinical revenue, grants (often not externally peer-reviewed)
Tenure	Independent research	Externally peer-reviewed grants
Research	Collaborative research	Grants (often not as PI) and contracts

Table 3.5 Criteria for promotion by track

Criteria	Clinical or clinician-educator	Clinical scholar	Tenure	Research
Clinical work	Outstanding	Excellent	Good or satisfactory	Usually not required
Teaching	Outstanding	Excellent	Good or excellent	Often not expected
Publications	Few required	Multiple in well-respected peer-reviewed journals	Substantial numbers in high impact journals	Variable
Other services to the professional	Committees, task forces, advocacy, positions	National committees, panels, and advisory groups	High profile national committees and study sections	Reputation as successful scientist
Breadth of reputation	Local institution	Regional to national	National-international	Variable

Table 3.5 provides examples of criteria you will be evaluated with in promotion from Assistant to Associate Professor: Where would you fit best?

An important concept for you to understand is tenure. Tenure is awarded to you as a faculty member if you are in a tenure-awarding track. The decision is based on your scholarly activity in discovery or integration. Your teaching will be expected to be outstanding [23], and your contributions to service will be measured against institutional expectation for your rank and track. Your scholarship will be gauged on its rigor and its impact on national work in your field, now whether your interests are popular or mainstream. Being awarded tenure often requires extramural, overhead-bearing grant funding. Faculty members in tenured positions are expected to exhibit continued productivity and leadership. Overall, the number of tenured positions nationally are decreasing as a proportion of total faculty appointments. Most faculty appointments in medical schools are not eligible for tenure. Learn whether tenure is available in the series in which you are offered appointment. Many of the most important faculty in each school are not in a tenure track.

Institutional Example – University of California

As an institutional example, consider the five faculty tracks at each University of California's six medical schools: you may consider applying for a position at one of these medical schools in the course of your career or may not. This information is included to give you an idea of some of the variety of different faculty tracks you may consider; your task will be to explore the tracks at the Schools to which you apply or to which you are recruited.

The five faculty series in the University of California are: Regular (tenure track), In Residence, Professor of Clinical___, Health Sciences Clinical Professor and Adjunct [24]. Criteria for promotion vary across these series; these criteria are described in the University-wide Academic Personnel Manual, [25] on each School's Academic Personnel website, and in faculty development workshops. Tenure (lifetime appointment with coverage of base salary) is awarded upon reaching the rank of Associate Professor only in the Regular series while the other four series use sequential contracts of 1–5 years in duration. Scholarship is expected as a critical element in promotion for the Regular, In Residence, and Professor of Clinical___ series; the Adjunct Professor series can emphasize either scholarship or teaching or both. The In Residence series holds the same criteria for promotion as the Regular series but does not provide tenure or guarantee state funds to support the position.

If providing a good deal of clinical care is an important consideration for your work, Professor of Clinical__ has an expectation of comparable levels of scholarly productivity as the Regular and In Residence series, but broadens the definition of what is acceptable scholarship to include case reports and non-peer-reviewed book chapters. These types of scholarship are not valued heavily in the Regular or In Residence series unless they contain previously unpublished findings.

If you accept appointment in the In Residence series, you are expected to fund your own positions through grants, contracts, or clinical work. Adjunct series faculty committed to research are expected to produce scholarly activity comparable to other scholarly tracks while there is also the expectation of supporting the position through grants and/or contracts.

On the other hand, if you accept appointment in the Health Sciences Clinical Professor series, you are not required to produce traditional publications but you are expected to present evidence of increasing impact within the profession nationally over the course of your career. Promotion holds expectations of demonstrated excellence in clinical work, clinical teaching, and service. Service can be to the department, the school, the profession or the community; greater productivity in one form of service allows less contribution in others. Feedback is given to faculty at each of their considerations for advancement every 2 years as an Assistant or Associate Professor, every 3 years for the first six steps at Professor and every 3–5 years thereafter.

You are likely to be drawn to and flourish in different series depending upon your skills and interests. You will need to carefully study the expectations of different faculty tracks to insure you are accepting a position which is a good fit for you. It is

possible to change series after appointment, but it is more efficient to apply only for positions in the series which best fits your skills and interests.

As you start to consider positions, find out about the schools' Academic Personnel website; the UC Davis websites provide descriptions of what is involved in the promotion and advancement process [24]. Each school will have its own website, often including a link to information for new faculty and staff. Additional information is usually provided on what you will be required to submit for the merit or promotion packet. The usual advancement packet you are likely to need to develop will include a list of your publications including books, book chapters, and other published papers, and oral presentations given locally, regionally, and nationally. You will want to include invitations to speak. Plenary addresses will be given more weight than other talks. You will also want to keep a complete list of your teaching activities. The list should include the number of learners and statistics on learner numeric evaluations; your learners' comments are helpful as supplemental information. You will want to document all of your service to the department, School, University, community and profession is required with enough narrative to make the contribution clear, providing both quantitative and qualitative measures when available. Any awards for teaching, scholarship, or service are also documented. Remember, the minority tax is often very heavy for women, people of color, out LGBTQ+ faculty, and faculty with disabilities. Your unique background will draw trainees to you and will lead you to be asked to contribute to the committee work of the institution. Documenting your time and your outcomes will help strengthen your evaluation packets.

Our example of the University of California as a possible site you might consider continues. Evaluations for steps within ranks are required every 2 years for Assistant and Associate Professors, every 3 years for early Professor, and every 5 years for more advanced Professors. The advantage of this system is that it does not leave the faculty member needing to seek permission from their department Chair to submit a promotion packet, which can create a serious conflict between Chair and faculty member. Each step achieved means an increase in salary and an increase in retirement base.

For advancement from one rank to the next (Lecturer to Assistant Professor, Assistant to Associate Professor, Associate to Full Professor) and within Professor ranks (Professor Step V to Step VI and Professor Step IX to Professor Above Scale), you will provide your Chair with a list of possible writers for arm's length external letters. The Chair will have to expand your list of suggestions to include people from the field who will not know you in advance but review your documents. As you make up your proposed list, you will need to remember that mentors and close collaborators are not considered arm's length. Seeking arm's length referees is a way to find neutral evaluators to gauge your impact in your field. Various forms of these requirements are expected in promotion packets at most Universities. Depending on your faculty track, you will face heavy focus on scholarship or very little. Some amount of teaching is ordinarily required in all tracks; you should consider the match between how much you value and excel at teaching with the expectations of the track. You are likely to need to present metrics documenting the amount of

clinical work you do and any indices of the quality of your clinical work. While difficult to measure, you will want to find ways to document your skills and impact. Your service is ordinarily documented in all series and external letters are often expected.

You may want to consider two critical elements which are now a part of the promotion process at the University of California which are not universally required elsewhere. The first is a Candidate Statement: a personal statement in which you describe your personal goals and note how the activity documented in your packet reflects your progress toward your goals. In the University of California, this is the only document within the promotion packet in your own voice. You use this document to share your personal values and create a personal context for Promotion committee to use in their evaluation. The Candidates' Statement is a valuable tool by which you can personally reflect on and present how you feel you are performing in your role over time. A second optional element is your statement on your contribution to diversity during the time covered in the review. This allows you to make a clear statement that you see your personal responsibility to supporting the diversity of the entire faculty. Regardless of your personal background, you can share what you do to support the diversity of the institution in your scholarship, your teaching, your mentoring, and your service. Hopefully, all schools will ultimately require all faculty to identify their contributions to diversity.

You may also be interested in a third critical element in promotion at the University of California: there is a system-wide expectation that each campus promotion and tenure committee (titled the University of California, ___ Committee on Academic Personnel) must provide additional credit to faculty who conduct community-based research with/on underrepresented populations. This recommendation was made simply because such work often takes longer than other research to establish and conduct. This increases credit for research most needed (and often difficulty to conduct) to reduce health disparities. Much of this information is provided to new faculty on an Academic Affairs or Academic Personnel website such as that at the University of California, Davis [25]. Please read the comparable website when you apply for a position at a school and before you accept a position.

Nationally, many schools are increasing information on diversity initiatives provided by departments as they open searches [24]. At the University of California, Davis, this information starts with a description of where the department stands. Data are provided to each department on how it compares to national diversity data on percentage of women faculty and percentage of underrepresented faculty versus national norms. On the UC Davis website, data for departments in the School of Medicine and for the UC Davis Betty Irene Moore School of Medicine are presented. Each unit is provided with feedback on whether they fail to meet, meet or exceed national averages for diversity in their field. Every new position advertising for applicants is provided with feedback on where their unit stands on diversity compared with national averages. In addition, all faculty serving on search committees are required to complete a two-hour workshop on implicit bias and its impact on faculty search efforts every 2 years.

Going Up For Promotion? Outline of the Faculty Promotion Process

Work smarter. There is help in developing your promotion package. Access guidelines and resources through the Academic Affairs Office or Office of Faculty Affairs. Seek out advice from the department chair, advisors/mentors/faculty who have been recently promoted or promoted to the next level of interest. Identify several individuals to help guide you.

List of typical content in a Promotion package

- Updated C.V.
- Candidate self-statement
- Comprehensive summary that catalogues and documents accomplishments
- Presentations
- Publications
  - Teaching evaluations
- Clinical activities
  - Board certification
  - Work description (RVUs)
- Service
  - Division, department, school, university
  - Professional
  - Community/public
  - Expectation increases with higher ranks
- External schools which asked you to write letters of evaluation for promotion candidates

The timing for promotion is influenced by many factors including institution rules, your documented accomplishments, institutional culture, and institutional prestige. Table 3.6 provides average time to promotion. However, it is critical to speak with institutional leaders and faculty to gain a better picture of trends and the culture and climate toward promotion for faculty on different tracks.

Table 3.6 Average time to promotion by rank

Rank	Usual duration of appointment
Transitional position (following completion of 3-year fellowship) Instructor Lecturer Clinical associate Etc.	1–5 years
Assistant professor	5–8 years
Associate professor	5–10 years
Professor	Until resignation or retirement

Your package is usually vetted on the departmental level and then submitted to the institutional Promotion and Tenure Committee. Each institution develops processes by which these committees assess candidates and vote whether or not to recommend promotion (and in some circumstances tenure). Processes are highly variable across schools; therefore, you will need to learn the process at the institution you join. Members of tenure committees are usually full Professors who are highly respected and experienced. Recommendations of P&T Committee go to Vice Provost/Chief Academic Officer, or Dean for decision.

At some point you will have to create a candidate statement. Questions addressed in the candidate statement include:

- What are your long-term career goals?
- How does your work advance your goals?
- Share your experiences as a clinical teacher, mentor, clinician, and administrator.
- Identify how your work advances your school's strategic plan.

To get started on your candidate statement as a medical student or resident:
Write down what you would like to accomplish within 5 and 10 years

- Are there any circumstances or barriers that may make it more challenging to achieve your goals?
- Identify 1–2 faculty members who have achieved the goals you have set.
- Ask these faculty members about their "lessons learned."

Best Practices and Resources
Overall, start planning for promotion prior to accepting your academic appointment. Talk with division chief/department chair about career goals, opportunities desired, networking, teaching and research opportunities, and relevant committee work. Most importantly, document accomplishments, and present and publish your work.

National medical organization and specialty societies may offer tools and examples of C.V.s and portfolios. For example, the Association of American Medical Colleges (www.aamc.org) offers a program, entitled Careers in Medicine, which provides a variety of C.V.s that highlight how to organize content if a trainee has a particular interest in clinical care, research, education, and leadership [26].

Bring your C.V. or portfolio to reality! Sharing your draft with a peer, advisor, or mentor is often valuable. A common response when some of this material has been presented as a workshop was surprise that some of what participants do as medical trainees ought to be documented as content for an early C.V. Hopefully, many of you reading this chapter have had a similar response after writing down your experiences.

Talk with colleagues and friends about your thoughts about academic medicine to fill in some of that void. It is important to think beyond your immediate next step

and consider your longer career trajectory. The process of entering and advancing in academia requires a great level of directed insight to facilitate informed career decision-making.

A good practice is attending faculty development workshops. Issues covered in faculty development workshops include what faculty tracks exist at that school and what elements are expected in a promotion package. Faculty tracks range from one to eight at most schools, with the bulk falling in the range of four to six tracks. Expectations for promotion will vary within each faculty series: some series emphasize publication and dissemination of work, while others base promotion primarily of excellence in clinical teaching evaluations and documented clinical quantity and quality. Remember that you can overcome the lack of transparency you perceive around appointment and promotion in different faculty tracks. Your academic career journey shifted into higher gear when you first opened this book. What is your next step?

Remember, "Success is the pathway not the endpoint!"

References

1. Sanchez JP, Peters L, Lee-Rey E, et al. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013;88(9):1299–307.
2. Kamal RCC, Blumenkranz E. What do we know about social determinants of health in the U.S. and comparable countries? https://www.healthsystemtracker.org/chart-collection/know-social-determinants-health-u-s-comparable-countries/?_sf_s=social#item-u-s-outlier-health-spending-combined-social-services-spending-similar-countries. 2018. Accessed 4 Jan 2018.
3. Hatzenbuehler ML, Phelan JC, Link BG. Stigma as a fundamental cause of population health inequalities. Am J Public Health. 2013;103(5):813–21.
4. Liaison Committee on Medical Education. *LCME Standards, Procedures and Notification Forms* 2017; http://lcme.org/publications/. 2017. Accessed 17 Dec 2017.
5. Liaison Committee on Medical Education. Directory of Medical Schools. 2017.
6. Coleman MM, Richard GV. Faculty career tracks at U.S. medical schools. Acad Med. 2011;86(8):932–7.
7. Mayer AP, Blair JE, Ko MG, et al. Gender distribution of U.S. medical school faculty by academic track type. Acad Med. 2014;89(2):312–7.
8. Goldstein AO, Bearman RS. Community engagement in US and Canadian medical schools. Adv Med Educ Pract. 2011;2:43–9.
9. Kuhn GJ. Faculty development: the educator's portfolio: its preparation, uses, and value in academic medicine. Acad Emerg Med. 2004;11(3):307–11.
10. Sanchez JP, Castillo-Page L, Spencer DJ, et al. Commentary: the building the next generation of academic physicians initiative: engaging medical students and residents. Acad Med. 2011;86(8):928–31.
11. American Association of Medical Colleges (AAMC). Women in U.S. Academic Medicine and Science: Statistics and Benchmarking Report 2011–2012. 2017. https://www.aamc.org/members/gwims/statistics/stats12/. Accessed 10 Dec 2017.
12. American Association of Medical Colleges (AAMC). U.S. Medical School Faculty by Gender and Race and Ethnicity, 2007–2011 *Diversity in Medical Education: Facts and Figures* 2012. 2017. https://members.aamc.org/eweb/upload/Diversity%20in%20Medical%20Education_Facts%20and%20Figures%202012.pdf. Accessed 28 Dec 2017.
13. Sanchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewster C. Balancing two cultures: American Indian/Alaska native medical students' perceptions of academic medicine careers. J Community Health. 2016;41(4):871–80.

14. Sanchez NF, Rankin S, Callahan E, et al. LGBT trainee and health professional perspectives on academic careers–facilitators and challenges. LGBT Health. 2015;2(4):346–56.
15. Rodriguez JE, Campbell KM, Fogarty JP, Williams RL. Underrepresented minority faculty in academic medicine: a systematic review of URM faculty development. Fam Med. 2014;46(2):100–4.
16. American Association of Medical Colleges. Applying to Medical School Section 5 of the AMCAS® application: Work and Activities. 2017. https://students-residents.aamc.org/applying-medical-school/article/section-5-work-and-activities/. Accessed 21 Dec 2017.
17. Kalet AL, Sanger J, Chase J, et al. Promoting professionalism through an online professional development portfolio: successes, joys, and frustrations. Acad Med. 2007;82(11):1065–72.
18. Thomas JV, Sanyal R, O'Malley JP, Singh SP, Morgan DE, Canon CL. A guide to writing academic portfolios for radiologists. Acad Radiol. 2016;23(12):1595–603.
19. Zobairi SE, Nieman LZ, Cheng L. Knowledge and use of academic portfolios among primary care departments in U.S. medical schools. Teach Learn Med. 2008;20(2):127–30.
20. Callahan E, Banks M, Medina J, Disbrow K, Soto-Greene M, Sanchez JP. Providing diverse trainees an early and transparent introduction to academic appointment and promotion processes. MedEdPORTAL. 2017;13:10661.
21. Von Feldt JM, Bristol M, Sonnad S, Abbuhl S, Scott P, McGowan KL. The brief CV review session: one component of a mosaic of mentorship for women in academic medicine. J Natl Med Assoc. 2009;101(9):873–80.
22. Yehia BR, Cronholm PF, Wilson N, et al. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. BMC Med Educ. 2014;14:26.
23. Chandran L, Gusic M, Baldwin C, et al. Evaluating the performance of medical educators: a novel analysis tool to demonstrate the quality and impact of educational activities. Acad Med. 2009;84(1):58–66.
24. Personnel OoA. UC Davis Health Academic Personnel 2017. 2017. http://www.ucdmc.ucdavis.edu/academicpersonnel/. Accessed 29 Dec 2017.
25. Office of Academic Medicine, University of California, Davis. Academic Personnel Manual http://academicaffairs.ucdavis.edu/policies/acad-per-man/index.html. Accessed 4 Jan 2018.
26. Association of American Medical Colleges. Careers in Medicine https://www.aamc.org/cim/.

Edward J. Callahan, PhD Associate Vice Chancellor for Academic Personnel, Emeritus, and Professor of Family and Community Medicine, Emeritus, University of California, Davis School of Medicine. He currently serves as Past Chair of the Group on Diversity and Inclusion of the Association of American Medical Colleges and Secretary of Building the Next Generation of Academic Physicians (BNGAP). He was Founding Chair of the Vice Chancellor's LGTQ+ Advisory Council for UC Davis Health.

Community Service Scholarship

4

Daniel E. Guzman and John P. Sánchez

Terms and Definitions

Community service (Table 4.1) is defined by *services volunteered* by individuals or an organization *to benefit a community or its institutions* [1]. Many individuals and organizations identify a need they believe a community may benefit from being addressed and volunteer their time to do so. *Community engagement* (Table 4.1), on the other hand, is 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* [2]. This type of collaborative effort allows for the implementation of a more targeted project that results in a greater impact on the well-being of these individuals. In addition to community service and community engagement, *service learning* (Table 4.1) [1] is a distinct form of *community-centered experiential education* that places emerging health professionals in community-generated service projects and *provides structured opportunities for reflection on the broader social, economic, and political contexts of health.* Generally, service learning involves dialogue between a faculty member and trainee or student to help the learner better understand implications of healthcare within a community. Regardless of how you choose to involve yourself in your community, any type of service project can be transformed into service scholarship.

Community service scholarship is the creation of literary work or recognition of your service in the form of an abstract, article, manuscript, poster, book chapter, policy change, award recognition, etc. It is one of the primary ways in which we reflect on our experiences and share our knowledge with others in an attempt to

D. E. Guzman
University of California, San Francisco, CA, USA

J. P. Sánchez (✉)
President, Building the Next Generation of Academic Physicians Inc.,
Executive Director, Latino Medical Student Association Inc., New York, NY, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_4

Table 4.1 Definitions of community service, community engagement, and service learning

Community service	Community engagement	Service learning
Services *volunteered* by individuals or an organization *to benefit a community or its institutions.*	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.	A form of community-centered experiential education that places emerging health professionals in community-generated service projects and *provides structured opportunities for reflection on the broader social, economic, and political contexts of health.*

promote further awareness of topics and impact in our communities. As a result, you may be acknowledged for the time and effort you put into what you are passionate about. Furthermore, scholarship is one of the primary ways academic institutions evaluate candidates, whether that be those applying to medical schools, residency programs, or full-time academic positions. Typically, those who are able to complete scholarship are given greater credibility by peers for using a scientific approach and rigor. This in turn creates an appeal for institutions to invest in you, either by accepting you into their institution or by offering monetary or other resource support.

Community Service Institutional Requirements (Your Support Team)

For those of you who are not aware of possible community service opportunities available at your institution, it is important for you to read this section. As per the LCME, "*the faculty of a medical school are required to ensure that the medical education program provides sufficient opportunities for, encourages, and supports medical student participation in community service activities and service-learning*" [3]. If you are not already aware of what community service opportunities are available to you through your institution, contact your institution's appropriate representatives to learn more about how they can support your project and help you to make a more significant impact.

In addition to LCME guidelines, the ACGME released the Clinical Learning Environment Review (CLER) a set of standards designed to improve how clinical sites engage resident and fellow physicians in learning to provide safe, high-quality patient care. The first notable standard from CLER related to community service includes *resident/fellow and faculty member education on reducing health care disparities* [4]. The principle behind this is that formal educational activities create a shared mental model with regard to health care quality-related goals, tools, and techniques. These methods are necessary for health care professionals to consistently work in a well-coordinated manner to achieve a true patient-centered approach that considers the variety of circumstances and needs of individual patients.

The other notable standard from CLER requires *resident/fellow engagement in clinical site initiatives to address health care disparities*. This focuses on quality assessment and improvement activities addressing health care disparities for the vulnerable populations served by the clinical site. Therefore, regardless of where you attend medical school or residency, your academic health center should have curricula and resources available to help you achieve your community service goals.

So how can you begin to create a community service project that you are passionate about and can be transformed into scholarship?

(1) Identify how such a project is going to be supported by your institution and community
(2) Align your project with your personal and professional values

Selecting a Community and Value-Based Alignment

It is important to have an idea of what community you would like to serve. You can choose to serve any academic, local, or remote community around the world. You can choose a community you are a part of (e.g., religious, race/ethnic, LGBTQ) or different than you; both have equivalent merit. Reflecting on which community bears personal value or interest can lead to a more meaningful service experience and most importantly starts your thought process of value-based alignment. Optimally, value-based alignment is achieved when one considers and aligns personal values, professional interests, community needs, and institutional mission and strategic plan. The more you can consider and align these four factors, the greater the likelihood you will have of investment from stakeholders and community impact (Fig. 4.1).

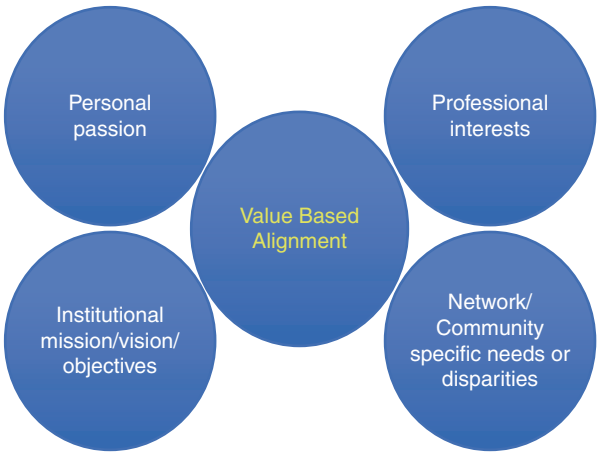


Fig. 4.1 Value-based alignment

To give you an example of how value-based alignment and the community you choose to serve complement each other, I will share my personal service journey:

Personal Story – Dan Guzman

I was born to Chilean immigrants who encountered financial and cultural hardships when they moved to the United States in the early 1970s. They arrived with a goal to pursue education and raise a family, but had a small amount of money, worked multiple jobs where they endured ethnoracial discrimination, and had a limited ability to speak and understand English. From their experiences, my parents taught me the value of assisting others who undergo similar hardships. My first community service activity was volunteering at a local food pantry in New Jersey that primarily distributed groceries to Latino(a) and Spanish-speaking community members. These individuals were so grateful for the assistance they received that it motivated me to participate in other community service activities. Notably, a group of friends and I created a free English course for Spanish-speaking single mothers who had difficulty navigating communication with school teachers, store clerks, and government institutions. By working closely with a group of individuals who had similar personal interests to mine, I was able to engage a community to better assess and address their needs.

Fast forward several years later, I was a first-year medical student with not only a personal interest of assisting vulnerable Latino(a) populations but also a professional interest of serving local underserved minorities in Newark, NJ. To foster my interests, I joined two student-body led groups, the Latino Medical Student Association (LMSA) and our student-run free clinic. Through these organizations, I worked with other students to host a health fair at a local church. Using our understanding of community engagement from prior service activities, we met with the leaders of this church to better understand the needs of their community. With their guidance, the objective of the health fair was to educate community members about hypertension, diabetes, dieting, and exercise – topics that they wanted and needed to understand more about. With support from faculty, we were able to meet this need by developing targeted educational materials for the church to distribute to its members. Furthermore, we were able to start enrolling community members without previous healthcare access to our student-run free clinic. As a result, a small project to educate a small population about their health grew into a larger effort to facilitate improved access to healthcare for several underserved populations in Newark.

The support we had to successfully carry out this service project was reflective of our own personal and professional interests aligning with our institution's mission: *to educate students on society's current and future healthcare needs through patient-centered education; pioneering research; innovative clinical, rehabilitative and preventive care; and collaborative community outreach*. During the next three years of medical school, I worked with other students and faculty associated with LMSA and our student-run free clinic to enroll uninsured individuals to our free clinic; assess and address socioeconomic limitations; and improve healthcare literacy among our local populations. Furthermore, we participated in service-learning through faculty led discussions on the broader socioeconomic and political implications of providing healthcare to our patients in Newark, NJ.

Altogether, by combining aspects of community service, community engagement, service learning, and value-based alignment, we were able to create a successful service project that was primed for scholarship. My involvement in these experiences led to leadership roles, including Co-President of LMSA and Co-Director and Chair of our student-run free clinic. These positions taught me organizational, leadership, and communication skills. Furthermore, my classmates and I presented oral and poster presentations at Weill-Cornell Medical College and Rutgers NJMS, respectively, on the efforts of our student-run free clinic in improving access to healthcare in Newark. Lastly, these works ultimately culminated in a nomination for the Student Family Health Care Center Family Medicine Award.

Although your service project may be very different from mine, using value-based alignment with your service work can similarly yield:

- Improved skill sets: management, organizational, communication, leadership, etc.
- Elective credit for your efforts
- Recognition inside and outside your institution (awards, certificates, scholarships, leadership opportunities)
- Peer reviewed publications: curriculum submitted to *AAMC MedEdPORTAL*; a commentary or letter to the editor submitted to the *Journal of Academic Medicine*; book chapters; etc.
- Presentations: oral or posters at regional or national conferences, committee reports, etc.

In addition, such an approach can help you to strategically allocate your efforts to address a defined community service void or gap, which are more likely to lead to a scholarly product.

Community Service Scholarship

So what exactly is a scholarly product? In terms of community service, scholarship involves the process of structuring and documenting your community service work in a scholarly fashion. Products of scholarly work can be peer-reviewed publications, grant funding to continue your work, awards in recognition of your work, and the passage of policies. Scholarly products will make you a more competitive applicant for residency, fellowship and for a future academic career and appointment. Although nearly 81% of medical students participated in research with a faculty member in 2019 according to the AAMC, only one-third of those reported engaging in a community-based research project [5]. Why do students therefore often fall short of translating community service to scholarship despite their heavy involvement in community service activities? Students likely fall short due to a lack of knowledge on how to properly model their projects to be translated into publishable scholarly work. We have therefore researched frameworks and models to address common scenarios and challenges that we have encountered with our students in transforming community service into scholarship.

Frameworks: Crafting Scholarship from Your Service Project

Selecting an appropriate model or framework to design, implement, and evaluate your service project is important to achieving community-based scholarship. Rather than applying the traditional research approach, it is advantageous to use a community-engaged participatory research framework when conducting community service. The table below contrasts similarities and differences between a traditional research approach and a community-engaged research approach [6, 7].

	Traditional research approach	Research with the community	Community-based participatory research approach
Who is defining the research problem?	Research defines the problem	Researcher in the community or with the community identifies problem	Community identifies problem or works with researcher to identify problem
Who are you conducting research with?	Research in or on the community	Research with community involved	Research with community as full partner
What role is the community playing in your project?	People as subjects	People as participants	People as participants & collaborators
Who is helping your project?	Community organizations may assist	Community organizations may help recruit participants & serve on Advisory board	Community organizations are partners with researchers
What skills are being gained and by who?	Researchers gain skills & knowledge	Researchers gain skills & knowledge along with some awareness of helping community develop skills	Researchers & community work together to help build community capacity and skills
Who is contributing to the analysis and scholarship of your project?	Researchers control process, resources, & data interpretation	Researchers control research, community representatives may help make minor decisions	Researcher & community share control equally
How are the results of your project being used?	Researchers own the data, control its use & dissemination	Researchers own the data & can use community to decide how it will be used & disseminated	Data is shared, researchers and community decide its use and dissemination

Other models to consider in developing your service projects include the Kern, S.M.A.R.T., and Cene models (Fig. 4.2).

The Kern model is a six-step approach to curriculum development which entails (1) problem identification, (2) a targeted needs assessment, (3) developing goals and objectives, (4) educational strategies, (5) implementation, and (6) evaluation and feedback [8] (Fig. 4.3).

The S.M.A.R.T. model recommends the development of objectives that are specific and significant; measurable and meaningful; achieveable and action-oriented; realistic, relevant, and results-oriented; and time-based, time-bound, and trackable [9].

While both the Kern and S.M.A.R.T. models can be generally used for curriculum development, the Cene model is a different framework that was developed to specifically assist individuals in teaching about health disparities through community service activities (Fig. 4.4).

In order to use the Cene model, you should first decide on the primary purpose of the activity, which includes education or training; clinical or community service; or advocacy, policy or community-based outreach or research [10]. In the above diagram, we use education or training as our example for primary purpose of

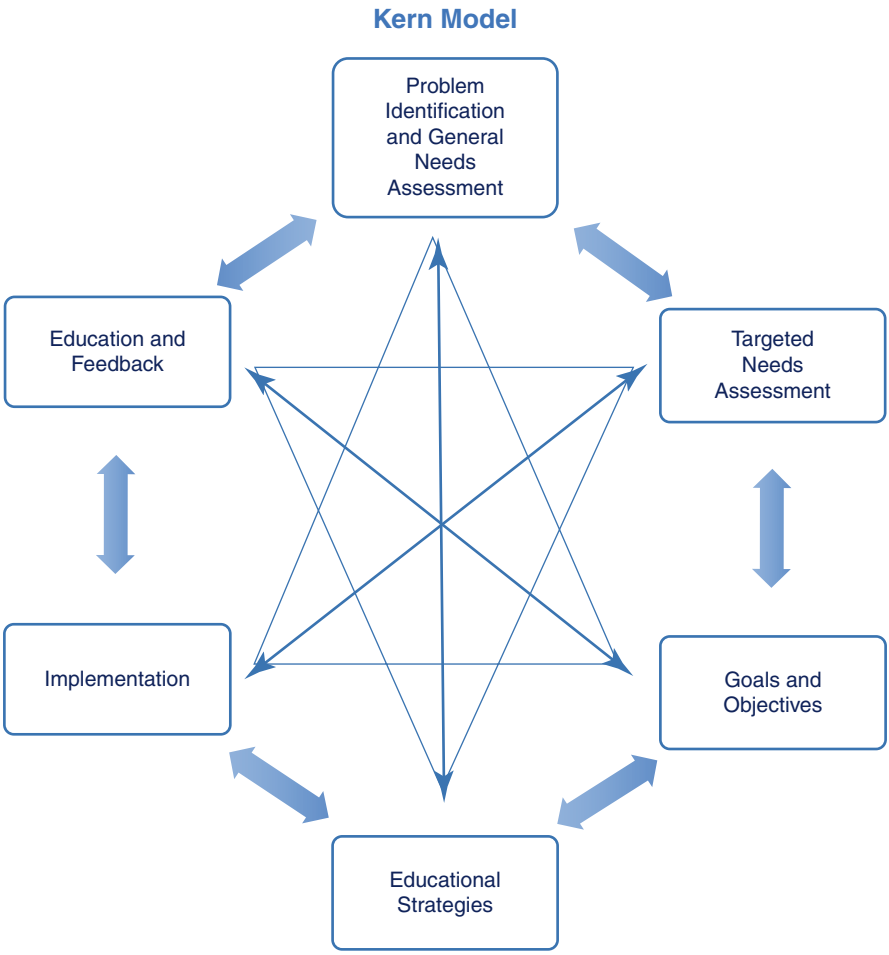


Fig. 4.2 The Kern model

Fig. 4.3 The S.M.A.R.T. model

S.M.A.R.T. Model: Constructing Objectives

S - specific, significant

M - measurable, meaningful

A - achievable, action-oriented

R - realistic, relevant, results-oriented

T- time-based, time-bound, trackable

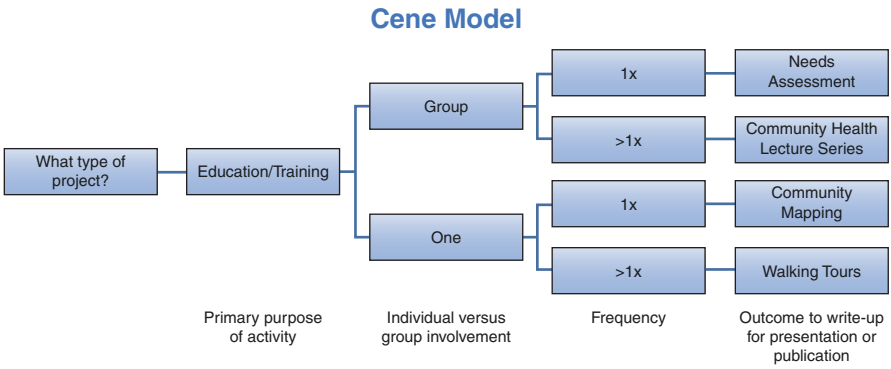


Fig. 4.4 The Cene model

activity. Keep in mind that many activities can fulfill more than one purpose. Secondly, you as the project leader should determine the need for individual versus group involvement in the activity. Lastly, it is important to outline a time frame for conducting the activity. The Cene model in particular can illuminate aspects of the goals, outcomes, or methods of engagement for your research.

While it may seem overwhelming to pick one of the aforementioned frameworks or models, or one not discussed in this chapter, remember that you can choose to use more than one. We recommend that you use at least one model when forming your community service project to maximize its impact and allow you to transform it into a scholarly product. In order to familiarize yourself with these models and feel comfortable applying them to your own project, try completing the following practice cases listed below [11].

Practice Cases

(1) *Monique is a first year medical student who would like to organize a health fair at her local church, which is near her medical school. She sits on the board of a student organization and is petitioning the board to take on this activity in the next 2 months. She states to the members, "I grew up in the neighborhood, and I'm a member of the church; we need to do this health fair because the community is suffering from so many health disparities. They need our help!" At the end of the meeting she notices that only 2 members signed up to help with the planning and implementation.*
- *What would you have done differently?*
- *How can you help Monique transform this project from community service to scholarship?*

For this example, we will apply the Kern model (though remember, you can choose any model that you feel would apply more appropriately depending on the scenario).

(1) Problem Identification: Although she grew up in the neighborhood, Monique can strengthen her appeal to her members by providing supplemental data/reports on the health issues/disparities of the respective community. Ideally, she should do so with the help of a community representative who can confirm her observations/data. She should also give examples of concrete health disparities that may be affecting her community. An example of a specific health disparity is an increased incidence of type 2 diabetes mellitus.
(2) Targeted Needs Assessment: Once she clarifies the problem(s), Monique and her classmates should create a needs assessment to understand the specific needs of this community that would be beneficial to address in an attempt to alleviate the problem at hand. In this example, the needs assessment may be focused on whether the community would benefit more from dieting and exercise education, access to healthy groceries and produce, or affordability of medications.
(3) Goals and Objectives: Once a targeted needs assessment is conducted, her team can create goals and objectives for how they will address one or more needs. Every step of the way community members should be engaged to provide their perspective. This step is a great opportunity to utilize the S.M.A.R.T. framework in developing goals or Bloom's taxonomy (http://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy/) in developing educational objectives. The goals may be to develop monthly seminars on carbohydrate-controlled diets and aerobic exercise routines, distribute lists of grocery stores that have more healthful food options, or tell the community to use pharmacies that have a reduced-cost medication menu for select, common medications.
(4) Educational Strategies: Would Monique's community benefit more from a lecture-based format of diet and exercise education, pamphlet's to be read on one's own time, or an interactive discussion? Once again, explore the literature for best practices and speak with community stakeholders to gain insight into strategies that have been previously utilized and effective.
(5) Implementation: Where and when can an event take place in order for her to do the aforementioned strategies? What factors will maximize the participation of individuals with type 2 diabetes mellitus? Are there limitations, such as language concordance or literacy level, that need to be taken into account?
(6) Evaluation and Feedback: The team can collect feedback from multiple sources – participants on new knowledge attained, community members on satisfaction with the process undertaken to develop the program, and/or assessing peers confidence in communicating with diverse patient populations. Feedback can consist of quantitative or qualitative data collected through surveys or qualitative data through focus groups.

Monique can now reflect on what she learned from this particular project and re-apply the framework if and when she decides to lead a similar activity for another community. Her application of a framework lends credibility to the notion that a rigorous approach was undertaken and enhances her chances of submitting an

abstract for a workshop or poster presentation at a local, regional, or national scientific conference or submitting an article for consideration in a peer-reviewed journal. Additionally, she and her chapter may become eligible for a community service award or be better positioned to secure financial support for on-going or future events. Most importantly, she can serve as a role model or advisor to peers who hope to conduct similar outreach and scholarship.

For the following two examples, attempt to choose a framework of your preference and apply it to the practice case. You can complete these cases on your own or find a friend! Following the cases, we will give a brief overview of pertinent points for each case.

(2) *Alejandro is a PGY-3 Pediatrics resident involved with teaching medical students. He is discussing clerkship feedback with the Chair of Pediatrics because several students mentioned that there was nothing about health disparities integrated into the rotation for morning reports or rounds. Alejandro tells the Chair he will take some of the cases and review them, adding references and examples of disparities. He also volunteers to bring in some members of the community that he works with at the free clinic in a predominantly Latino neighborhood.*
   - *What would you have done differently?*
   - *What are some thoughts on how to transform this community-based activity into scholarship?*

(3) *Jessica is a second year surgery resident and is concerned and saddened by the number of young men of color presenting with penetrating trauma to her hospital, some of which have had >1 assault in the past year. Among her colleagues there is a sentiment that this a long-standing problem for the local community and beyond the scope and skill-set of hospital staff. When she spoke with her residency director about inviting a Grand Rounds speaker to discuss the Epidemiology of Penetrating Trauma among Men of Color, she was told that it would provide little clinical merit.*
   - *What would you have done differently?*
   - *What are some thoughts on how to transform this community-based activity into scholarship?*

Case 2

Alejandro can consider value-based alignment, Kern model, and/or the Cene model and work through the associated steps. Alejandro can perform an inventory across institutional departments or perform a literature search, to appreciate how peers and faculty have taught health disparities content to medical students. He can speak with community members, review community needs assessments and share new information with trainees during morning report and rounds. By reviewing and adapting the medical student curriculum using the aforementioned frameworks, Alejandro can share the process undertaken and outcomes achieved through an oral or poster presentation at a regional or national educational conference or submit a curriculum to *MedEdPORTAL*. Medical students may even be engaged to draft and submit the abstracts or articles for publication consideration.

Case 3

Jessica can consider the Kern model, community-engaged research model, and/or Value-Based Alignment. Jessica can tie her work to ACGME competencies that relate to health disparities to justify and bolster her work. She could access public health data or public safety data in order to support interventions that could possibly be integrated into the ER. Jessica might also focus her project around education and intervention for the ER team itself (e.g., trauma-informed care), rather than measuring patient outcomes.

All three cases highlight common challenges reported by trainees. Additionally, in the published literature there are articles that highlight how trainees and faculty have tackled the topics discussed in the cases. For example:

- Allen JD et al. A pilot test of a church-based intervention to promote multiple cancer-screening behaviors among Latinas. J Cancer Educ. 2014;29(1): 136–43.
- Gonzalez CM, Fox AD, Marantz PR. The evolution of an elective in health disparities and advocacy: description of instructional strategies and program evaluation. Acad Med. 2015; 90(12):1636–40.
- Liebschutz J, et al. A chasm between injury and care: experiences of black male victims of violence. J Trauma. 2010;69(6):1372–8.

In this chapter, we have presented several avenues for implementing a community service project that can engage a community and be transformed to scholarship. We explained that medical schools and residency programs, due to accreditation standards by the LCME and ACGME, are interested in supporting community-based initiatives and scholarship. We discussed the importance of value-based alignment and how different communities can benefit from your project. Remember to always keep in mind how your community service activity aligns with your own personal and professional interests. Also, we introduced you to several models that can be used to structure and optimize your project to create scholarship from service. Be sure to utilize at least one of these models when organizing your project and do not be afraid to overlap principles from different models to achieve your project's goals. If you utilize these suggestions and create scholarship from your service project, the result will be a project that is personally and professionally rewarding and heightens the voice of your community.

Personal Story – John Paul Sánchez

My passion to understand and serve diverse communities was realized at a young age. I was blessed by my upbringing in the Bronx and gained insight into unique health issues and disparities for marginalized communities by witnessing the HIV/AIDS epidemic during the 1980s and 1990s in New York City. There was daily mention of GRID (gay-related immune deficiency), HIV, and AIDS in newspapers and on T.V., showcasing how men who have sex with men and communities of color were disproportionately infected and affected by the disease. I vividly remember attending a funeral of a family member who passed from AIDS and the taboo of discussing the reasons for his death even among family members. Unclear to me at the time and what ignited a fire in my belly were the questions "Why were Latino and Black communities and MSM communities – my communities – disproportionately

being affected by HIV/AIDS?" and "How do I survive the epidemic as a Puerto Rican man who was attracted to men?" At that point service, research, and advocacy had become embedded and intertwined in my soul.

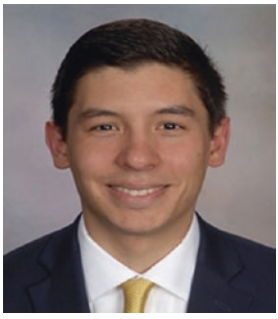
I attended New York University for college and had the opportunity to serve as an NYU Sexual Health Advocate providing educational workshops to peers on sexual identity, sexual behavior, safer sex practices, and sexually transmitted infections. Delivering presentations to different groups (e.g., by class year, undergraduate versus graduate students, racial/ethnic identified organizations, religious organizations, fraternities, etc.) enhanced my appreciation of different communities and cultures within one campus and how to nuance education workshops to optimize teaching effectiveness. I went on to complete a summer Public Health Fellowship Program during my junior year at CDC/Emory University/Morehouse School of Medicine to explore the role of a medical epidemiologist and complete a project on the incidence of various cancers near Pelham Park, Bronx, New York – one of the EPA CDC Superfund sites. The experience provided fundamental training in research design, analyses, writing up preliminary findings, and presenting to colleagues; all core components to conducting community-based scholarship. After this summer program, I was determined on completing an MPH and MD and following the footsteps of a mentor from the summer program, Dr. Kenneth Dominguez – the first medical epidemiologist I had ever met!

I first attained my MPH in infectious disease epidemiology from the Yale School of Public Health and then attended medical school and residency (in Emergency Medicine) at the Albert Einstein College of Medicine, Bronx, NY. Prior to and during medical school, I served as a founding member of the Bronx Lesbian and Gay Health Resource Consortium Inc., the first health-related LGBT store-front in the Bronx. I helped to develop, implement, and evaluate various community informed health interventions including 866-4GAYCARE – a health link line for LGBT individuals to access culturally competent health care services; GURLZ Kick Ash! – a smoking cessation program for lesbian and bisexual women in the Bronx; and the DL STATS Party! – an outreach program to educate and screen Hispanic and Black MSM for syphilis and HIV/AIDS in the Bronx. Working with community members and under the direction of LGBTA-identified mentors from community-based organizations, I was able to write grants to help develop the aforementioned activities and to publish the projects' outcomes and impact – Sánchez JP, Lowe C, Freeman M, Burton W, Sánchez NF, Beil R. A syphilis control intervention targeting black and Hispanic men who have sex with men. Journal of Health Care for the Poor and Underserved. 2009 Feb 20(1):194–209 and Sánchez JP, Meacher P, Beil R. Cigarette smoking and lesbian and bisexual women in the Bronx. Journal of Community Health. 2005 Feb;30(1):23–37. These lived, educational experiences helped me build expertise in community-based research and scholarship, as well as, in diversity and inclusion, setting the stage for an eventual appointment as the inaugural Assistant Dean for Diversity and Inclusion and subsequent Associate Dean for Diversity and Inclusion at Rutgers New Jersey Medical School. In summary, your unique, lived experiences and on-going community service activities, that are often driven by who you are, curiosity and passion, can serve as a well-built foundation for a career that involves community engagement and scholarship.

Although many of us in health care go above and beyond to participate in community service, we unknowingly limit the impact we can make on our communities by not reaching for community service scholarship. We often do this by offering a service that we think a community could benefit from without often evaluating what service a community desires or needs. As mentioned above, when I was a first-year medical student, I thought a particular church community in Newark would benefit from education on simple health topics. We do not do this intentionally, but we believe that the service we are providing will make a difference in our community (and I sure thought it would!). It may, but it does not always make as big of a difference as we would like to think. This is where community service scholarship comes into play.

References

1. Sabo S, de Zapien J, Teufel-Shone N, et al. Service learning: a vehicle for building health equity and eliminating health disparities. Am J Public Health. 2015;105(Suppl 1):S38–43.
2. "What is Community Engagement?" Centers for Disease Control and Prevention. 2011. www.atsdr.cdc.gov/communityengagement/pce_what.html. Accessed 26 Apr 2019.
3. Functions and structure of a medical school, effective academic year, publication date March 2106. http://lcme.org/publications/. Accessed 26 Apr 2019.
4. CLER Pathways to Excellence, http://acgme.org/acgmeweb/Portals/0/PDFs/CLER/CLER_Brochure.pdf. Accessed 26 Apr 2019.
5. Medical School Graduation Questionnaire, 2019 all schools summary report. https://www.aamc.org/download/498790/data/2019gqallschoolssummaryreport.pdf (page 19). Accessed 27 Aug 2019.
6. Dereski M. Collaborative community health research. MedEdPORTAL Publications. 2015;11:10278. https://doi.org/10.15766/mep_2374-8265.10278.
7. McDonald M. Practicing community-engaged research. MedEdPORTAL Publ. 2008;4:1127. https://doi.org/10.15766/mep_2374-8265.1127.
8. Kern DE, Thomas PA, Howard DM, Bass EB. Curriculum development for medical education: a six-step approach. p. 6, Figure 1.1. © 1998. The Johns Hopkins University Press; 2009.
9. Buckner AV, Ndjakani YD, Banks B, Blumenthal DS, et al. Acad Med. 2010;85(10):1645–51.
10. Cené CW, Peek ME, Jacobs E, et al. Community-based teaching about health disparities: combining education, scholarship, and community service. J Gen Intern Med. 2010;25(Suppl 2):S130–5.
11. Nakae S, Soto-Greene M, Williams R, Guzman D, Sánchez JP. Helping trainees develop scholarship in academic medicine from community service. MedEdPORTAL. 2017;13:10659. https://doi.org/10.15766/mep_2374-8265.10659.



Daniel E. Guzman, MD, PGY2 Internal Medicine Resident Physician, University of California, San Francisco

John Paul Sánchez, MD, MPH Executive Director, Latino Medical Student Association Inc., President, Building the Next Generation of Academic Physicians Inc.

Educational Scholarship

5

Renee Williams

Personal Story

How does one define the scholarship of education and why is this important? I realized as a medical student that the aspect I enjoyed most in medicine was the role of an educator. If I were to be honest this most likely manifested even earlier in my educational career. I spent one Summer during college teaching at a private high school in the Bronx. In retrospect, this was not a normal summer activity for a premed student. Maybe my strong desire for this internship was the beginning of my interest in a career involving education. This interest became more evident in my residency, I would look forward to teaching my trainees and would schedule time in my busy day to sit for an hour with my students and review a topic. I considered myself a success if my students left the rotation with a high level of satisfaction from our scheduled learning activities. Throughout my training I knew that I wanted the focus of my career to be on activities involved in medical education. While I did not actively seek out opportunities to teach as a medical student, I did so within my residency and fellowship training. During fellowship, I participated in the bedside teaching course and wrote my first standardized patient scenario, yet there was always something missing. This amorphous goal that had yet to materialize, I didn't realize that I had already started amassing the building blocks for my future career as a clinician-educator. The question became how do I forge this particular pathway and how do I translate my interest into scholarship and utilize this for promotion within the landscape of academic medicine. A landscape where the word "research" encompassed the domains of clinical, translational, and basic science work. An environment where the role of the clinician-educator was still being defined, discussed, and debated. Before we begin, let's start with some basic terms and definitions.

R. Williams (✉)
Division of Gastroenterology, NYU School of Medicine/Bellevue Hospital Center, New York, NY, USA
e-mail: renee.williams@nyulangone.org

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_5

Terms and Definitions

It is important to note that education and scholarship are separate but intertwined domains. What is *education* in medicine and who meets the definition of the *clinician-educator*? Is it simply being a good teacher or should an educator also contain other skillsets? Per the Association of American Medical College's (AAMC) Group on Educational Affairs (GEA) there are five categories of educator activity [1]. These are learner assessment, curriculum development, mentorship and advising, teaching activities and educational leadership and administration [1] (Fig. 5.1), as defined by Simpson et al. (pg. 1006).

Learner Assessment

All activities associated with measuring learners' knowledge, skills and attitudes.

Curriculum Development

A longitudinal set of systematically designed, sequenced, and evaluated education activities occurring at any training level, venue or in any delivery format.

Mentorship and Advising

A developmental relationship in which the educator facilitates the accomplishment of a learner's or colleague's goals.

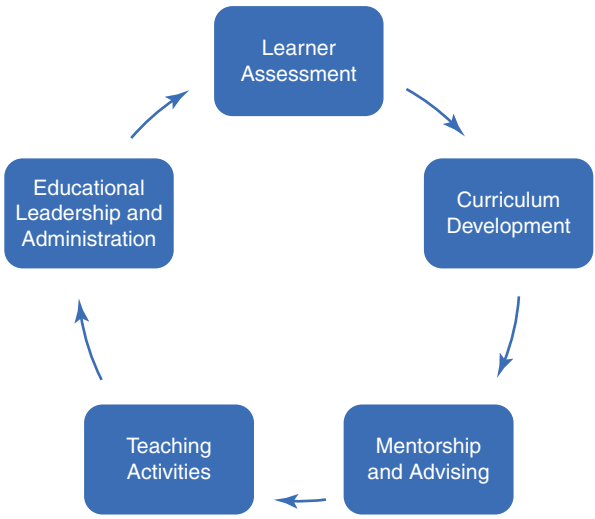


Fig. 5.1 The categories of educational activities

Teaching Activities

Any activity that fosters learning, including direct teaching or creation of associated instructional materials.

Educational Leadership and Administration

Leadership activities that transform educational programs and advance the field.

The clinician-educator role is an interconnection of the above domains. While a particular focus may be in one area such as curriculum development, in general most teaching activities intertwine with most of the categories. For example, as a resident you may give a noon lecture and do a pre- and post-test to assess efficacy. This activity in itself would fall in the domains of a teaching activity and learner assessment.

Next, we must define scholarship. In the broad sense this means contributing to the generalizable knowledge by making your work public through peer review and publications. As defined by Boyer, scholarship has four domains: discovery, integration, application, and teaching (Fig. 5.2) [2].

Discovery Original research, knowledge for its own sake [2, 3].

Integration Making connections across disciplines, illuminating data in a real way, interpreting, drawing together, and bringing new insight to bear on original work [2, 3].

Application Engagement with society to apply what is known [2, 3].

Teaching To make accessible and to participate in the transformation of what can be known with others [2, 3].

Fig. 5.2 Domains of educational scholarship

Table 5.1 Criteria for scholarship in education

Educational activities be informed by both the latest ideas in the subject field and the most current ideas in the field of education
Be open and accessible to the public
Be subject to peer review, critique, and evaluation using acceptable criteria
Be accessible in a form upon which others can build

Boyer essentially made the definition of scholarship more inclusive by defining the scholarship of teaching. Glassick expanded upon Boyer's work and defined the six standards of scholarly work which includes clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique [4]. With these definitions we can now define the criteria for scholarship in education as influenced by Boyer and Glassick [2, 4, 5] (Table 5.1).

In the pre-planning stages of any educational work or research, be sure to keep the criteria for scholarship in mind. You should have an idea of how you will fulfill these criteria prior to implementation of any project.

Activities for Scholarship

We have now given you a clear idea as to what defines the scholarship of education. How do we put this into practice? It is imperative to understand that a lot of teaching activities can easily be transformed into scholarship by asking the right questions. For example let's say you wanted to change the system for patient hand-offs in your residency program. First, you could develop a new worksheet or modify an existing worksheet and have this evaluated and publish the information in an academic journal [5, 6]. There are many opportunities that already exist (Table 5.2). The great thing about educational scholarship is that you don't need a lab; your workplace or classroom is your lab. Here is my real life example during my gastroenterology fellowship I was asked to develop a scenario for an Observed Structured Clinical Examination (OSCE). I wrote a patient hand-off simulation based on my real life experience as a gastroenterology fellow. This OSCE was used as a teaching tool for gastroenterology fellows across various programs. My mentor and I eventually used the information gathered from this OSCE and published in one of the top journals within our field [7]. How does an OSCE fit into the paradigm of research you ask? Easily, this is a tool that can be used in assessment of learners across the ACGME competencies and milestones. This was the beginning of my interest in simulation as a teaching tool and now as faculty I direct and organize an intra-city OSCE experience for first year fellows. Most medical students, residents, and fellows are involved in educational projects throughout their training. It is important to remember that any new innovation is an opportunity for research.

Table 5.2 Activities for scholarship

Questions to ask	Scholarship domain	Example
What is known? What is yet to be found?	Discovery	Tutor in a student program
How do these findings fit together with what is already known?	Integration	Implement and analyze effective teaching strategies
How can what is known be applied to consequential problems?	Application	Effect of a new curriculum Physical diagnosis course
How can what is known be shared? How can what is known be transformed?	Teaching	Presents at a local, national, or regional meeting

The Educational Portfolio

During your career it is extremely important to maintain an educational portfolio which is documentation of the *quality and quantity* of your work. The quality of your work is reflected in presentations, learner evaluations, and publications. After each activity get learner feedback and document this within your portfolio. Each institution is different and some may use an online platform while others may require a paper document. A small bit of advice, update this portfolio on a regular basis. Every time you do a new teaching activity, present at a conference or publish a new paper, add it to your portfolio. This is very important when it is time to apply for promotion along the clinician-educator pathway.

Now What?

We have now discussed some of the basics of achieving and documenting scholarship in education. However you are probably wondering – *"How do I achieve these particular goals while in training*?" Well there are a variety of ways but for the purpose of this chapter I will focus on two models. The opportunity model, that involves taking on a variety of projects and exploring a myriad of interests. In the opportunity model, there is no definitive plan or pathway. In lieu of developing a focus, consider all projects that are presented as an opportunity to learn more about that particular educational landscape. This model provides a powerful stratagem to learn and develop yourself as an educator as you find your passion. A second model involves personal values and passion. In other words this would be "*an ongoing way to express and work on things that are of personal value and interest to you"* [6 , 8]. Unlike the previously mentioned model, this requires an identified area of focus to build on your knowledge, skills, and attitudes to strengthen and build upon your educational foundation. In this model a certain degree of self-reflective practice is required to understand your educational identity and your future goals and desired

impact over time. I would also recommend consider obtaining another degree such as a Master's in Science or Education to give you the knowledge and skills in the conduction of research. If another degree is not an option, there are shorter term educator programs offered by leading institutions in medical education.

Now it's time to do some practice cases to see if you have picked up on the concepts discussed thus far. These cases are based on real world scenarios, however these great projects were not taken to that next level.

Practice Cases

Case 1

Carolina is a fourth-year medical student who is involved in a community group that recruits undergraduate students from underserved neighborhoods with an interest in medicine. The students are broken up into groups and assigned a teaching task. Carolina advises the students on putting together a lecture of small bowel anatomy, physiology, and pathophysiology. After the lesson and lunch, Carolina facilitates a review session using the socratic method.

What would you have done differently?

How does this fit into the 5 educator categories?

What are some thoughts on how to transform this educational activity into scholarship?

In the above example, prior to beginning this task Carolina should have thought about how she could make this count twice. Specifically, how to evaluate the efficacy of her session, improve upon it and disseminate her work. Here is an explanation of how this fits into some of the 5 educator categories.

- Curriculum Development: *Carolina organized the learning activities for the day.*
- Mentorship and Advising: *She advised the students on how organize their lectures.*
- Learner Assessment: *This was not formally done, however there could have been a short quiz or test based on the learning activities for the day.*
- Teaching Activities: *This consisted of the review session along with formulating the assignments for the groups.*

Generating scholarship from the project would involve an evaluation tool of the entire session from which she can use data to generate an abstract on building a workshop for undergraduate students underrepresented in medicine. This abstract should be submitted for presentation at a national meeting in the education category. She could then write a corresponding manuscript and submit to a journal dedicated to medical education.

Case 2

Jamal is a medical student who has an interest in LGBTQ health. He decides to get involved in a lecture on how to interact with LGBTQ patients. He develops a simulated scenario using the OSCE as a template. In this simulation, one student would play the role of a transgender patient and another student the healthcare provider. After the simulation Jamal leads a debriefing session about the experience and highlights the teaching points. His audience consists of undergraduate and graduate medical trainees.

What would you have done differently?

How does this fit into the 5 educator categories?

What are some thoughts on how to transform this educational activity into scholarship?

This is a similar scenario but a different project. In essence Jamal can do an evaluation of his session with a tool such as a questionnaire with open-ended questions. He can then write an abstract on how to utilize simulation in teaching about LGBTQ health issues. This can be submitted to a medical education research day at his institution and on the national level. This simulation can then be written and submitted to a repository such as MedEdPORTAL which is a peer-reviewed online journal for medical education activities. Doing these simple things would give Jamal a local and national abstract along with a publication. Publishing within the field is an example of educational leadership. Doing the lecture and developing the scenario would be considered a teaching activity. By expanding on what he has already accomplished and developing more OSCE scenarios, Jamal is now building a medical student curriculum around LGBTQ health. The OSCE itself is an assessment tool, so by implementing his OSCE he is essentially participating in learner assessment activities.

How to Go from "Doing" to "Publishing"

Before we discuss publishing, it is important to remember the importance of scholarship. In academic medicine, scholarship allows you to distribute information, establish yourself as an expert in a field and is an important metric in promotion. In 1976 Nelson Mandela in a letter written on Robben Island "a *good head and a good heart are always a formidable combination. But when you add that to a literate tongue or pen, then you have something very special.*" First and foremost, with co-contributors, discuss publication options in your pre-planning stages. Publishing is THE criteria for scholarship across domains. Seek mentorship, formal or informal to guide you in this process. This is a road well-travelled and your journey will be easier with the proper guidance.

Prior to any project do an initial general and targeted needs assessment to identify gaps and understand what currently exists [9]. Based on your needs assessment develop a well thought out research question. You should spend time formulating your research question, this is important as it informs your study methodology [10]. The research question informs which outcomes to assess. Typically, in the educational literature, you are researching changes in knowledge, skills, and attitudes. This can be assessed qualitatively or quantitatively with knowledge tests, questionnaires, or interviews. The strategy chosen is dependent on the research question and data desired. For example, if you want to assess baseline knowledge of colorectal cancer screening guidelines among clerkship year medical students, you may use a simple knowledge-based test which collects quantitative data. Expanding on this idea, to measure the impact on knowledge of an educational intervention, would require a pre- and post-test evaluation of your learners. However, if you would like to assess the perceived impact of an educational intervention to increase knowledge of colon cancer screening guidelines, focus group interviews to collect qualitative data may yield richer results. Standardized patient experiences provide a great strategy to observe a learners' skills and collect qualitative and quantitative data. Details regarding conducting educational research are beyond the scope of this chapter but instructions are available through a variety of resources including the AAMC recent 2017 e-book "*Conducting Research in Health Professions Education: From Idea to Publication*."

Before implementation, submit your project to your institutional review board (IRB) for approval or exemption. This is an important step as rules vary depending on institution. In fact, educational research may not be considered human subjects research at some institutions while others may require a full review. Once your project is finished and your data has been analyzed, start writing immediately and submit your workshop or abstracts to local, regional, and national meetings for peer review and presentation. Beyond that you should also think of submitting your work as a manuscript, book chapter or newsletter [8]. Educational resources for publications include journals such as *Academic Medicine, Journal for Graduate Medical Education* and *Medical Teacher*. Online resources such as MedEdPORTAL (www.mededportal.org) or other online forums provide ample opportunities to disseminate your work as scholarship. If you are unsure in regards to what resources exist, discuss with your mentor or explore professional societies focused on medical education.

Personal Story (Continued)

So what did I do to develop myself as a clinician-educator? I started volunteering and seeking out opportunities to teach as a graduate medical trainee and as a faculty member. During my fellowship I wrote and participated in an OSCE scenario that was eventually published in one of my field's major journals. I made my leadership aware of my interest and was proactive in being involved in UME and GME educational activities. To that end I also completed a Masters in Health Professions Education (MHPE) to get formalized training in curriculum development and educational scholarship. I also have the advantage of

working in an institution where there exists a clinician-educator pathway for promotion. For clarification about the themes in this chapter, here is an example from my own story. I noted that our patients were inappropriately discontinuing certain anti-platelet agents prior to their endoscopic procedures based on advice from their medical providers. When a resident approached me for a project, we discussed doing a series of noon conferences with the internal medicine residents along with meeting with the nursing staff educating them on these issues. The resident worked on two lectures, one for housestaff and one for our nursing colleagues along with a corresponding pre- and post-test survey which evaluated knowledge and efficacy. We presented our work at an institutional medical education day and at one of our national meetings. This project was then published in MedEdPortal [11]. This is a classic example of how a knowledge gap was addressed using an educational activity which in turn was transformed into scholarship through dissemination and publication.

Questions for Reflection

Do I really see myself as a clinician- educator?
What are my take home points from this chapter?
What are my next steps to improve upon myself as an educator?

Summary

The role of the clinician-educator is now recognized as a valuable pathway for promotion and tenure. It is important to realize how to navigate this landscape and give yourself the necessary tools to be successful. Remember the domains and definition of scholarship, reflect on the educational activities or roles in which you have been a participant or a leader and start documenting in your educational portfolio. Reflect on the model that will assist in accomplishing your long-term goals and work toward disseminating your work via the various platforms that currently exist. In a nutshell, get started, seek mentorship, be organized and timely, and always think of publishing your work [8] (Fig. 5.3).

Fig. 5.3 The pathways of educational scholarship

References

1. Simpson D, Fincher RM, Hafler JP, et al. Advancing educators and education by defining the components and evidence associated with educational scholarship. Med Educ. 2007;41(10):1002–9.
2. Boyer EL. Scholarship reconsidered: priorities of the professoriate. Princeton: Princeton University Press; 1990.
3. Dent J, Harden R. A practical guide for medical educators. London: Churchill Livingstone. Elsevier; 2013.
4. Glassick CE, Huber MT, Maeroff GI, Boyer EL. Scholarship assessed: evaluation of the professoriate, vol. 9. San Francisco: Jossey-Bass; 1997.
5. Glassick CE. Boyer's expanded definitions of scholarship, the standards for assessing scholarship, and the elusiveness of the scholarship of teaching. Acad Med. 2000;75(9):877–80.
6. Walvoord E, Hobson-Rohrer W, Bogdewic S. Getting promoted: turning your clinical work into scholarship. MedEdPORTAL. 2014;10:9694.
7. Williams R, Miler R, Shah B, et al. Observing handoffs and telephone management in GI fellowship training. Am J Gastroenterol. 2011;106(8):1410–4.
8. Williams R, Holaday L, Lamba S, Soto-Greene M, Sanchez JP. Introducing trainees to medical education activities and opportunities for educational scholarship. MedEdPORTAL Publications. 2017;13:10554. https://doi.org/10.15766/mep_2374-8265.10554.
9. Kern DE, Branch WT, Green ML. Making it count twice: how to get curricular work published. 27th Annual Meeting Society of General Internal Medicine 2005.
10. Creswell JW. Designing and conducting mixed methods research. Thousand Oaks: SAGE Publications; 2007.
11. Fradkov E, Goldowsky A, Quiles K, Williams RA. Quality improvement educational intervention to increase knowledge of cardiogastroenterology amongst medical trainees and nursing staff. MedEdPORTAL. 2017;13:10642. https://doi.org/10.15766/mep_2374-8265.10642.

Renee Williams, M.D, MHPE, FACG Associate Professor of Medicine, Program Director, Gastroenterology and Hepatology Fellowship, NYU School of Medicine/Bellevue Hospital Center, Division of Gastroenterology

Research and Scholarship

6

José E. Rodríguez, Kendall M. Campbell,
and Brandon Patterson

Summary

The journey from medical school to full professor is a long but rewarding journey for students and residents. It begins with identifying a mentor and continues through steady progress by asking many questions along the way. Our pathways are highlighted in personal stories below and included joining a network of researchers, where we gained writing and literature searching skills, whereby we transferred to our other scientific papers. Building an aptitude for research doesn't form overnight, but is built up over time by getting involved in the work. Examples of this can include writing letters to the editor, crafting personal narratives, and being invited to help with systematic literature reviews, which then lead to other projects. The authors of this chapter are clinicians and a librarian—two of us graduated from medical school to see and help patients, and we continue to do so. The other graduated from a school of information and education to help students and residents, like yourself, find the information they need to help patients they care about. This chapter will help clinicians find inroads into academia should they choose to do so. Academia is not for everyone, but we cannot imagine a career where our impact on the future could be greater.

J. E. Rodríguez (✉)
Department of Family & Preventive Medicine, University of Utah School of Medicine, Salt Lake City, UT, USA
e-mail: jose.rodriguez@hsc.utah.edu

K. M. Campbell
East Carolina University, Brody School of Medicine, Greenville, NC, USA

B. Patterson
Spencer S. Eccles Health Sciences Library, The University of Utah, Salt Lake City, UT, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_6

Personal Story – Kendall M. Campbell

I grew up in the rural panhandle of Florida in a town of about 7,000 people. My mother was a school teacher and my father worked in civil service at an air force base. They taught me as a young black man that I would have to work harder than my non-minority peers and that I would not receive identical benefit or recognition. They taught me that I couldn't always do the same things my peers did and get the same result and that I would have to prove my worth at school. They taught me to always remember that I was a black man and that society may not always welcome my presence. Not only that, they taught me that as I advanced in training the learning environments that I accessed would become less and less diverse increasing feelings of isolation and poor fit. In grade school, I was constantly reminded that I was not an imposter and that I belonged in classes with my non-minority peers.

My parents required that I attend a historically black college for undergraduate school to build comradery, network and inclusion. It was encouraging for me to see professors who looked like me and with whom I could relate. After finishing my undergraduate training, I went on to medical school in a less diverse environment, but one that was supportive because of the offices of minority affairs and counseling. Those offices provided me the support I needed to be successful in medical school and I am grateful for them making me feel like a part of the learning environment.

During medical school my earliest exposure to research was an opportunity that I received from the University of Florida Area Health Education Center. This experience occurred around my first year of medical school. I didn't think of it as a research experience at the time as I got the opportunity to go back to my hometown and lead a smoking cessation project with the local health department. The experience was a rewarding one as I got a chance to work with people in my home community, yet it was a challenging one as I was really early in my training and knew little about research in terms of process and outcomes. Although that was the case, the experience taught me the importance of giving back to those coming behind me and offered me the opportunity to impact the lives of those I shared community with by helping many with smoking cessation. Mentorship was critical to my success as a summer student at the health department. I was mentored by the physician lead who would take me to lunch and share with me about life as a physician. He was a retired otolaryngologist with a very welcoming and easygoing personality. He helped me organize my project, guided me through relationships with those at the health department and really helped me understand the benefits of mentorship in the community setting, even my home community where I knew most people.

My academic career has been a mix of clinical, teaching and administrative responsibilities. I was initially focused on clinical work with research and scholarship not being given much thought. I learned later about the minority tax and that academic medicine was designed that way for minority faculty; that we serve more often in the clinical care role than in the role of scholar or researcher. After learning this, I forced my evolution as a faculty member through seeking mentorship and leadership development. I co-founded and co-directed a research center with Dr. Rodríguez focusing on recruiting and retaining underrepresented minorities in academic medicine. Although I mostly serve in an administrative role now, I continue to research and find scholarship opportunities through directing the Research Group for Underrepresented Minorities in Academic Medicine at the Brody School of Medicine at Eastern Carolina University.

Personal Story – José E. Rodríguez

Both of my parents are Puerto Rican, but I was born in New York. I was raised in a very Puerto Rican home, as my parents tried (like many who left the island for the mainland) to reproduce Puerto Rico with food and experiences for us. My siblings and I were also taught Spanish by our parents, even though we spoke English to each other. My family moved to Miami when I was 14 years old. This experience solidified my Latinx identity, as we were surrounded by Latinx peoples, primarily from Cuba, Nicaragua, Colombia, Mexico, and

Puerto Rico. I attended college at Brigham Young University in Provo, Utah. It was my first experience in what was then a Latinx desert—with all of its negatives (frequent micro-aggressions, false assumptions and expectations, and bad advice) and positives (genuine curiosity about my family and culture, support from exceptional minority student advocates, and a beautiful landscape). I wondered about my Latinx identity, and even took some time off to live and volunteer in Paraguay. When I returned, I worked to graduate with honors. My thesis was entitled, "I'm not white: Opposites in Mainland Puerto Rican Culture." It was fun to write, but it was also a self-serving investigation into my own Puerto Rican identity. This identity exploration continued through medical school at Weill Cornell in New York City. I struggled through every year of medical school, and were it not for the Minority Affairs Office (Drs. Ballard and Wilson-Anstey) I would not have survived. I learned there what patients faced in terms of discrimination and health disparities, and I committed to work with underserved Latinx communities for the rest of my career. I took a residency in the Bronx, at the Residency Program in Social Medicine. When I arrived, it was like coming home. I still remember the comfort I felt, having Latinx teachers, patients and staff (New York Puerto Ricans even). I no longer had to code switch—if the thought was in Spanish, I could express it in Spanish, and vice versa. Everyone understood. It is a comfort that I have also sought to reproduce throughout my career.

My earliest research experience was in data collection in an orthopedic surgeon's office. They were composing a paper on the procedures performed most frequently, and it was my job to find that information in the paper charts. That was during my first year of medical school. When I was done collecting data, they thanked me—but I never heard anything after that. Later in medical school, I worked with a community provider on a no-show prevention project. We surveyed hundreds of patients, and then looked at the data. The data told us patients thought mail reminders would help them keep their appointments. We made a change in how we reminded patients, but again, no manuscript. This was frustrating to me, namely because it was a research elective, and I learned an important lesson—my attendings and supervisors were working on a quality improvement project, whose goal was to improve the no-show rate. There were no goals for sharing this information. I learned that we needed to have the goals for sharing the knowledge at the beginning of the project—not the end.

In my second year of residency, however, things changed dramatically. I began working with a mentor, Dr. Matthew Anderson, who conducted research on HIV in Guatemala. I remember saying to him in the hallway one day, "Matt, let me know about the next time you go to Guatemala, I think I would like to go." Dr. Anderson heard me, and he went to our chair, Dr. Peter Selwyn and arranged for funding for me to accompany him to Guatemala City. I stayed there for three weeks, and we collected data on HIV infections. At the time, we were witnessing the revolution that HAART was in the United States—but those medications were not available in Guatemala. My job was to go through the paper note books, determine which admissions were for HIV or related infections. When I returned, Dr. Anderson asked that I keep the data, and make a chart for the paper, as well as review the paper. I was tasked with submitting the paper as well—I remember getting a floppy disk, and an insured envelope and sending a physical copy to the journal. It was eventually published as "The Emergence of AIDS in Guatemala: Inpatient Experience at the Hospital General San Juan de Dios" in the International Journal of STD/AIDS. After that, I was hooked!

I began my academic career as a full-time family physician. After one month in clinic, I was asked to be the site director for medical student teaching. My experiences teaching students in clinic led me to seek more opportunities to teach. I learned early that teaching was fun—and I wanted students to have a good experience in medical school. I hope I was able to provide that for them. I taught students in small group settings and eventually decided to teach medical students full time. In my passion to teach others, I found my passion for research. I found I could conduct research and publish academic articles with students. In time, I progressed from assistant, to associate, to full professor, and am now at the University of Utah Department of Family and Preventive Medicine. I also serve as the

Associate Vice President for Health Equity, Diversity and Inclusion for the University of Utah Health system.

My research started in care for underserved populations, especially diabetes and obesity treatment. After some changes in location and resources, I switched to doing research on underrepresented minority faculty in academic medicine, which is research that I have continued to pursue at the time of this writing. It was with Dr. Campbell that I was able to articulate my goals and work in this space. The research center that we founded was very helpful to continue this work.

Personal Story – Brandon Patterson

As an academic librarian, I serve as support for research and scholarly goals of learners, including ones like yourself. Academic institutions provide ample resources to help young researchers and librarians like myself are called on to help students with many aspects of the research process including literature searching, data curation, citation management, and scholarly publishing. By working in a health sciences library, I've become familiar with the medical field and provide added knowledge and expertise about the scholarly process to support the research community on campus. I find helping future and current doctors find the information they need quicker and easier helps support their research so they can get back to what they're good at – saving lives. I spent much of my childhood in city libraries checking out books, movies, and music that fed my innate curiosities. With having no family or acquaintances in the medical field, it was through books that I first learned about the body, its functions, and the ways medicine can be used to heal. It was through movies that I engaged in conversations around ability and disability. It was through music that I thought about alternative ways of healing.

As I get older, I continually try to better understand medicine through stories that are different from my own. The book, "When Breath Becomes Air" provided insight into important end-of-life decisions by an Indian-American neuroscientist. "The Immortal Life of Henrietta Lacks" sheds light onto the trust physicians have with their patients and how easily that trust can deteriorate when transparency isn't a priority. And looking beyond books, I can see ways the library is providing stories in new ways using technology. Articles are now available at my fingertips using health sciences databases like PubMed and UpToDate. I can embody a patient through virtual reality in Embodied Labs and begin to better describe what it feels like to have macular degeneration or loss of vision. I am excited about the role the library plays in research and will include insights into this chapter for ways to best utilize resources available for you to succeed.

What Is Research?

Research is multi-faceted, involves a high level of curiosity and is often aligned with passions and values you may already hold as a student, teacher, and community member. Research often aligns with personal and professional interests. We want to share some of our experiences and challenges to conducting research to better help you in your academic journey. Research and scholarship completed during medical school or residency can help build a foundation for a career in academic medicine [1].

What Research Interests You?

There are several types of research that may be more meaningful than others based on your personal and professional interests. For example, you may be more inclined to do biomedical research because of a lab project you had in a science class, while

others may be interested in educational research or community-based participatory research because of their passion to serve a community they are a member of. Others might find themselves attracted to several research types and that's okay too. It is important to reflect on your experiences thus far in academia, where you've found yourself leaning towards in terms of interests, and who you lean on for mentorship.

Consider the following questions when considering the type of research to pursue:

- Is there an area in my field I'm drawn toward? Would a specific research type better complement the field I am interested in working?
- What questions do I have that can get at how medicine works, who the patient population is, or how medicine affects specific populations?
- What types of research have I done and what did I like or dislike? What were some of the successes and challenges in participating in research?
- Who do I know who can help me with my academic career? Or who can I reach out to and find help?

Types of Research

There are several research types you may be drawn to in your medical career. For new clinicians who recently graduated from medical school, you will likely be provided opportunities to take part in the types of research discussed here. They are: basic science, clinical, health services, community-based, and educational research. Typically, new medical school graduates have only been exposed to basic science research in their education. However, the other types can provide a different perspective on what research can offer and we recommend exploring them. Virtually any medical student or resident can find a subject of interest within the categories described below – sometimes it just takes asking how to get involved.

Common Types of Research and Scholarship

- *Basic Science Research*: This is research you might be most familiar with as you've probably done it in science courses. It is also called 'bench research'. It is conducted to increase knowledge and understanding of the physical, chemical, and functional mechanisms of life processes and disease. Basic science research promotes better understanding of fundamentals in science. It involves observing, describing, measuring, and experimental manipulation. It provides the building blocks upon which the other types of research (applied and clinical) are based. A basic science researcher seeks to add to the store of knowledge about how living things work. A basic science researcher's experiments add pieces to the immensely complex puzzles of life [2].
- *Clinical Research*: This research has the most impact on the patient. It takes place in a clinical setting and is focused on treating specific human and/or animal

diseases. Clinical research builds upon the knowledge learned through applied and basic science research. Clinical research is conducted on human beings and takes shape in treatments and drugs that directly improve human healthcare [2].

- *Health Services Research*: A multidisciplinary field that involves pharmacists, nurses, health workers, and other disciplines. It uses scientific investigation to study how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality, safety and cost of health care, and ultimately our health and well-being. The research domains it covers are individuals, families, organizations, institutions, communities, and populations [3]. Two areas of health services research that have gained considerable attention are patient safety and quality improvement. Patient safety research produces solutions and interventions for safer care. It translates research findings into improved practices and policies [4]. Quality improvement is the combined effort of everyone in a healthcare system to make changes that will lead to better patient outcomes (health), better system performance (care), and/or better professional development (learning) [5].
- *Community-Based Participatory Research (CBPR)*: CBPR research is a partnership between researchers and community leaders. By having the support of community leaders, the members in that population have shown more support and willingness to participate in research. In this type of research, both researchers and community members contribute to the expertise and development of the research. CBPR affords trainees the opportunity to investigate issues of particular concern for a particular community through surveys or interviews providing direct contact with community members. Further, this type of research provides opportunities to design place-based intervention targeting specific areas of vulnerability within a community (e.g., food deserts). Opportunities in CBPR can help you fulfill your sense of service to your community while preparing you with the fundamental skills to pursue a career in academic medicine [6].
- *Educational Research*: This research includes investigation or research of learner assessment, curriculum development, educational mentorship or advising, educational leadership and administration, and/or teaching activities, impact of educational interventions in patients' outcomes, and workplace-based educational assessments. Educational research also affords an opportunity to work in teams, including multi-institutional teams, whereby individuals with different skill sets can work collaboratively to complete scholarship with potentially greater reach.

Methodologies in Research

Research methodologies can be divided into three types: quantitative, qualitative, and mixed methods. For the most part, medical schools will briefly touch on a few of these, and the individual student will have to study on their own (and ask for resources from the library) to learn more about them. The type of research methodology that will be most familiar to medical students will be quantitative, as that is most frequently used to support clinical decision making.

- *Qualitative Research* describes the type and quality of a subject, while interpreting and attempting to understand an event. By using narrative descriptions (e.g., quotes), the purpose of qualitative research is to give someone a picture of what the researcher is understanding. Examples of data collection include focus groups, interviews, or observation.
- *Quantitative Research* typically uses numbers to test hypotheses and make predictions by using measured amounts, ultimately describing events using tables, figures, and graphs. Examples of numbers can be age, temperature, blood pressure, number of drinks in the past month, etc.
- *Mixed Methods Research* uses both quantitative and qualitative methods to investigate and describe phenomena.

All of these methodologies take patience and practice to get right and take time to complete. Sometimes, when there is no way to quantify an effect (or find data represented), qualitative methods can be used. Frequently, qualitative methods reveal more questions and can be used to inform further research. Qualitative methods are time consuming, and many people are needed to conduct, transcribe, and read the interviews. Interviews then need to be "coded" and common themes need to be identified. Qualitative research is where we got our start, and we have used it to inform more qualitative research.

In qualitative research, data sources can be difficult to obtain. New graduates can create their own data by designing and implementing a study, but many busy clinicians do not have the ability to do so. We prefer to perform quantitative research from existing data sets. We have used data from the Association of American Medical Colleges (AAMC), state or federal data, and other sources to try to understand what is happening to racial and ethnic diversity in academic medicine.

What Are the Steps to Succeed?

The clinician authors of this chapter have seen success and failures in research projects. An example of an early experience in our careers is included here to illustrate that the path to success is not always straight forward. Earlier in our careers, we had a student that was interested in hypertension in the Black or African American population of the United States. We performed a literature search, and then designed an intervention using home blood pressure monitors. We incentivized patients to participate in the study: All participants would get a new home blood pressure monitor upon completion of the study. The project received moderate funding, and we began the experiment. Our hypothesis was that patients who had a home blood pressure monitor would record their blood pressure more often than patients who did not have one. The study lasted 6 months, and we had a control group and an intervention group.

In the end, attrition from the experimental groups was so great that we were unable to make any conclusions about the home blood pressure monitor, nor could

we publish any data from the intervention arm of the experiment. However, because there was a large amount of demographic data that was recorded on the intake sheets, we were able to publish a different paper based on the cardiovascular health practices of black patients in an urban underserved clinic [7]. The following steps can help you avoid pitfalls in ensuring your success in research.

Step one: Analyze your personal and professional interests Begin by writing down what interests you currently have and where you see yourself in 5 years. Reflect on where you have been and where you are going. Also consider possible hurdles you have faced and what you definitely don't want to do as a scholar. What stands out in terms of topics? Are you finding a theme? From this, you might be able to write a research question that can be investigated and refined as you continue to get further in the process.

Step two: Have a clear understanding of the purpose and goals of the research project After writing a research question and reflecting on your personal and professional interests, you might find a research project or have one in mind. Upon investigating research opportunities further, ask questions so that you understand the purpose and goals of a research project. If they are not clear, see step 4.

Step three: Is there alignment between your interests and the nature of the research project? This is the decision-making moment. Do your interests align with the goals of the research project? If so, think of ways you can get involved with the research and propose possible ways to contribute. If not, look at other options that may fit your interests or goals more closely.

Step four: Seek mentors Medical school is a time when you are surrounded by excellent researchers and mentors. The first step is to identify a mentor to help you with your career goals. As academicians, we chose medical school education as a career because we want to be mentors. Early identification of a mentor is important and necessary for your success. Do not try to start an academic career alone. If you don't already have a mentor, try looking for one in your medical school or residency program. You can also browse school websites, Twitter or other online avenues to find someone. You can also look at what that scholar has been writing through a quick search of their name on PubMed or Google Scholar.

Step five: Search for potential financial support if applicable (such as scholarships and grants) Many existing research projects already have faculty and funding attached. If not, there is funding available for projects proposed by students or residents. Often times, a university research office would have resources to look through. You might also consider opportunities through the AAMC such as the Medicine in the Community Grant Program or Medical Student Scholarship.

There are also opportunities through community-specific or region-specific organizations like the Latino Medical Student Association or the Student National Medical Association.

Step six: Be clear about the desired outcomes within a time period Know that research takes time–even a whole academic career can be built around one research question–so try not to overwhelm yourself with a single project. It would be worth it to decide which area of the research you're interested in and focus on that. This can also be a great opportunity to learn or build upon skills you can apply as a future academic physician.

What Are the Basic Skills Needed to Succeed?

There are several skills you'll continually develop as a scholar in the field of medicine. These skills aren't learned overnight but rather something to be practiced, honed and refined. Researching involves putting yourself out there and being willing to fail. It is worth reaching out to others, whether it be friends, colleagues, classmates, or use social media to find out who else is conducting similar research and ask for advice. It is also worth sharing your own accomplishments and discoveries in person or over social media as well as maintain a professional page so you can begin to build a network of supporters and a professional identity. We list a few skills we'd recommend building below for ways you can develop and implement a research project as well as disseminate your findings.

Literature Searching One of the basic skills you can learn as a practicing researcher is how to sort through information and find relevant and current evidence that may strengthen an argument you are wanting to make. Depending on the resources available at your institution, you may have access to a plethora of databases indexed by medical professionals that lead you to legitimate sources of information. PubMed, a database of articles indexed by the National Library of Medicine, is a great way to start exploring terms and topics in which you might be interested. Looking at Medical Subject Heading, or MeSH terms, is a great way to get a sense of the literature in areas of medicine and what research is currently being done in the field. Your mentor may be able to assist you in finding keywords or MeSH terms to use in a search. A medical librarian can also assist in this process and in addition, can help you conduct literature searches, manage your citations, and help walk you through other information resources provided by your institution.

Generate Hypotheses and Formulate Study Questions After a quick review of the literature, your mentor will guide you through formulating a study question and hypothesis. They might even have one in mind that you can work from to develop your own.

Study Design and IRB Submission Consider the methodologies mentioned earlier in this chapter and discuss the possibilities with your mentor. This can often be one of the most challenging portions of research and you may have to take additional training or classes to gain more skills in this area. Know that you must describe your study in full detail and learn the rules first – especially if wanting to include human participants, which does require approval through your institutional review board (IRB).

Recruitment and Data Collection In this step, you'll be recruiting participants (if necessary), building a team, creating surveys, developing pre- and post-tests, and collecting feedback. This process is usually time consuming and takes careful preparation. Consider a data collection software that may assist you in this stage of the research process.

Empirical Analysis For quantitative data, it is required to know statistics software like SPSS, STATA, or Excel. For qualitative data, it may be worth exploring NVivo or other software. If unfamiliar with statistics software consider finding a statistician as part of the research team. We've had success in going back over previously collected data with a statistician to come up with additional published works.

Interpretation and Writing Your mentor can help guide you through the interpretation of data and provide some venues (or journals) to present the research to colleagues, patients or the general public. It may be worth investigating where your mentor has published and possible avenues for publication before getting too far along in the writing process. As first-time authors, we've had success writing literature reviews, personal narratives, and letters to journal editors as first-time writing opportunities. It may be worth doing this as part of the research process – just be sure to draft a timeline for yourself so you can finish projects and ultimately publish.

Poster and Oral Presentation An important thing to remember about the research process is that it's all about sharing what you've found with others. Your findings may have the power to change care for patients, influence policy makers, or teach a lay audience about a new topic. You can often get there by delivering your findings at a conference either through a poster or an oral presentation. This is a way many medical students first gain exposure to the academic world and can gain great contacts that will last throughout your academic career. Have a conversation with your mentor about possible conferences to present at and any advice they would have during the proposal process.

Manuscript Preparation and Submission This should be the final step in a research project and may extend past medical school or residency on some projects. Consider writing a letter of interest to the editor of a journal in which you would like to be published. Lean on a mentor to help you in this process and know that it's okay if your journal submission is rejected. Many of our first works got

rejected, but the process improved our writing and produced better scholarship. If rejected, read the reveiwers' comments and carefully consider which changes to make. If a journal took time to respond, appreciate their suggestions and don't get discouraged. Immediately consider alternate journals, make changes and re-submit as soon as you can. The worst mistake you can make is to not re-submit your manuscript. You can do this!

Next Steps

Research and producing scholarly output is ongoing and rewarding. We've built great connections with other faculty over the years who respect our scholarship and we see the impact the research we've done has had in our respective fields. We could not have made it to where we are now without our mentors. Mentors assisted in literature searching, research project support, and writing skills that we've transferred to our other scholarly work. We hope the steps and skills provided in this chapter can help you in your own scholarly endeavors.

Research is not for everyone, though when offered a faculty position, you can decide which track you want to take and whether you do more or less research in your role. We, as doctors, consider ourselves clinicians first, and we graduated medical school to see patients, and continue to do so. But we feel the research and teaching we do is a seminal part of who we are and makes us better clinicians. When deciding how much research you want to do as faculty, consider that each institution has their own tracks and you can decide which one suits you best. Tracks differ depending on institution, but typically are referred to as a clinician-researcher, clinician-educator, or professional practice. All tracks offer research participation, but the clinician-researcher affords the greatest allotment of time toward research, usually making up more than half of your time and requires the greatest amount of research productivity. If choosing to take the clinician-researcher track, it may be worth negotiating with your first employer financial support to help grow your research. We wish you great success and continued endurance during these formative years of your life!

To further prepare you for scenarios in the field of research, we've included sample cases adapted from a presentation entitled "Introducing Trainees to Medical Education Activities and Opportunities for Educational Scholarship" on *MedEdPortal* [8].

Sample Cases

Case 1

Michelle is a first year medical student and she is planning for her summer. She previously worked in a lab and on a clinical drug trial in college. She has developed a working relationship with a gynecologist, Dr. Pérez, and is interested in conducting research work related to HIV and women of underserved groups. After

reflecting on her experiences and discussing possibilities with her mentor, Michelle has decided on choosing between two research opportunities:

- Option one: To work with Dr. Pérez on an existing project that utilizes a quantitative dataset to explore health care beliefs of pregnant Latina women.
- Option two: To create an innovative project of her own, where she could plan the research steps from beginning to end tailored to her career goals.

Now consider the following Pros and Cons for each of the options listed above.

- Option one: Pros
  - She has prior experience with lab work and a drug trial but has not had behavioral research experience.
  - She is interested in Ob-Gyn related research on women of underserved groups.
  - The project has already been started and therefore the student may be able to achieve an abstract or manuscript in a short period of time.
- Options one: Cons
  - The study group may already have all of the key players needed and she may have a difficult time advocating to serve as a co-author on future presentations or publications.
  - She was not a part of the process of developing the question, submitting the IRB or collecting the data; important skills to eventually develop your own project.
- Option two: Pros
  - She can plan an Ob-Gyn research project related to HIV and women of underserved groups.
  - She will help develop the project right from the beginning, providing her with the training to formulate a research question and determine the best research methodology.
  - In creating her own study she is well positioned to be first author on a presentation or manuscript.
- Option two: Cons
  - She will need to identify research mentor(s) and statisticians willing to help her in developing, implementing, and writing up her project.
  - The development, implementation, and write-up of findings will take much more dedicated time than if the data was already collected.
  - She will have to identify resources to support the project.

If you were Michelle, which option would you select and why?
Discussion:

If you chose option one:

- *In this scenario, Michelle was able to publish findings on the community she's interested in, pregnant Latina women. To prepare her for research, she gained fundamental skills in data analysis and writing up main findings. These are important skills for an academic clinician to achieve before beginning an*

independent career. She was also able to complete an abstract that was accepted for an oral presentation, which is seen as a valuable form of scholarship.

If you chose option two:

- *Michelle's research experience spanned over a longer period of time but she was able to build skills related to designing and implementing the study. She wrote up her research project and was able to present her findings at a well-respected institution, the Centers for Disease Control and Prevention.*

Each of the options carry weight as steps in creating a portfolio as a researcher. These options may work better for some individuals. It's important to come up with a good timeline of what you want to achieve and tailor opportunities to your own professional and personal interests and goals.

Case 2

Edgar has finished medical school and is advancing into residency. He has had moderate presentation and publication success in medical school and has matched in Internal Medicine. He is interested in research and wants to build a research identity in heart disease within communities of color. He has met with a mentor and has expanded his network of colleagues in this research area and is considering next steps.

- What advice would you give Edgar?
- Where would you recommend he turn to for continued support in developing his research identity?
- What opportunities should he discuss with this person?

Discussion: It would be wise for Edgar to discuss opportunities with his previous research collaborators, mentors and reach out to possible future collaborators, especially if he moves to a new institution. From there, he could further research projects already invested in. He could serve as a co-author on a poster or oral presentation or co-author on a manuscript or future grant application. Edgar should also inquire about funding supplements for junior investigators so that he could develop his own project.

References

1. Jeffe DB, Yan Y, Andriole DA. Do research activities during college, medical school, and residency mediate racial/ethnic disparities in full-time faculty appointments at U.S. Medical schools? Acad Med. 2012;87(11):1582–93.
2. Biomedical Research Definitions, NJ Association for Biomedical Research. http://statesforbiomed.org/education/background-on-biomedical-research/biomedical-research-definitions/. Accessed on August 10, 2017.

3. Lohr KN, Steinwachs DM. Health services research: an evolving definition of the field. Health Serv Res. 2002;37(1):7–9.
4. Patient Service Research: A Guide for Developing Training Programs. World Health Organization. 2012. http://apps.who.int/iris/bitstream/10665/75359/1/9789241503440_eng.pdf. Accessed on January 22, 2017.
5. Batalden PB, Davidoff F. What is "quality improvement" and how can it transform healthcare? Qual Saf Health Care. 2007;16(1):2–3. https://doi.org/10.1136/qshc.2006.022046.
6. Sánchez JP, Peters L, Lee-Rey E, Strelnick H, Garrison G, Zhang K, Spencer D, Ortega G, Yehia B, Berlin A, Castillo-Page L. Racial and ethnic minority medical students' perceptions of academic medicine careers. Acad Med. 2013;88(9):1299–307.
7. Campbell KM, Rodríguez JE. Cardiovascular health practices among black patients in an urban underserved clinic. J Natl Med Assoc. 2016;108(1):40–4.
8. Paredes Molina CS, Spencer DJ, Morcuende M, Soto-Greene M, Culbreath K, Corsino L, Sánchez JP. An introduction to research work, scholarship, and paving a way to a career in academic medicine. MedEdPORTAL. 2018;14:10686. https://doi.org/10.15766/mep_2374-8265.10686.

José E. Rodríguez, MD, FAAFP Associate Vice President, Health Equity, Diversity & Inclusion, University of Utah Health Sciences Campus, Professor, Department of Family & Preventive Medicine and Associate Medical Director, Redwood Health Center

Kendall M. Campbell, MD, FAAFP Senior Associate Dean for Academic Affairs and Director of the Research Group for Underrepresented Minorities in Academic Medicine at the Brody School of Medicine at East Carolina University

Brandon Patterson, MSI, MA Technology Engagement Librarian, Eccles Health Sciences Library at the University of Utah

The Significance of Mentorship

7

Gezzer Ortega and Margaret S. Pichardo

Personal Story – Gezzer Ortega

Mentorship has and continues to be paramount to my journey in academic medicine. Growing up in Brooklyn, NY as a first-generation Latino to Dominican parents has provided a sense of doing more with less throughout my life. The biggest challenge early on was getting exposure and access to physicians. After graduating from Brooklyn Technical High School as a Computer Science major, I pursued the pre-med track at Syracuse University. Despite following a predetermined track to medicine, I was unsure how to approach applying and matriculating into medical school. Support programs like the Collegiate Science and Technology Entry Program (CSTEP) and summer programs like New York University's Summer Undergraduate Research Program and Weill Cornell Medicine Medical College Travelers Summer Research Fellowship Program, were my first sources of mentorship and guidance to the medical school application process and my first exposure to physicians.

As a college student, I did not know what academic medicine was. All I knew was that I loved the idea of seeing patients, doing research, and teaching. Since then, I have been committed to a career as a physician-scientist, despite the obstacles and challenges I faced as a young, Latino male from a low-income family. In spite of having the support of staff and faculty at my college and summer programs, I knew I lacked mentorship from an academic physician. This did not deter me from applying to medical school. Because of my perseverance, I was accepted and enrolled at Howard University College of Medicine (HUCM).

It was during my third year of medical school that I met academic physicians who would invest in my career and change the trajectory towards an academic journey. It was after my surgery rotation, I approached my mentor. He is the first physician in his

G. Ortega (✉)
Center for Surgery and Public Health, Brigham and Women's Hospital, Boston, MA, USA
e-mail: gortega1@bwh.harvard.edu

M. S. Pichardo
Center for Surgery and Public Health, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Howard University College of Medicine, Washington, DC, USA

Yale School of Public Health, New Haven, CT, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_7

family and from a UIM group. He assigned me a research project, on which I learned to conduct clinical research. After several meetings, I asked him formally to serve as my mentor and he was excited to do so. I would meet another mentor through a research collaboration that came out of that first project. I was interested in pediatric surgery and had little exposure at my institution. I was able to meet a surgeon at Johns Hopkins who was a friend of the collaborator I worked with. These mentors taught me the research process and, as a third year medical student, I achieved my first publication in a peer-reviewed journal. That year, I also pursued a funded research fellowship through the support of both of these mentors, in which I obtained my Master of Public Health at the Johns Hopkins Bloomberg School of Public Health. Together, these experiences solidified my foundation for a career in academia. I would go on to pursue general surgery residency at HUCM, conduct various research fellowships, and align myself with excellent mentors along my journey. During this time, I published over fifty peer-reviewed original manuscripts, collaborated with experts in health disparities and health services research, obtained funding, and mentored students through their journey in medical school.

Now, as a faculty member at the Center for Surgery and Public Health at Brigham and Women's Hospital/ Harvard Medical School, mentorship continues to be my principal drive, as I strive for a successful and meaningful career in academia. Currently, my mentors provide guidance on early career development awards, help me make decisions on future opportunities, connect me with research collaborators, experts, and leaders in diverse fields, and above all, are present through my failures and successes.

Personal Story – Margaret Pichardo

I fell in love with medicine when I was in my junior year of high school at Manhattan Center for Science and Mathematics and undertook an internship at NYC's Mount Sinai Hospital's morgue. I shadowed physicians as they cut into people's bodies and carefully, one at a time, retrieve organs I had only seen in textbook pictures. Since then, I knew my calling was in medicine, I was just not sure what type of doctor I would be, until after graduating from college. The first summer after becoming a recent college graduate, I worked as an intern under an Epidemiologist at Albert Einstein College of Medicine. My experiences during that summer were critical to my development as a physician-scientist. I met and eventually worked with over the course of 4 years, with one of the greatest mentors I've had. Through this mentor, I learned to marry my passion for the study of people through a humanities lens with the study of people in the gross anatomy lab. I discovered the field of public health/epidemiology and realized that my calling in medicine was to fight diseases that affect people of color in underserved communities, like the one I grew up in. My mentor taught me about the research process including how to collect data, critically assess academic literature, and write a literature review (the review was my first publication!). Most importantly, like my mentor, I ended that summer determined I would also become an epidemiologist. This newly found goal, coupled with my interest in medicine, motivated me to pursue the physician-scientist career track.

Later, as a medical student at Howard University College of Medicine, I actively sought mentors, one of whom was a resident at the time (the next phase of my career) and who would provide precise academic coaching and help me avoid pitfalls through medical school.

As you could tell from our stories, having different and/or multiple mentors through different stages of our career trajectories enabled us to get involved with research, to navigate the medical school and residency application system, to find funding opportunities like grants and fellowships, to publish in peer-reviewed journals, and to identify job opportunities at your best fit institutions. Our mentors have been instrumental in helping us find our research niche and coupling that to clinical medicine.

Introduction

The concept of a mentor can be traced as far back as Homer's *Odyssey,* where young Telemachus was given an adviser named Mentor [1]. From that, the definition of mentor as an experienced and trusted advisor developed. Mentorship has evolved significantly and is now recognized as one of the most important factors in determining career success; mentoring relationships have been cited as important in career selection, advancement, and productivity [2–4]. Training in medicine has been rooted in the apprenticeship model. The adage of "See One, Do One, Teach One" demonstrates the role of senior faculty/staff in training their medical students and residents. As the field of medicine evolved into an evidence-based practice, the traditional mentor's role as a teacher has broadened to serve as a facilitator of information. The mentor provides intellectual capital to help develop your scholarly productivity, clinical expertise, and vision.

For some trainees, the lack of a mentor may stem from never considering one, lacking information on how to find one, not knowing the benefits of a mentor, or not communicating effectively with one [1].There are specific reasons why mentors are critical to your professional development. Mentors are often the key to opportunities like leadership positions, full-time jobs, research collaborations and networking, helping you publish, and writing letters of support. Mentors, specifically those who are physicians, can guide you to choosing a medical specialty or subspecialty and help focus your research to be clinically relevant.

Mentors and mentees have the flexibility to communicate via various forms of media to exchange information, advice, and guidance. If you leverage today's communication tools, your pool of potential mentors is no longer limited by geography or proximity. With tools like video conference calls and social media, you can establish and maintain a successful mentor-mentee relationship and enhance your chances of finding a mentor with similar identities. In various medical fields, the sharing of scientific information and literature is encouraged through platforms like Twitter and Facebook. Following and engaging in discussion through these platforms with physicians and researchers in your area of interest can be one way to identify a potential mentor. For example, medical professional meetings and conferences often have a hashtag. Even when you are not able to attend the meeting, following the hashtag enables you to interact with academicians at the meeting. This is a unique opportunity to engage in dialogue about the workshops or articles they shared on social media and potentially spark a new collaboration.

Not all mentors are created equal. Mentors who are at least one step ahead of you in the medical track can provide insights, from personal experience, to the next phase of your career to help you avoid pitfalls. Sponsors differ from mentors in that these individuals may be several steps ahead of you in the medical career trajectory and can leverage their position to leap frog or promote you (i.e. recommend you for promotion or a leadership role). Coaches or advisors play a role in maximizing performance and focusing on the granular details to enhance efficiency, productivity, and output. A coach or advisor may assist you with figuring

out a career timeline, advise you on coursework and extracurricular activities, help you organize your academic schedule, and assess your academic performance along the way. Coaches may also be research advisors who help you hone your writing and analytical skills. They may be part of or lead writing accountability groups to facilitate focused manuscript writing and increase scholarly productivity. Some individuals may serve more than one role for you (i.e. someone who is a coach and a mentor) or your relationship with someone may evolve from one role to another (i.e. a long time mentor who eventually becomes a sponsor). Regardless of how you structure your mentor network, make sure all your bases are covered.

We recommend forming a mentorship team, where each mentor fills a need. Not only does this allow you to obtain tailored advice, it mitigates shortcomings in any one of the relationships. For example, one individual may serve as an excellent clinical mentor but have little experience with research grant writing. In this case, we would suggest that you find a second mentor who has a track record of obtaining grants and can help you identify appropriate funding opportunities, provide feedback as you draft your grant, and help you navigate the submission, revision and, if you are not funded on the first attempt, could offer guidance when you reapply. In this regard, it is essential that you have a clear idea of the specific areas in your career that need development and for which a mentor, with that expertise, may serve a critical purpose.

Mentoring Individuals Underrepresented in Medicine

Mentoring may be a way to address the lack of diverse faculty and trainees at academic medical centers as it provides "an avenue for interaction and camaraderie" amongst students, faculty, and staff who are underrepresented in medicine (UIM; for example, people of color, women, and LGBTQ+). Mentorship, whether through a formalized pipeline program or unstructured relationships, could help fix the lack of representation in medical specialties [5]. Mentors are able to serve as brokers for UIMs when it comes to navigating academic clinical spaces. Like most medical students, UIM medical students face a demanding and challenging medical school curriculum. Unique for UIMs are the added challenges related to their marginalized identities (i.e. lower self-efficacy, imposter syndrome, lower social support) and the lack of role models with similar identities or lived experiences, both of which make it more challenging to navigate a career path in medicine [5–7].

Research suggests that UIMs, unlike their counterparts, have a desire for and perceive value in having access to identity concordant individuals to serve as mentors [5–7].While identity concordance may offer unique benefits in a mentor-mentee relationship, it is not necessary for a successful and productive relationship. It is important, however, that both identity concordant and nonconcordant mentors receive appropriate training to develop UIM students. To give you a more personal example of successful nonconcordance mentorship, take Margaret's various

mentors. Two are male (one identifies as Black and the other as European) and both have been instrumental in her career decisions and scholarly interests and productivity. Margaret, who identifies as Latina, has also received mentorship from various White females who have been instrumental in teaching her about navigating academia and being a woman scientist and an oncologist. Choosing a mentor of a similar identity as yourself is a personal decision. Not being able to find a mentor with similar identities as yourself, however, should not be a limitation to establishing strong and lasting mentorship relations.

Benefits of Mentorship

Academic medicine is challenging for someone without the familiarity with the usual benchmarks. Finding the appropriate mentorship to guide you through this path will contribute to your success. Because academic physicians are expected to undertake research, teaching, patient care, and/or service, mentors help you identify and build foundational knowledge and skills. An effective mentoring relationship facilitates the formulation and "realization of a person's own dream" [8] through an evolution of personal growth and development [9]. In addition, mentors can help push your goals beyond what you thought possible by encouraging you to take risks, learn from mistakes, and re-evaluate failures as learning experiences.

Maximizing the Encounter

In academic medicine, time management is paramount to success. Both your mentor and you will have limited time. As such, you want to optimize your encounters to be productive and effective. Two important factors will help you maximize your mentorship encounters. First, we recommend that you adopt a goal-oriented perspective, set clear career goals and objectives for yourself and a specific timeline. In your first encounter, you should discuss your goals and timeline with your mentor to establish a baseline from which to work from. Second, leave your first encounter with an established regular meeting time (e.g. set a standing meeting). Through regular meetings, your mentor can continuously evaluate your progress, suggest prompt adjustments for milestones that may not be met on time, and allow you to be accountable on the objectives you have set for yourself. To accomplish the above items, we suggest that you develop the following checklist with each mentor and keep them in mind for every encounter (Table 7.1). First, have a clear understanding of the context of the meeting (i.e. what is the purpose of this meeting?). Next, develop a checklist that includes the meeting location, specific goals and objectives, define role in projects, personalization, expectations, regular meeting date/time, and documentation. After every encounter, it is important that you summarize what was discussed, including any feedback for changes or things to follow-up on and share this with your mentor via email [10, 11].

Table 7.1 Effective meeting checklist

Location	A mutually convenient place for the meeting to occur; where you meet and how formal or informal the meeting is, will set the tone for the meeting. As a result, choose a location wisely. Possible locations: mentor's office, coffee shop, available hospital/clinic spaces.
Goals and objectives	The goal for the meeting is the reason why the meeting will occur. Always set a goal so that your meetings are focused and efficient. Since goals are broad, setting objectives will help you highlight points of action that together help you achieve your goal.
History and physical	Do your homework on your mentor. Questions to ask yourself include: What is the area of focus and expertise? What have they published? Do they have current grants and what are the grants in? Have they mentored other students or residents?
Define roles	Alongside your mentor, clearly state what role each of you will have in accomplishing the objectives stated earlier.
Personalization	Share a past personal experience that will allow you and your mentor to connect on shared interests/experiences. (i.e. extracurricular activities in college, hobbies, etc.)
Expectations	Clearly outline common expectations moving forward with an understanding of your own professional and personal schedule.
Timeline	Create a schedule with upcoming deadlines for your predefined objectives as well as relevant conferences, abstract submissions, and grant and scholarship applications.
Summarize	Conclude each meeting with a summary of what was discussed and confirm next steps.
Documentation	Take notes during each encounter to document the discussions, agreed upon tasks, changes, feedback, and next steps. Keep a record for yourself and email to your mentor.

Mentorship Institutional Requirements

The role of a medical training institution is to prepare you for a future in one of the most dynamic and challenging occupations. The field of medicine is continuously changing as new research and technologies revolutionize how we care for patients. For this reason, the Liaison Committee on Medical Education (LCME) and the Accreditation Council for Graduate Medical Education (ACGME) both work to address this as a means to maximize the effectiveness of medical education [12, 13]. However, they have recognized that there are many critical aspects to being a physician that cannot be taught in textbooks, one of which is mentorship. The LCME has 12 standards for which medical schools must operate to maintain accreditation. Of these, the 11th focuses on Medical Student Academic Support, Career Advising, and Educational Records. This standard essentially stresses the important role that effective academic support and career advising plays in helping medical students achieve their career goals. Additionally, such services should be part of each school's medical education program objectives so that all medical students have the same rights and receive comparable services. Furthermore, the ACGME requires that training programs provide individualized learning plans annually and the programs must assist in this process by providing faculty mentorship to help residents create

learning goals. These guidelines work to ensure that beneficial mentorships are being formed between students and faculty so that students have the highest possibility of success in their field of interest.

Challenges of Mentorship

The task of finding and developing beneficial mentorships presents numerous challenges depending on various circumstances. While there are numerous mentorship programs in place in medical education, mentoring groups underrepresented in academic medicine have their challenges both in establishing mentorship and in maintaining it. It is important that these issues are confronted because mentoring can play a significant role in addressing the lack of UIM faculty and trainees at academic medical centers as it provides "an avenue for interaction and camaraderie" amongst underrepresented students, faculty, and staff [7]. A 2010 review by Nivet and colleagues explored the role of mentors of color. The review found that while "mentored residents were nearly twice as likely to describe excellent career preparation; residents [of color] were less likely to establish a mentoring relationship compared to their White peers." While mentoring plays an important role in how mentored residents perceived their career readiness, the study also exposed the difficulty that students of color face in developing mentor-mentee relationships [7].

Mentoring relationships may be challenged by increased clinical, research, and administrative demands on mentors. Thus, it is important to keep in mind the obligations and responsibilities of your potential mentors. Establish a regular standing meeting (i.e. monthly or twice per month), depending on the level of relationship, to secure a dedicated time for you. Lastly, leverage all the communication tools available to you during each encounter. Meetings can occur over the phone, video conference call, and/or in person. Your mentorship relationships may fail due to time constraints and work priorities. If this occurs, have an honest conversation with your mentor if lack of time begins to hinder the relationship and your productivity. Be flexible and optimize your encounter by keeping a clear set of objectives for each meeting (refer to the Effective Meeting Checklist).

All mentor-mentee relationships will evolve over time and challenges that might not have been identified initially may arise. It is important to reassess your goals and timeline. If a goal has changed, a reassessment can help you focus efforts on a new goal. Addressing challenges like these as soon as they become an issue will help you maintain an effective mentoring relationship.

Mentoring Cycle

Ultimately, we would like your mentoring experience to be a beneficial one so that, in turn, you can invest your time mentoring a future student. The expectation is not for you to be as good as your mentor. We want you to take from your experiences and supersede your mentors. By being both a mentee and a mentor, you will know

the true value of the role of a mentor and can support a budding academic physician on their career trajectory as you were once supported. By becoming a mentor and training the next generation of underrepresented in medicine academic physicians, you contribute to diversifying the academic workforce and advancing the field of medicine.

In summary, mentorship is imperative to a successful career in academic medicine. Through this chapter, the tenets of identifying a mentor, building a mentorship team, and fostering an effective mentoring relationship will provide a foundation that will yield a large return on investment. As you work with your mentors to set your career goals, continue the cycle of mentorship and diversify the academic physician workforce.

References

1. Anderson EM, Shannon AL. Towards a conceptualisation of mentoring. In: Kerry T, Mayes AS, editors. Issues in mentoring. London: A.S. Routledge; 1995.
2. DeAngelis CD. Professors not professing. JAMA. 2004;292:1060–1.
3. Sambunjak D, Straus SE, Marusic A. Mentoring in academic medicine: a systematic review. JAMA. 2006;296:1103–15.
4. Ramanan R, Phillips R, Davis RB, Silen W, Reede J. Mentoring in medicine: *keys to satisfaction*. Am J Med. 2002;112:336–41.
5. Yehia BR, Cronholm PF, Wilson N, Palmer SC, Sisson SD, Guilliames CE, Poll-Hunter NI, Sánchez JP. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. BMC Med Educ. 2014;14:26.
6. Kosoko-Lasaki O, Sonnino RE, Voytko ML. Mentoring for women and underrepresented minority faculty and students: experience at two institutions of higher education. J Natl Med Assoc. 2006;98(9):1449–59.
7. Nivet MA. Minorities in academic medicine: review of the literature. J Vasc Surg. 2010;51(4 Suppl):53S–8S.
8. Pololi LH, Knight SM, Dennis K, Frankel RM. Helping medical school faculty realize their dreams: an innovative collaborative mentoring program. Acad Med. 2002;77:377–83.
9. Pololi L, Knight S. Mentoring faculty in academic medicine. J Gen Intern Med. 2005;20:866–70. https://doi.org/10.1111/j.1525-1497.2005.05007.
10. O'Dea NA, de Chazal P, Saltman DC, Kidd MR. Running effective meetings: a primer for doctors. Postgrad Med J. 2006;82(969):454–61. PMCID: PMC2563767
11. Ortega G, Smith C, Pichardo MS, Ramirez A, Soto-Greene M, Sánchez JP. Preparing for an academic career: the significance of mentoring. MedEdPORTAL. 2018;14:10690. https://doi.org/10.15766/mep_2374-8265.10690.
12. ACGME Common program requirements for graduate medical education. https://www.acgme.org/What-We-Do/Accreditation/Common-Program-Requirements. Accessed on 25 Apr 2019.
13. Liaison Committee on Medical Education – Functions and Structure of a Medical School March 2020-2021. http://lcme.org/publications/. Accessed on 25 Apr 2019.

Gezzer Ortega, MD, MPH Instructor, Center for Surgery and Public Health, Brigham and Women's Hospital, Harvard Medical School

Margaret Pichardo, MPH Center for Surgery and Public Health, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Howard University College of Medicine, Washington, DC, USA

Yale School of Public Health, New Haven, CT

Leadership

8

Eneida O. Roldan and Joel Dickerman

"To be nobody but yourself in a world which is doing its best, night and day, to make you like everybody else means to fight the hardest battle which any human being can fight; and never stop fighting." – E.E. Cummings, Poet

Our Stories and Our Paths into Leadership – Eneida O. Roldan

My journey in leadership began with the fortunate opportunity to have a wonderful mentor, my grandmother. She taught me the importance to develop certain "people skills" (emotional intelligence) that carry me to this day. Much of her teachings could be perceived as "common sense" yet very vital to survive today's environment as a woman and especially in the field of health care. Her teachings, together with the innate passion of life-long learning, propelled my career in different directions beyond being a practicing physician, but more importantly helped to adapt to an ever-changing world of health care: the world of VUCA. At every path of my journey, I learned from experience but in addition completed formal learning by returning to school achieving different degrees, all of which, I currently put to use in my daily work. My choice of specialty in Medicine was Pathology. The opportunity to learn disease processes at the core of tissue diagnosis was fascinating. During my residency, I took advantage of all assignments brought to me mostly in academia. In addition, I was able to learn management skills through training in Clinical Pathology. Hindsight, this provided an avenue to understand processes and develop skills as a manager. A Pathologist is the manager of a lab. During training in clinical pathology, I found great interest in diabetes and nutritional disorders, hence why I decided to practice in this area for fourteen years. During this time in practice, I developed skills in public speaking, focused on population health management, and learned the challenge of morbidity cost in our US health-care system. This incited my motivation to pursue formal education and training in Public Health and Business of Health Care. This was accomplished upon my successful completion of the Master of Public Health (MPH) and Master in Business Administration (MBA). I now had different tools in my armamentarium. I have experienced Medicine from

E. O. Roldan (✉)
Florida International University Herbert Wertheim College of Medicine, Miami, FL, USA
e-mail: eoroldan@fiu.edu

J. Dickerman
National Board of Osteopathic Medical Examiners, Inc., Chicago, IL, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_8

many angles: academia, private practice, and management. My journey is a testament to skills built on experience and formal training. It opened doors well beyond the practice of Medicine. Each and every aspect of my journey taught me never to be afraid to say yes to different opportunities even if it means stretching my abilities. I live by value-based leadership approach, which includes leading by humility not fear; to rise in the face of challenge; to be kind to self and others; to laugh at faults, for they make me better; and always stay present for the opportunity to serve. Yes, leaders reach very prominent levels. However, the journey has rainy and lonely paths at times. Lessons learned in the leadership journey are valuable and priceless to those that seek their own answers to becoming leaders in an ever-changing world. The opportunity to be able to give back is humbling. It is a great gift to share my journey with others that can learn from it. The mentee becomes the mentor and passes the baton. Now it is YOUR turn.

Our Stories and Our Paths into Leadership – Joel Dickerman, DO

When I was offered the opportunity to serve as a program director for a family medicine residency program I felt honored and unprepared. I had not received much training in providing feedback to residents or students, and even less as a team leader charged with developing the careers of others. The opportunity helped me to realize serving as a leader required a special set of skills and competencies that would require additional training. Fortunately, I was given a chance to undertake formal leadership training – a program that transformed how I saw myself as a peer and team leader. I learned that being a leader meant I was to work with others in my program to develop a shared vision, and more importantly, to assure my co-workers had the resources and skills to get their respective work done. I was to facilitate change and improvement, not demand it. My opportunity to serve as a program director provided me a means to develop these skills and opened my eyes to ways I could affect a larger scope of health-care delivery. My training and experience has led me to become a medical director for a clinic, a member of a hospital leadership team, and an appointment as a chief medical officer for an accountable care collaborative serving over 160,000 patients. My focus changed from that of a single patient or trainee to serving thousands of patients and hundreds of providers in a way that would positively influence the health and well-being of my community.

Leadership in Health Care

Today's health-care environment calls for a different type of leader with an ability to stretch his or her comfortable patterns of leadership style. Physicians have multiple skills and strengths by the nature of their long academic and training years required to become a physician. Physicians are comfortable to face complexity that requires difficult decision-making in diagnostics and patient care. They care about their patients and, more importantly, have high ethical standards in how they practice. In spite of these attributes, today's physician faces challenges to evolve into a less autonomous environment brought about by the fast-evolving health-care environment. Physician leadership once centered on heading a surgical or patient care team; physicians now lead population-based management teams and serve on management teams for complex health-care systems. New management styles are necessary to combat the regulatory aspects of health care, such as knowledge of reimbursement, health care reform, and other aspects that affect a population. However, management and leadership are not the same. To acquire management skills is more of the *how* to effectively complete tasks in an organization, whereas leadership is the *why* we do what we do in an organization focused not only on tasks but also on people [1].

Health care systems are highly susceptible to rapid changes through demographic shifts, disease patterns, high impact technology, scientific innovation, public policy, and processes that impact the financial viability and capabilities of health systems to meet their mission. These challenges easily align with the *VUCA teaching*. The term defines *v*olatility, *u*ncertainty, *c*omplexity, and *a*mbiguity but more importantly provides us with the opportunity to turn challenges into positive and reproducible outcomes through a counter-balance of *volatility with vision; uncertainty with understanding; complexity with clarity; and ambiguity with agility* [2]. In the world of health care, the future is uncertain. This is not necessarily an unfavorable aspect of the field, but rather implies the need for new types of leaders. The new health care leader is not fearful or resistant in the face of change, but rather embraces change as a means to innovate. The leader is able to apply leadership skills to all aspects of health care, from education to delivery of care.

Leadership Versus Management

Management produces order and consistency, whereas leadership produces change and movement. *Whereas the manager counts value, has circle of power, and manages work, leaders create value, have a circle of influence, and lead people* [3]. Leaders may need to serve as managers at times and managers may need to take on a leadership role, and both roles are vital to the success of a team or organization. Leadership is vital for promoting positive change and continuous improvement, which are essential in the rapidly changing health-care environment.

Leadership Theories

There are many leadership theories that have been studied throughout the centuries. For the purpose of providing those most commonly used, we will focus on four leadership theories: Transactional, Transformational, Situational, and the role of Emotional Intelligence for the leader.

Transactional Leadership Transactional leadership was first described by Max Weber in 1947 and subsequently by Bernard Bass in 1981. This type of leadership involves motivating and directing followers primarily through appealing to their own self-interest. The power of transactional leaders comes from their formal authority and responsibility in the organization. The main goal of the follower is to obey the instructions of the leader. The style is mentioned as a 'telling style'. The leader believes in motivating through a system of rewards and punishment [3, 4].

Transformational Leadership Transformational leadership was first introduced by James Downton and later developed by James MacGregor Burns in 1978. Transformational leadership goes beyond the more traditional style of transactional leadership (which focuses on supervision, organization, and group performance)

and emphasizes that people work more effectively if they have a sense of mission. The transformational theory requires leaders to communicate their vision in a manner that is meaningful, exciting, and creates unity and collective purpose; the manager who is committed, has vision, and is able to empower others and is described as a transformational leader. Transformational leaders are able to motivate performance beyond expectations through their ability to influence attitudes [4].

Situational Leadership Dr. Paul Hersey and Ken Blanchard created situational leadership. Situational leadership style is an adaptive style. The leader using this style focuses on how best to get "buy-in" of its followers observing all existing variables in the environment to reach its goal. It emphasizes leading your team based on the following factors:

(a) Develop people and workgroups
(b) Bringing out the best in people
(c) Uses persuasion rather than negotiation to reach its outcome

This type of style is very useful in crisis, when the leader needs to be vigilant regarding resistance to change from the group. In this manner, the leader is an observer and easily adapts its style of leadership to "bring in" the followers. If used effectively, leaders will identify champions for change from the group [5].

Emotional Intelligence Emotional intelligence (EI) started gaining popularity in the 1990s after Daniel Goleman wrote about superior performance of leaders, in which 67% aligned with their emotional intelligence rather than with their technical expertise. Emotional intelligence is defined by how well we can read others and manage our own emotions. In general, it includes three important skills: self-awareness of own emotions; using emotions for positive thinking and problem solving; and regulating our own emotions and those of others. Leaders that have high EI are said to be successful in creating positive cultures and create a more "human" environment. Vulnerability is a feature of emotional intelligence. This doesn't mean being submissive, but rather being flexible and aware that the logic part of the brain can block our emotions [6, 7] (Table 8.1).

Table 8.1 Leadership styles

Leadership style	Description
Transactional leadership	Motivating and directing followers primarily through appealing to their own self-interest
Transformational leadership	Emphasizes that people work more effectively if they have a sense of mission
Situational leadership	Focuses on how best to get "buy-in" of its followers observing all existing variables in the environment to reach its goal
Emotional intelligence	Defined by how well we can read others and manage our own emotions

Case Studies in Leadership Styles [8]

1. Jeranil was elected as one of three chief residents of her psychiatry residency program 2 weeks ago. Since the announcement, she has been approached by several individuals with requests. An intern has asked her to enhance faculty teaching efforts, a second year resident would like for her to advocate for departmental adherence to resident work hours, and a senior faculty member has asked for her to speak with residents about partaking in more research. Jeranil is feeling overwhelmed by the multiple requests.
   (a) *Which leadership style(s) reflects Jeranil in this case and why?*
   (b) *How can she be a more effective leader?*
   Discussion: Jernil feels overwhelmed by the requests of her peers and her faculty. This is common when employing a transactional approach to leadership – trying to lead by attending to the self-interests of those you are trying to lead. Focusing on a shared vision with her fellow residents (i.e. improving overall resident education) and recruiting them to participate in the development of an action plan can create an environment that is energetic versus *draining, collaborative* versus *self-centered, and innovative* versus *problem-oriented. She has an opportunity to develop leadership skills in Communication and Relationship and Management. Serving as a chief resident provides Jernil the opportunity to develop leadership skills and perhaps continue a career in health-care leadership.*
2. Dwayne has been interviewing medical student applicants for the past 6 months; which he finds personally and professionally gratifying. The Associate Dean of Admissions has been impressed with his critique and write-ups of applicants and has approached him about serving as the medical student representative on the committee. Dwayne is excited because he has a number of ideas on how to increase the number of applicants and matriculants from the surrounding inner-city community and is eager to implement these changes.
   (a) *Which leadership style(s) reflects Dwayne in this case and why?*
   (b) *How can he be a more effective leader?*
   Discussion: Dwayne is demonstrating an Emotional Intelligence approach to leadership. He is self-aware of his own emotions and uses his emotions for positive thinking and problem solving. He is looking to promote diversity and is willing to participate in the development of a plan to increase the number of applicants in the surrounding inner-city. Dwayne has an opportunity to develop transformational leadership skills by helping others to become mission-driven and to develop skills in Facilitator/Vision and Professionalism.
3. Mikaela has just assumed the presidency of a medical student organization. Her members are passionate and she has decided to email her members and ask for suggestions for activities and projects for the year. Soon after sending the email, she received two emails asking to speak at this month's Board meeting about organizing a sexuality workshop at a local college and a breast cancer fundraising walk the following month.

(a) *Which leadership style(s) reflects Mikaela in this case and why?*
(b) *How can she be a more effective leader?*
Discussion: Mikaela is demonstrating a situational leadership approach to help nurture the passion in her medical student organization. She adapts to the situation at hand to encourage others and bring out the best in her team. Her recognition of the passion and emotion of others may help her to develop skills in Emotional Intelligence leadership. The requests of her team can provide Mikaela an opportunity to develop skills in Business and Knowledge of the Health-Care Environment.

Assessing Leadership Style

There are a number of different assessment tools that may provide insight to leadership styles and adaptability. These tools can help individuals to align a leadership style with their own traits and strengths and may help one identify areas of weakness and future development. We will cover three most common tools: the Myer–Briggs type indicator, 360 assessments, and the StrengthsFinder Assessment.

Myer–Briggs Type Indicator MBTI© is an efficient and effective way to analyze personality types and preferences – your own and of others. It is based on the psychological types by C.G. Jung. It gives comprehensive feedback on areas of strength and aspects of one's style. Understanding our personality preferences helps us find the right fit for a job, why we prefer some aspects of the job and not other aspects, helps us in our relationships and communication, and makes us learn better and teach better by adapting our styles in a suitable manner. It offers real insight into our comfort zones as well as zones of discomfort. The assessment indicates your personality type based on: 1 of 16 types. An example would be: E(extroversion) I (Introversion) T (Thinking) J (Judging). Understanding your personality type as well as that of those you work with can improve communication and personal interaction [9].

360 Assessment This assessment first was originally used in the 1950s. By the 1990s, human resource departments were using this assessment as part of the organizational feedback. The 360-degree feedback is a method of systematically collecting opinions about an individual's performance from a wide range of coworkers. This includes peers, direct reports, the boss, and boss' peers – along with people outside the organization, such as customers. The benefit of collecting data of this kind is that the person gets to see a panorama of perceptions rather than just self-perception, which affords a more complete picture. Research clearly indicates that 360-degree feedback systems give a much more accurate picture than self-assessment of what executives really do and how executives actually behave [10–12].

Strengths Finder Assessment The Clifton Strengths assessment is the culmination of more than 50 years of Dr. Donald O. Clifton's lifelong work. It helps

Table 8.2 Leadership style assessments

Assessment	Description
Myer–Briggs type indicator	Provides comprehensive feedback on areas of strength and aspects of one's style
360 assessment	Provides a systematic method of collecting opinions about an individual's performance from a wide range of coworkers
StrengthsFinder assessment	Helps identify areas of greatest potential for building strength

identify areas where you have the greatest potential for building strength. It is measuring your re-occurring patterns of thought, feeling, and behavior. Knowing this information is a starting point, and where we come along side individuals, teams and organizations to help leverage your talent, and turn it into sustainable strength (Table 8.2).

Understanding one's own personality styles along with understanding the context in which leadership is needed in the health-care environment can help the individual determine which leadership theory should be explored. This information can help one pursue formal leadership training and identify leadership opportunities to practice leadership skills.

Examples of Leaders in Health Care

Leaders in health care can take many forms. You are probably most familiar with physicians serving as team leaders. For example, as you enter the operating room, surgeons play a central role in leading anesthesia, nurses, scrub techs, and OR desk staff. The following are examples of leadership roles in health care (Table 8.3).

Many medical students, residents, and faculty have gained an appreciation and experience in serving as team, group, and organizational leaders. Developing leadership skills provides you great opportunities to fill these higher roles as you progress through medical school, residency, and as a faculty member.

Promoting Diversity in Leadership

Increasing diversity in leadership roles is key to creating diversity in the workforce. At many academic health centers, the higher ranks of Associate and Full Professor are afforded greater leadership opportunities, including sitting on committees that determine the vision, mission, and strategic planning of the medical school or academic health center. Diversity in these leadership roles can promote diversity in strategic planning, medical education, and patient care

Unfortunately, many obstacles in academic organizations too often discourage diversity in leadership. Obstacles include a hierarchy of department chairs that reduces transparency of decision-making, impedes advancement by way of a bottle-neck

Table 8.3 Leaders in health care

Team leaders	Group leaders	Organizational leaders
Attending teams Attending Fellows Residents Medical students	Departmental Section chief Division head Vice chair Clinic director Lab director	University Dean of med school University chancellor
Clinic teams Physicians Front desk staff Nursing staff Ancillary staff	Hospital Partnership leader Medical staff committees	Governmental Secretary of Health & Human Services CDC director NIH director
Hospital teams Physicians Nursing staff Ward staff Ancillary providers	Educational Student rotation director Residency director Fellowship director	Hospital President/CEO Chief officer
Operating room teams Surgeons Anesthesia Nursing Scrub techs OR desk staff	Administrative Chair faculty council Chair of search committees Medical society Committee chairs	

effect, negatively affects inclusion across professionals, and appears to be more consequential among women [13, 14]. A lack of clarity for promotion and advancement policies and procedures may also impede the inclusion of diverse individuals [14]. Leadership in academic medicine has often been viewed as hierarchical, tyrannical, intimidating, abusive, malignant, and inflexible [15]. As we look to develop the future leaders in health care, we should be mindful of these obstacles and cultures and promote diversity both in future leaders as one of the key skills of a health-care leader.

Leadership Opportunities and Leadership Skill Development

Teaching physician leadership in the medical school is a daunting proposition although inevitable if we, as a health-care system, want to contribute to its success. Medical students come from years of competing for entrance into medical school. They arrive with the traditional notion that medicine is about diagnostics and patient's health outcomes. In addition, they usually come from an academic science formation focused on excelling on the MCAT, the standardized exam that is key to successful medical school acceptance. Unless they have participated in leadership roles as an undergraduate, the idea of becoming a leader may be daunting to them. In addition, the challenge to persuade traditional medical school teaching to incorporate formal leadership training may be a challenge as well. In addition, formal clinical training takes approximately 8 years and sometimes longer, making it

challenging to incorporate either added leadership training or post-graduate training in formal leadership formation.

Leadership opportunities provide a means of developing leadership skills *"in situ"* – that is, students, residents, and faculty may be able to develop leadership skills when they are presented a leadership opportunity to serve on a committee, lead a quality improvement project, or design a health-care delivery plan for a patient population. This form of learning can be an efficient and effective means of developing leadership skills and can provide feedback to the learner as to how these skills may positively impact health care. Health-care leadership skills that may be developed in these settings include: Communication and Relationship, Management, Facilitator/Vision, Professionalism, Business, and Knowledge of the Health-Care Environment [16]. These competencies were derived from the Dreyfus framework and are designed to help leaders to be effective in the complex health-care arena. These competencies stretch across the spectrum of physician leadership, whether managing a small care team, or overseeing a large complex health-care system. These competencies are designed to help physician leaders work better with all of their customers, be it patients, colleagues, employees, and/or payers.

Identification of a *leadership mentor* can make the "in situ" form of learning more effective. Mentors may be colleagues in your academic teaching center or leaders in a hospital system, such as a department head or Chief Medical Officer. A number of leadership books are available to supplement leadership experiences, as well as online resources through organizations like Building the Next Generation of Academic Physicians, the American Medical Student Association, the American College of Physicians, the Association of American Medical Colleges (AAMC) MedEdPORTAL, and the American College of Healthcare Executives. Formal training in leadership, including an MBA, further promotes the development of leadership skills in those individuals entertaining a career in health-care leadership.

The *key to "in-situ" leadership training is identification of leadership opportunities*. First, you may draw on your previous leadership experiences. Many medical students have served as a scout leader, club president, or student educator/mentor. These experiences provide insight into the skills needed to be an effective leader, and serve to reinforce the importance of leadership in advancing the mission of an organization.

Second, you may be able to identify leadership opportunities during your medical training – leading a study group, participating on a curriculum committee, serving as a class officer or chief resident. These experiences can help you to focus the leadership skills you taught on improving patient care, reducing adverse patient events, and improving the overall health of your community.

Finally, you may begin to identify professional opportunities for physician leadership upon graduation. Physician leadership roles include serving as a physician advisor, serving as a Chief Medical Officer for a medical practice or health-care system, serving as a physician leader on a national organization such as the American Medical Association, or contributing to a local or national health-care advisory group. An increasing number of physicians are also serving as representatives on local and national governing bodies (Table 8.4).

Table 8.4 Developing leadership skills and competencies

Assessment	Description
Identify opportunities to serve as a leader	Leading a study group, serving as a chief resident, participating on a committee, leading a quality improvement project
Identify a mentor	A number of leadership books are available to supplement leadership experiences as well as online resources through organizations like Building the Next Generation of Academic Physicians, the American Medical Student Association, the American College of Physicians, the Association of American Medical Colleges (AAMC) MedEdPORTAL, and the American College of Healthcare Executives
Undertake formal training	Leadership courses, Masters in Business Administration (MBA)

Serving as a leader in health care can provide you an opportunity to impact the health and well-being of many more patients than a panel of patients assigned to your practice. As you progress through your training, take advantage of the opportunities that present themselves and consider a career in health-care leadership after graduation.

We have provided a roadmap to begin your journey in leadership. We also shared our own journey. Remember, this is simply a roadmap built on our experiences as physician leaders. The key is to be flexible and cognizant that each journey is individual in nature. In general, leaders learn first to lead self then subsequently lead others. To lead self, one needs to be aware of one's own attitudes, behaviors, and biases in order to continue to grow. Through growth, we are open to options and new ideas and, more importantly, are not afraid to face challenges. Challenges, after all, provide opportunities to improve ourselves and the community around us. Growth enhances our ability to accept change and is not hindered by constraints. Until we face who we are and why we act the way we do, it will not let us face a new world.

The development of leadership skills is vital to assuring the complex health-care system in which we work is truly effective in improving the health of our patients. Complex systems require the coordinated efforts of highly trained and diverse workers. Leadership is the most effective means of coordinating the efforts of the diverse teams needed to deliver health care in our current system.

> If your actions inspire others to dream more, learn more, do more and become more, you are a leader. – John Quincy Adams

References

1. Weiss DF, Tilin FJ, Morgan MJ. The interprofessional health care team, leadership and development. Burlington: Jones & Bartlett Publishers; 2013.
2. Bennett N, Lemoine J. What VUCA really means for you. Harv Bus Rev. 2014:92 1/2. Available at SSRN: https://ssrn.com/abstract=2389563.
3. Nayar V. Three differences between Managers and Leaders. Harv Bus Rev. 2013/08. Available at: https://hbr.org/2013/08/tests-of-a-leadership-transiti.
4. Bass B. From transactional to transformational leadership: learning to share the vision. Organ Dyn. 1990;18(3):19–31.

5. Shell R, Moussa M. The art of woo: strategic persuasion to sell your ideas. London: Penguin Group; 2007.
6. Hersey P, Blanchard KH. Management of organizational behavior- utilizing human resources. Englewood Cliffs: Prentice Hall; 1969.
7. Goleman D. Emotional intelligence. New York: Batman Books; 1995.
8. Dickerman J, Sánchez JP, Portela-Martinez M, Roldan E. Leadership and academic medicine: preparing medical students and residents to be effective leaders for the 21st century. MedEdPORTAL. 2018;14:10677. https://doi.org/10.15766/mep_2374-8265.10677.
9. Myers & Briggs Foundation. MBTI Basics. https://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/. Accessed on July 21, 2017.
10. Hazucha JF, Hezlett SA, Schneider RJ. The impact of 360-degree feedback on management skills development. Hum Resour Manag. 1993;32(2–3):325–51.
11. Kluger AN, DeNisi A. The effects of feedback interventions on performance: a historical review, a meta-analysis, and a preliminary feedback intervention theory. Psychol Bull. 1996;119(2):254–84.
12. Walker A, Smither JW. A five-year study of upward feedback: what managers do with their results matters. Pers Psychol. 1999;52(2):393–423.
13. Conrad P, Carr P, Knight S, Renfrew MR, Dunn MB, Pololi L. Hierarchy as a barrier to advancement for women in academic medicine. J Womens Health (Larchmt). 2010;19(4):799–805.
14. Morrissey CS, Schmidt ML. Fixing the system, not the women: an innovative approach to faculty advancement. J Womens Health (Larchmt). 2008;17(8):1399–408.
15. Moutier C, et al. The culture of academic medicine: faculty behaviors impacting the learning environment. Acad Psychiatry. 2016;40(6):912–8.
16. Stefl M. Common competencies for all healthcare managers: the healthcare leadership alliance model. p. 360–374. http://www.healthcareleadershipalliance.org/Common%20Competencies%20for%20All%20Healthcare%20Managers.pdf. Accessed on 25 Apr 2019.

Eneida O. Roldan, MD, MPH, MBA Chief Executive Officer, FIU Healthcare Network, Florida International University; Associate Dean, International Affairs, Associate Dean Master Physician Assistant Studies, Professor, Department of Pathology, Florida International University Herbert Wertheim College of Medicine

Joel Dickerman, DO Vice President Assessment Services National Board of Osteopathic Medical Examiners

The Intersection of Health Policy and Academia

9

Orlando Solá

As the child of parents who lived through the auspices of the Civil Rights Movement and experienced its successes and failures, I have many memories of childhood dinner-table discussion that included race, social justice, and community advocacy. My parents always strove to improve their surroundings and address injustices in their community. This informed my educational decisions, from pursuing an international education to taking time volunteering as an Americorps health intern prior to matriculation into medical school. Though I always planned on ensuring my activities were an asset to my community, my path to health policy was not one I foresaw at the beginning of my educational journey. My successes are not my own, but the product of a privileged experience in the form of direct mentorship, access to professional networks and a supportive family environment. I hope my work has made it possible for those who are not as fortuitous to find a path towards academic and professional success, all in service to the communities and societies in which we live.

"Talent is distributed equally, opportunity is not" – Leila Janah

During high school, I found myself attracted to the biological sciences, leading to my entrance into McGill University for a degree in Anatomy in Montreal, Quebec. In college I immersed myself in the biophysical sciences, while also making friends from a diverse spectrum of religious, cultural, and ethnic backgrounds. Living on an international campus opened my eyes to the importance of active political discourse as a tool towards addressing socioeconomic inequities. My close group of friends was filled with poli-sci majors to whom Nietzsche, Rousseau and Marx were common discussion topics. When combined with the privilege of having a physician as a father, who was able to share with me the joys of clinical care and community advocacy, I decided to pursue a career in medicine. While the school year involved discussions ranging from philosophy to the political application of civil disobedience, my summers were filled with work as a personal caretaker for patients with mental, physical and emotional disabilities. These experiences were central in my decision to pursue primary care, where I was best situated to address the acute and chronic

O. Solá (✉)
Department of Family Medicine, State University of New York Downstate Medical Center, Brooklyn, NY, USA
e-mail: orlando.sola@downstate.edu

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_9

clinical needs of my community while having the freedom to expand the scope of my care beyond the four walls of the examination room to address health as it relates to social justice and community development.

After completing my undergraduate studies, I took a year to work as an Americorps health intern in East Los Angeles, where I helped staff a mobile medical unit that provided a range of clinical services to local senior centers, grade schools and immigration facilities. Not only did the work help reinforce my interest in medicine, but living on the poverty line during the economic recession helped clarify the daily struggles of the many Americans who exist on the edge of financial security.

My first introduction to organized policy came in medical school, where I filled an empty spot as a voting delegate in a congressional session of the American Medical Association-Medical Student Section (AMA-MSS). From there I was hooked. I took these lessons to develop similar infrastructure for Latino students. By identifying key stakeholders in Latino advocacy organizations and engaging them in the potential advocacy and academic opportunities, we were able to create an annual LMSA Policy Summit, which included congressional proceedings, didactic sessions, structured mentoring opportunities and interactive sessions with elected officials in Washington, D.C. This experience, and the skills I gained through the inception, development, and implementation of the LMSA Policy Summit, allowed me to pursue a faculty position directly after completing my training as a resident. As a core-faculty member, I now enjoy working directly with students and residents, and work to supplement their clinical edification with policy resources geared towards a primary care audience.

This chapter and my professional experiences is not the product of special talent, but the product of hard work, preparation and fortuitous opportunity. Though many may not be able to benefit from the privileges I enjoyed, the following information will allow any student to unlock their natural talent, creativity and dedication towards their personal growth and the benefit of their community.

Introduction

Medical students today see the effects of American politics all around them. Many feel lost, understanding that the growing challenges to health care will require more than the clinical competencies provided by traditional medical curricula, but unsure how to integrate health advocacy within their busy scholastic and clinical schedules. And yet, several successful advocacy initiatives, conceived and implemented by medical students, can not only be identified but also be linked with academic and professional success. By highlighting the strategies used to leverage skills in health policy and academia for the benefit of their patients, we will show readers how they can become health champions, whose scope extends beyond the façade of the clinical environment to include community advocacy, political leadership and academic innovations.

Definitions

Learning medical vernacular is a common irritant for medical students, forced to memorize language that include difficult to pronounce scientific names and obscure medical terms in foreign languages. Standardization of communication tools allows professionals with vastly different educational and clinical experiences to exchange information with high fidelity. Though a standardized vocabulary in health policy

exists, it is not commonly used by medical professionals. Moreover, there is no single governing body that ensures a single definition for relevant language. For these reasons we will review definitions for relevant terms such as academic medicine, social accountability and health policy.

Social Accountability

The health care industry often highlights its role in the social safety network, differentiating health care from other industries as having a moral mission of providing important services to individuals in need. Indeed, health care organizations separate themselves from purely capitalistic, for-profit institutions by their social accountability to the surrounding patient community and humanity in general. The World Health Organization (WHO) identifies social accountability as

> …obligation to direct education, research and service activities towards addressing the priority health concerns… [which] are identified jointly by the public, health professionals, health care organizations, and governments [1].

Two important themes are highlighted here. The obligation encompassed by social accountability is not bound by the clinical setting, but includes *"...direct education, research and service activities..."* Furthermore, identified stakeholders include the *"…public, health professionals, health care organizations, and governments."* Within this definition is the importance of the nonclinical aspects of health care and advocacy and the need to include nonphysician actors in any intervention.

The World Bank also defines an institution with social accountability as providing a role for civic organizations and community members to participate in their health care. Social accountability is

> An approach towards building accountability that relies on civic engagement…
> Ordinary citizens and/or civil society organizations participate directly or indirectly in exacting accountability. [2]

We can see through these two definitions that the social accountability of health care organizations requires a focus beyond direct clinical care and includes important community and non-medical stakeholders. It is the duty of community members, including patients and physicians, to ensure that their health care organizations maintain that accountability.

Health Policy

Health policy is a term that is commonly used to refer to a general group of activities, including everything from advocacy to legislation, regulation and community development, among other initiatives. As defined by the WHO, health policy includes,

> Decisions, plans, and actions that are undertaken to achieve specific health care goals within a society. [3]

The American Medical Association defines health policy as,

> …normative statements the Association has developed on health care issues and the health care system…statements the AMA has developed about…decision-making process (governance system) as well as medical science and technology [4].

Both definitions treat health policy as a tool, a means to achieve the goals of the user. Health policy is most easily recognizable on the macro level, where federal and state agencies determine how health care is provided and to whom. However, competencies in health policy, such as problem identification, stakeholder analysis, strategic planning and implementation, can be used to address issues in local community, office or interpersonal setting. Additional skills such as public speaking, leadership and critical analysis have significant overlap with common academic competencies.

Health Equity Versus Health Equality

Health equity can be defined separately from health equality; the latter's definition involving a scenario where all actors receive equal amounts of resources. This equal allocation of resources occurs irrespective of whether that individual is already resource rich or poor. In a system that pursues health equity, an individual's personal resources and health needs guide their allocation of resources, ensuring that equality is pursued in health outcomes, not in resource allocation. Equality means providing the same amount of health care to rich and poor, sick and healthy. Health equity does not pursue an equal provision of resources to all parties, but the allocation of resources to remove any demographic disparities in health outcomes. In a health care system pursuing equity, the poor and sick receive more resources as compared to the financially secure and healthy. Recent reforms in the US health care system have moved it towards health equity, providing additional access to the uninsured and ensuring patients with chronic diseases are not denied health care coverage. This approach will equip future health care providers with the appropriate resources to meet the needs of their patient communities.

Academic Medicine

Developments in health care have placed new importance on augmenting the role of academic pursuits in medicine. No longer can the future generations of physicians focus only on clinical care, or ignore competencies in research, teaching and leadership during their training as students and resident physicians. Academia, and its embodiment in Academic Medicine, will play an important role in developing a physician workforce able to address the many facets of health and health care. Furthermore, augmenting the role of academia in health care ensures that our

health care system is flexible, allowing providers to work in multidisciplinary teams to address the many multifaceted challenges facing patients and providers in health care.

As mentioned, academic medicine is considered to

> …encompass the traditional tripartite mission of educating the next generation of physicians and biomedical scientist, discovering causes of and cures for disease, and advance knowledge of patient care while caring for patients…highlighting the interrelationships among teaching, research and service. [5]

Highlighted here is the tripartite mission, including competencies in education, research and service in both clinical and nonclinical settings. Academic medicine is broad, and includes the cardiovascular specialist participating in multicenter pharmaceutical trials as well as the MD/PhD faculty member focused on biomedical research, part-time faculty who mix precepting with their personal clinical care, and the frontline providers who have leadership positions in community organizations. Faculty members in academic institutions make a focus on these competencies an integral part of their daily activities, yet many physicians, who consider themselves clinicians, incorporate competencies in academic medicine to address problems in their business logistics, resource allocation or local community development.

Though patient advocacy is mentioned as a competency in both ACGME and LCME objectives, research, education and leadership in health policy are not commonly recognized as important facets of academia [6, 7]. Many providers who commit personal resources towards community advocacy are unaware that integrating academic skills, such as data collection and analysis, developing educational infrastructure and sharing their work through publications, can help advance their personal advocacy or policy agendas.

Health Policy Review

Policy interventions in health care are implemented across several venues, which can be classified as federal, state, public or private. This highlights the wide breadth of activities and interventions that have significant overlap with health policy.

Federal health policy interventions are often the easiest to identify. Examples include passage of the Patient Protection and Affordable Care Act (PPACA) under the administration of President Obama, as well as attempts to repeal the PPACA under President Trump. The provision of health services under Medicare, which are provided to all citizens under similar qualifications, is funded and implemented by the federal government. This can be juxtaposed to Medicaid, whose benefits and qualifications are largely determined by state governments.

Public organizations include nonprofits such as the American Red Cross, Planned Parenthood and the American Medical Association (AMA). Private institutions include many academic centers, where policy decisions guide research, educational content and the provision of services to the local patient community. A combination of these resources is often required to ensure the successful implementation of a meaningful and effective policy intervention.

CDC Health Policy Framework

The CDC has developed a framework for policy development, which defines the steps of conceiving a policy idea, developing a strategy that furthers your agenda and includes mechanisms for successful implementation and evaluation. All policy interventions first start with problem identification, or the ability to describe a health care problem. Describing a problem requires a significant literature review to further understand relevant concepts and terms, and helps organize existing data on the identified topic. After identifying and defining a problem, the active reformer will need to review relevant policies, procedures and statements to ensure that attempts at reform incorporate the institutional culture, history and politics. Similar to the general literature review needed to define a problem, policy analysis focuses on legislative or regulatory language relevant to the problem and takes lessons from past attempts at reform in similar settings to drive future interventions. Stakeholder identification becomes key, ensuring that any intervention appropriately engages the gatekeepers to needed financial and human resources, such as elected officials and business leaders, academic and community champions.

Policy analysis and problem identification drives the development of an overall advocacy strategy. In this stage, the venue for political and advocacy activities will be chosen and specific actions are identified and planned. Any language needed to create new legislation, or to reform existing regulatory guidelines, is written, reviewed and edited to ensure both successful policy adoption and implementation. Clear and concise policy language allows easier implementation, and prevents future regulators from distorting the spirit of your intervention. How the policy will be advanced, including which stakeholders need to be engaged and general timing of the policy proposal, is also clarified during strategy development. This is followed by enactment of the policy language by the governing or legislative bodies with oversight in the affected area of reform, then implementation of the intervention within the target population. Throughout this process, feedback from each step of the process should be gathered and analyzed, informing future steps and allowing health advocates to optimize their interventions.

Overlap between health policy and academia can be found when comparing the CDC framework for policy development with common cognitive models used in academia. The Kern model, often used for the development of new curriculum in medicine, is composed of six steps which include Problem identification; Needs assessment; Goals/Objectives; Educational methods; Implementation and Evaluation [8]. In developing new educational resources and activities, academics work through the process of problem identification, literature review, with a focus on important stakeholders (i.e. the targeted learners), establishing well defined educational goals that feed the development of educational strategies and curricular implementation. The process ends in evaluation, which then drives the iterative process that restarts at identifying further educational problems. Both policy and academic interventions require the ability to identify problems, define them through literature review, an understanding of stakeholders, and strategic forethought in implementation. An evaluator model is

needed in both models to assess the interventions effect, and to help guide further resource allocation. Without a tool for evaluation, any claims to success are nothing more than conjecture and hearsay. As in clinical care and academic medicine, successful policy is guided by evidence-based discussions and critical analysis. See Fig. 9.1 for a schematic of the CDC framework [9].

Fig. 9.1 The CDC Policy Analytic Framework. Using a structured approach to health policy development allows community advocates to strategize how to create and implement policy interventions. The CDC Policy Analytic Framework mirrors models for educational and research development that highlight the overlap between policy development and academic medicine. Problem identification, informed by personal experience and thorough literature reviews, requires advocates to select problems amenable to policy interventions. Policy analysis involves the review of existing rule and regulations that impact the identified problem and suggested intervention, which is followed by the development of specific policies and strategies for implementation. Policy enactment refers to having chosen interventions approved by relevant leadership, whereas implementation refers to actions that ensure successful application of the policy intervention using previously adopted policies. Throughout this process evaluation ensures that all interventions are based in evidence, which is used to engage and educate important stakeholders on whose support is required for overall success fo the proposed intervention

Table 9.1 Step-by-step description of the development of PPACA

Problem identification	Lack of access to comprehensive, high quality health care
Policy analysis	Review of past health care reform attempts Investigation of legislative rules of order
Strategy and policy development	Writing of the PPACA Recruitment of congressional support
Policy enactment	Adoption of the PPACA by congress
Policy implementation	Making federal resources available for the provisions in the PPACA

The Patient Protection and Affordable Care Act (PPACA, otherwise known as Obamacare) can be used to review and further understand the steps required to develop a successful policy intervention (Table 9.1).

The PPACA can be analyzed using the CDC policy development framework. Physicians and patients had noticed problems with how health care was being supplied in the United States, and gathered data that clarified the inequities in our system. A policy analysis identified important stakeholders and shared lessons from past attempts at health care reform. The writing of the actual legislative language was done to address the needs of each stakeholder, and that language continues to be analyzed since the law was first implemented. Data from the PPACA will shed additional light on its effect, and will help inform future attempts at health care reform.

Case Studies

To further explore the role medical students can play in policy development, and how advocacy work intersects with competencies in academic medicine, we will use several historical examples of successful student advocacy. In each vignette, the CDC framework will be applied and the academic outcomes highlighted to show how students can both work to improve their health care environment while augmenting professional growth.

Case Study #1: Corporate Sponsorship

The American Medical Association (AMA) is recognized as the premiere advocacy organization representing physicians and their patients. Though the AMA takes pride in its role in shaping federal legislation, their history is fraught with internal conflicts on how to optimize health care. In the 1950s, the Student American Medical Association was created under the stewardship of the AMA to provide a space for student activity in organized medicine. Students first made their presence felt when, in the 1970s, students broke away from the AMA to create the American Medical Student Association, providing a venue for students to advocate for topics on which the AMA held relatively conservative positions, such as civil rights, the Vietnam War and universal health care [10]. From this point onward, students who

continued with the AMA were given the moniker "the conscious of the AMA", evolving into the AMA-Medical Student Section, which provided an outlet for student attempts at organizational reform.

In the 1980s, this conscious was activated when students noted the lack of congruence between data-driven positions supporting government prohibitions against tobacco use and disbursement and the organization's decision to hold approximately $1.4 million, equivalent to $3.4 million today, in tobacco stocks [11]. In addition, the AMA had long received sponsorship funds from tobacco companies, harkening back to the 1930s when the *Journal of the American Medical Association* hosted cigarette advertisements.

In response to the AMA's business relationship with tobacco companies, students in the AMA-MSS developed policy resolutions banning tobacco advertisements and addressing the corporate sponsorship relationship that had existed to date. The resolution was presented by the student authors to a body of their peers, student delegates elected to review, debate and vote upon policy initiatives within a student House of Delegates. After passage by the AMA-MSS in 1985, the resolution was forwarded to the physician House of Delegates in the AMA, where active debate led to eventual adoption. Attributed to student advocacy and the moral grounding that physicians-in-training maintained, in 1986, the AMA ended all advertising relationships with tobacco companies, allowing the AMA to join a growing group of health care related advocacy organizations that viewed their corporate sponsorship through an ethical lens [12].

How did students in the AMA-MSS leverage policy skills and resources to affect change in their surroundings? The CDC Policy Development Framework provides a venue to analyze, and potentially replicate, the advocacy activities of these student leaders.

The first step involved identifying a problem. By the 1980s, medical experts generally recognized the health risks associated with tobacco use, yet an institutional history of corporate sponsorship continued. A body of evidence collected since the 1950s began to clarify the effects of tobacco use, showing the damage caused to individuals and their families. Though physician work-groups within the AMA created policy statements requesting the government address the issue, the organization itself continued to benefit from tobacco disbursement, both through direct sponsorship and stock ownership. This clearly was incongruent with the oaths enshrined by Hippocrates to

> *…use treatment to help the sick according to my ability and judgment, but never with a view to injury and wrong-doing. Neither will I administer a poison to anybody when asked to do so, nor will I suggest such a course.*

Primed with the moral obligations towards service to patients and their communities, medical students within the AMA viewed tobacco sponsorship as unjust, immoral and casting an unholy shadow over the prestige claimed by physicians in America.

An analysis of the AMA's policy positions regarding tobacco use prior to the 1980s identified the absence of an internal mechanism to allow constituents to

review or comment on business activities within the AMA. The public separation between the AMA and what became AMSA in the 1970s, and the associated loss of student and physician membership, created a sense that leadership within the AMA would be more amenable to progressive policies. Students in the AMA-MSS thus developed a strategy to use legislative resources through a student House of Delegates to develop policy language addressing sponsorship concerns. The House of Delegates continues today, and is used to develop the leadership, public speaking and policy development skills of its participants.

In 1986, the AMA-MSS House of Delegates adopted a resolution addressing corporate sponsorship within the AMA, which was also adopted by the physician section of the AMA. Passage of the resolution by the AMA general body represented policy enactment. As part of the progression towards implementation, workgroups composed of AMA staff and physician members collaborated to plan logistics on how to implement the adopted policy language, including how to extract the organization from existing contracts and the development of a new fiscal strategy. Throughout this process, the original medical students who first identified the problem continued to be involved, evaluating the progress to ensure that the spirit of what was initially conceived was upheld through the policy development, enactment and implementation processes.

An overarching concept throughout any proposed intervention is stakeholder analysis, composed of stakeholder engagement and education. At every step in the process, student advocates had to identify important stakeholders that could access resources needed to fully realize the application of their original idea. In the student House of Delegates, important stakeholders included regional and national student leadership, the student board of trustees and their peers as represented by elected delegates in the student House. Before the physician House of Delegates, stakeholders now included physicians with expertise in medical ethics and business planning of national advocacy organizations, as well as the general body of the AMA as represented by elected Delegates. Additional stakeholders would include the physician mentors and faculty who support student creativity and participation in organized medicine, ensuring their voices were heard. After full enactment of the resolution, stakeholders became the members of steering committees and workgroups, as well as career staffers whose role was to implement adopted policy language, and adjust organizational strategy.

Once stakeholders are identified, the policy strategy shifts to education. In this phase, advocates develop an armory of fact-sheets, white papers and op-eds that develop narratives in support of proposed policy language. Educational materials are created for specific stakeholders, integrating statistical data with emotional narratives to maximize impact on the intended audience. For example, a fiscal-minded audience such as a board of trustees may be more impressed with data showing that the potential loss of membership fees and business opportunities outweigh the financial profits from a relationship with tobacco organizations. Messages to constituents would also be molded to the expected audience, with an audience of pediatricians receiving information on the effects of tobacco use and advertising to minors, while cardiologists receive narratives focused on the cardiovascular risks posed by long-term nicotine use.

By combining stakeholder identification with engagement and education at each step of policy development, student advocates were able to shift their messaging and strategy to ensure their proposed intervention was successfully implemented. This process, along with continuous critical analysis and evaluation of progress, occurs at every step of a successful health policy intervention. Medical students in the AMA-MSS were able to effect real change in their organizational structure using a structured policy development process, and they set the stage for future protests over corporate sponsorship, such as parallel relationships with sugar-sweetened beverage industry by physician advocacy organizations representing Latino and Family Medicine physicians.

Case Study #2: Policy Brutality

The United States is a country built on liberties of personal freedom, yet it has an established history of ethnic subjugation and abuse, from the country's economic founding on slavery to the regional terrorism of apartheid and Jim Crow. Despite the social progress represented by the election of the first black executive in President Obama, a rash of deaths at the hands of police officers against unarmed individuals has evoked a cultural response that changed the political discourse and led to the evolution of a new brand of social-media driven student interventions.

After the deaths of Michael Brown and Eric Gardner in 2014 sparked a national dialogue on race and police brutality under the #BlackLivesMatter moniker, medical students across the nation noted the absence of educational resources on race, implicit bias and institutional discrimination within their academic institutions. This was especially felt for students in the elite academic institutions in the United States, who were often located in ethnic-minority communities with significant health disparities. However, unlike the students organized under the AMA, medical students at schools such as University of California at San Francisco, Mount Sinai and University of Pennsylvania had no existing venue or policy structure to lobby institutional stakeholders. Instead, an innovative strategy was developed to demand access to institutional resources in addressing racial disparities in the patient communities they served.

As seen in the previous vignette, we can use the CDC policy development framework to walk through the steps that lead to the organic growth of a social-medial movement culminating in the creation of the national White Coats for Black Lives movement. Though the dialogue around police actions in minority communities and the role of the criminal justice system in perpetuating ethnic disparities was reinvigorated in 2014, there was no space for medical students to play an active role. Student groups in UCSF and Mount Sinai independently organized to research the role of race and ethnicity in traditional medical curricula and identified a dearth of educational sessions or health care advocacy. Data was gathered clarifying the effects of policing in local communities served by medical facilities associated with UCSF and Mount Sinai medical schools and a strategy leveraging social media to bring attention to the importance medical students placed on the effects of racism in policing practices. Medical students created a twitter-storm of provocative photos

showing "Die-ins," where students, wearing the emblematic white coat, developed public tableaus of mock-genocide to highlight the ongoing epidemics of firearm-related deaths within the communities served by prestigious academic institutions.

Though the murders of US citizens from Eric Gardner to Rodney Jackson stimulated discourse on the topic of police brutality, students at academic institutions had long advocated for academic and clinical leadership. Isolated within their academic institutions, many students struggled to get face-time with important hospital stakeholders, yet when armed with growing media attention and the ability to seamlessly coordinate efforts between students, advocates for community safety were able to engage leadership in a new way and obtain commitments for additional resources. To help spread the movement across the country and ensure medical students presented a collaborative front, the organization White Coats for Black Lives (WC4BL) was created and included advocacy information, start-up tips and a venue for ongoing planning and communication around advocacy activities. The organization not only shifted the educational and clinical priorities of many urban academic institutions, but helped introduce issues of race and social justice into the national political discourse of the time [13].

WC4BL continues as an active organization today, creating newsletters and distributing information on how to develop as physician advocates. Student leaders have written policy papers, op-eds and participated in curricular and advocacy discussions across the United States. The leadership shown by students was not only enshrined in a publication featured in the Journal of Urban Health [14] but allowed them to obtain further training and mentorship as they evolved as health care advocates. From their work, the original students both advanced the discussion on race and health care disparities across the country, and developed important experiences that added to their personal growth and development.

Case #3: LGBTQ+ Health

Civil rights in the United States have traditionally focused on the effect of biases along racial and ethnic identity. Yet many students face additional discrimination based on their gender identity or sexual orientation, which can create a "dually marginalized" effect. Dual marginalization refers to effects on individuals who are ostracized from both dominant culture and smaller cultural subgroupings from which they may otherwise gain support. A group of students in the Latino Medical Student Association (LMSA) confronted this very issue, acknowledging the struggles of the Latino LGBTQ+ community facing discrimination not only due to their Latino ethnicity, but from Latinos due to their sexual orientation and gender identity. Missing was a forum that supported innovative strategies to address specific access and health disparities for Latinos who identified as LGBTQ+.

How can the CDC framework assist these students? A problem was identified, and students decided to leverage peer support and knowledge available to them in LMSA. A review of existing policy addressing Latino LGBTQ+ disparities did not

exist, though discussions with stakeholders in the organization, such as physician advisors and students on the executive board, identified interest in committing LMSA resources. Students developed a strategy that used the LMSA policy process as a means to achieve their goals. Over the following year, students organized into a workgroup that wrote resolutions acknowledging and prioritizing disparities faced by Latino LGBTQ+ patients. Further procedural language was included to formalize the structure of their workgroup, creating the LMSA LGBTQ+ Caucus with positions that addressed logistical needs such as fundraising, resolution writing and organizational outreach. Students in the LGBTQ+ caucus not only brought organizational attention to their agenda but laid the groundwork for longitudinal advocacy through the Caucus structure that allowed future students to build on their predecessors' achievements.

After drafting and implementing policy language ensuring the development of the LGBTQ+ Caucus, attention was shifted towards extending recognition of discrimination faced by Latino LGBTQ+ patients to additional Latino advocacy organizations, such as the National Hispanic Medical Association (NHMA) and the Hispanic Serving Health Professions Schools (HSHPS). By identifying the stakeholders in LMSA, NHMA and HSHPS, members of the LGBTQ+ Caucus were able to obtain support for Latino LGBTQ+ patients and students that led to their inclusion in conference workshop topics, policy and regulatory language and collaborative work with organizations such as the Gay and Lesbian Medical Association (GLMA). Students in the caucus shared their success with their peers via a publication in LGBT Health [15], and further efforts were made to ensure similar support within organizations that included African-American and Native American students and patients.

Case Study Summary

Here we reviewed three cases that highlighted important topics amenable to policy solutions, and how students used competencies in policy and academia to achieve their clinical, social or academic goals. Commonalities throughout each scenario included actions that followed the CDC framework to assess the problem and develop a strategy that can be implemented to engage stakeholders in an iterative process. Moreover, each student was able to develop professional and academic skills that can be used towards their professional success as clinicians, academicians and community advocates. With a clear path towards reform and progress, students across the nation can leverage their personal ingenuity and creativity to improve their surroundings for patients, students and physicians. Furthermore, without sharing the successes, and failures, of advocacy initiatives with the wider academic community, student and physician advocates will continue to repeat historical mistakes, such as failure to identify and engage stakeholders, or the absence of a built-in evaluator model that proves the initiatives impact. Below is a summary of the cases listed above, with relevant publications and outcomes.

Case 1: AMA Medical Student Section:

- Use of the resolution process to address corporate sponsorship

Case 2: Policy Brutality:

- Social media used to develop a national movement and bring attention to racial justice in medicine.
- Publication by organizing students in nationally recognized peer-reviewed journal.

Case 3: LMSA-LGBTQ+ Caucus

- Adoption of language acknowledging, and pledging to address, health disparities faced by dually-marginalized Latino communities
- Publication in LGBTQ Health

Policy Moving Forward: How to Pursue Professional Growth in Health Policy

Many students become excited when discussing policy and the ability to effect change beyond the traditional clinical setting. However, when faced with the need to develop a professional roadmap that can guide towards gaining necessary skills and competencies, students can be unsure on how to start their journey. Simplifying the process by grouping professional opportunities into three categories – advocacy, research and administrative – can help trainees identify the best path forward that can complement their interests and natural skills.

Advocacy-orientated opportunities can include pursuing leadership positions within constituent advocacy organizations, where the AMA and LMSA are just two examples. Organizational leaders are able to directly affect their organizational agenda, and have insight as to who within the organization are important stakeholders and how best to engage their support. Similarly, working directly with local elected officials, or nominations to community boards and health commissions can allow students to develop their personal networks and have insight into how political influence is used to pursue specific advocacy agendas.

Research is considered one of the purer forms of academia. Yet successful researchers do not stop their work after collecting and analyzing data, but use their findings to develop evidence-based initiatives. These can include the development of clinical guidelines for diseases that often contribute to health disparities in marginalized communities, such as metabolic disease within African American patient populations. Data is also important to drive many public health initiatives, ranging from vaccination schedules to federal guidelines on food additives. Without the advocacy of researchers, and their ability to ensure that important stakeholders in clinical institutions and government agencies appropriately interpret and use their

data, ensures that the medical community has access to the most effective strategies to address the needs of their patient communities. Ensuring that academicians involved in research have the skills necessary to advocate for reasonable interpretation and use of their data will help produce effective, evidence-based, strategies to address the needs of our communities.

Administrative excellence and advocacy plays an important role in developing the institutions that both train future generations of health care reformers and also provide an institutional vehicle for the development and implementation of policy innovations. By guiding institutions large and small, these administrative advocates ensure the medical field adjusts its agenda to fit the needs of our patients and providers. Dr. Joan Reede, Dean for Diversity and Community Partnership at Harvard Medical School, is responsible for the development and management of a comprehensive program that provides leadership, guidance and support to underrepresented minority faculty and students. Dr. Yocasta Brugal, President and Dean of San Juan Bautista School of Medicine, oversees all aspects of the academic mission of her medical school, ensuring her school achieves the goals of every academic institution, including education, research, clinical care and community engagement [16].

In this chapter, we used several historical vignettes to show how students can use a structured policy development framework to implement health care reforms. Though these lessons are not covered in traditional medical curriculum, they can help augment any physician's clinical expertise, and lead to success in a wide range of professional settings. Health policy and community advocacy are an essential part of any physicians skill set, whether a frontline provider focused on the local community, an academic building the foundations for evidence-based policy reform or a national leader active in medical advocacy organizations. This content provides a pathway towards developing the competencies in leadership, critical thinking and community organization needed to leverage the resources inherent in our country. The intersection of health policy and academia will produce the innovations that will train a physician workforce capable of addressing the patient and system-based problems in health care.

References

1. Boelen C. Defining and measuring the social accountability of medical schools. Geneva: Division of Development of Human Resources for Health, World Health Organization; 1995.
2. Carmen M, Reiner F, Janmejay S. Social accountability: an introduction to the concept and emerging practice (English). Social development papers; no. 76. Washington, DC: World Bank 2004. http://documents.worldbank.org/curated/en/327691468779445304/Social-accountability-an-introduction-to-the-concept-and-emerging-practice.
3. Who.int. WHO|health policy. 2019. [online] Available at: https://www.who.int/topics/health_policy/en/. Accessed 31 Aug. 2019.
4. American Medical Association. Developing AMA policies. 2019. [online] Available at: https://www.ama-assn.org/house-delegates/ama-policies/developing-ama-policies. Accessed 31 Aug. 2019.
5. Kanter SL. What is academic medicine? Acad Med. 2008;83(3):205–6.

6. Kassebaum DG. LCME accreditation standards for management of the medical school curriculum: a clarification. Acad Med. 1994;69(1):37–8. https://doi.org/10.1097/00001888-199401000-00009.
7. ACGME Common Program Requirements (Residency). [ebook] Accreditation council for graduate medical education. 2018. Available at: https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResidency2019.pdf. Accessed 31 Aug. 2019.
8. Thomas PA, Kern DE, Hughes MT, Chen BY, editors. Curriculum development for medical education: a six-step approach. 3rd ed. Baltimore: Johns Hopkins University Press; 2016.
9. CDC.gov. CDC policy process|AD for policy and strategy | CDC. 2019. [online] Available at: https://www.cdc.gov/policy/analysis/process/index.html [Accessed 31 Aug. 2019].
10. AMSA. History of the American Medical Student Association – AMSA. 2019. [online] Available at: https://www.amsa.org/about/history-of-amsa/. Accessed 31 Aug. 2019.
11. Nytimes.com. AROUND THE NATION; medical association sells shares of tobacco stock. 2019. [online] Available at: https://www.nytimes.com/1981/09/30/us/around-the-nation-medical-association-sells-shares-of-tobacco-stock.html. Accessed 31 Aug. 2019.
12. American Medical Association. AMA history. 2019. [online] Available at: https://www.ama-assn.org/ama-history. Accessed 31 Aug. 2019.
13. Charles, Dorothy, et al. White Coats for Black Lives: Medical Students Responding to Racism and Police Brutality. Journal of Urban Health, 2015;92(6):1007–10. https://doi.org/10.1007/s11524-015-9993-9.
14. Charles D, Himmelstein K, Keenan W, Barcelo N. White coats for black lives: medical students responding to racism and police brutality. J Urban Health. 2015;92(6):1007–10.
15. Sánchez J, Sola O, Ramallo J, Sánchez N, Dominguez K, Romero-Leggott V. Hispanic medical organizations' support for LGBT health issues. LGBT Health. 2014;1(3):161–4.
16. Sola O, Kothari P, Mason HRC, Onumah CM, Sánchez JP. The crossroads of health policy and academic medicine: an early introduction to health policy skills to facilitate change. MedEdPORTAL. 2019;15:10827. https://doi.org/10.15766/mep_2374-8265.10827.

Orlando Solá MD, MPH Assistant Clinical Professor, Department of Family Medicine; Associate Clerkship Director, Primary Care 1 Clerkship, SUNY-Downstate Medical Center; Fellow, Empire Clinical Research Investigator Program

Finding an Academic Residency Program

10

Conair Guilliames and Harsh Sule

Introduction

Recently, there has been recognition of the need for academic medicine to sustain its role moving forward. Medical students are a significant source of the future academic medicine workforce, but surprisingly little is done to promote academic medicine during the early stages of medical education. While efforts "to provide opportunities for students to engage with inspiring academics, to present their work and to reward excellence in student research" [1] are all effective strategies, the reality is that there remains a gap in time between fostering an interest in academic medicine during medical school and becoming a faculty member. That gap is during residency training and therefore a residency position in a program that furthers academic medicine career exploration, encourages academic scholarship and provides mentorship is a critical and missing link. Matching in such a residency program can provide opportunities for trainees to gain competency in teaching, research, and educational leadership.

Academic residencies provide opportunities for trainees to gain competency in teaching, research, and educational leadership. Through thought provoking questions, personal reflections and case scenarios, this chapter will help build on other chapters in this book by walking the reader through a self-evaluation related to their interest in academic medicine.

The chapter will briefly summarize the types of residency programs that are available (e.g. academic, community, military, etc.) and the broad factors that influence medical student residency selection. While presenting general information on

C. Guilliames
Department of Family and Social Medicine, Albert Einstein College of Medicine, The Bronx, NY, USA

H. Sule (✉)
Rutgers New Jersey Medical School, Newark, NJ, USA
e-mail: harsh.sule@rutgers.edu

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_10

how to evaluate residency programs of interest, the chapter focuses on specific factors students should consider when assessing residency programs in preparation for an academic career.

The chapter goes on to present a series of cases reflecting the critical thinking medical students should use when applying and interviewing for an academic residency position. By providing case scenarios that represent diverse students with different personal and professional goals, this chapter is a great introduction to early career planning for medical students considering a career in academic medicine and provides a strategic framework for pursuing a residency program with an academic focus.

Personal Story – Conair Guilliames

My interest in medicine began at the age of 5 years. As a little black girl from the Bronx, New York, I learned early on that becoming a doctor would make my family proud. By the time I graduated the 8th grade, I had cemented the deal by putting "pediatrician" as my future career choice in my junior high school yearbook. In college, I continued along my premed path, adding community service as an EMT, leadership in premedical societies and research exposure to my resume. I enjoyed advancing the field of medicine and expected that research would be an integral part of my career. Through my experiences, I learned that I enjoyed patient care, service-based research, teaching, and administrative roles. During my second year of medical school, I remember asking one of the medical school deans how he got into medical education. Like many others, his response suggested that "it kind of just happened".

As medical school continued on, I focused on passing my exams and choosing a medical specialty. I matched at a residency program with a great reputation that valued diversity and health equity. At that time, I did not place much emphasis on developing my career in academia. However, mentorship opportunities seemed to fall in place, leading me down the path of academic medicine.

During my last year of residency, I was elected to be a chief resident. In addition to this leadership role, it also afforded the opportunity to concurrently complete a faculty development fellowship. As a fellow, I learned about educational scholarship, curriculum development, teaching strategies, and academic leadership. My fellowship training also exposed me to developmental milestones in medical education from the first year of medical school to the last year of residency.

In my current role as Assistant Professor and Associate Clerkship Director for Family Medicine at Albert Einstein College of Medicine and Montefiore Medical Center, I work closely with medical students and residents. I was born and raised in the urban underserved community in which I teach, and I educate students about our patients in a very personal and unique way. Furthermore, I have an opportunity to share what I have learned about preparing for a career in academic medicine. As a woman of color in academic family medicine, I am fortunate to have mentors who look like me and equally understand the struggles that come with medicine, racism, and sexism. Choosing a residency program with faculty who looked like me was always important. It may not be easy to find mentors or role models from a similar background as yourself but making it a factor in your search can make a big impact on your residency experience and future as a faculty member. I hope that students reading this chapter can take advantage of this knowledge as they determine their own academic career paths.

Personal Story – Harsh Sule

My path to a career in academic medicine was far from a straight line. In fact, I see myself as the classic example of why one should keep options open – life changes, interests change and it is nice to have the option to change paths.

I began in my undergraduate studies with an interest in becoming a Biomedical Engineer, but over 4 years, drifted into becoming a "pre-med". During medical school, I wandered from wanting to become a small-town family medicine physician, and later a surgeon, before finding my calling in emergency medicine. Entering the Match, the only thing I knew was that I wanted to be part of caring for an underserved patient population locally and globally, and that I did not want to close any doors. I matched at Cook County Hospital in Chicago, IL, a place I was especially partial to since during my student rotation there I was exposed to the diverse patient population it served, its social mission and role in the community. Given my personal background of being born and partially raised in India, then living in the Middle East and moving to the USA for my undergraduate studies, I was lucky to find role models and mentors that also shared the same worldview as I did.

Being at a large, urban, tertiary-care, county hospital (Cook County, Chicago, IL) gave me the exposure, expertise, and mentorship I needed. I had some amazing mentors that worked in the community hospital setting, were accomplished researchers and excellent teachers. What they all shared in common was that they were all in academic emergency medicine. As I took on the role as a chief-resident, I realized that academic medicine did not have one single definition – it meant I could be a teacher in the classroom setting, I could be a mentor to medical students, I could be a researcher, and I could also be an administrator.

Given these varied options that my exposure to academic medicine presented me, I decided to continue my meandering path. First, I went to an academic institution in the Washington DC area (without an EM residency at the time), then to a small community hospital in South Florida, where I was often the only physician in the entire hospital, and then left to pursue my interests in global health by working for a nongovernmental organization in Azerbaijan. Finally, 5 years out of residency, I was at a place where I had a better sense of what I wanted to do – I returned to the USA and was able to work at Thomas Jefferson University with mentors that helped me shape my career in academic medicine. As Assistant and then Associate Residency Program Director at Jefferson, I was able to hone my skills in academia. Moving to Rutgers New Jersey Medical School in 2014, I was able to continue my development as an academic physician and became Residency Program Director and Associate Director for our Office of Global Health.

So, what should you take away from my meandering path? None of these options would have been as open to me if I had limited myself at any stage. Personal interests, family needs, and professional interests guided me gradually over the years. However, most of all, being in an academic residency such as Cook County allowed me to anticipate what to expect and learn how to function in the varied settings I was in. Most of all though, the academic residency setting gave me a set of mentors that continue to be a resource and guiding light for me.

What Is an Academic Residency?

In order to help you as a prospective faculty member, first we want to ensure that we are on the same page with our definition. An Academic Residency Program is defined as follows:

> A program that prepares you for a career as a faculty member at an academic medical center/institution. It provides opportunities for patient care, service, research, teaching, leadership, fellowships, and future faculty appointments.

This term also does not automatically imply that a program must be affiliated with an academic medical center/university (discussed further below) – it merely indicates that the resources and skills provided prepare you for a career in academics.

Is an Academic Residency Program Right for You?

You may be wondering if you are ready to look at residency programs with an academic career focus. In fact, most medical students are somewhat intimidated by the idea of a future as an academician and feel grossly unprepared to make such a decision. First, you must know that by matching at an academic residency program you are not committing to a career in academic medicine. In fact, a significant portion of their graduates at even the most rigorous academic residency programs go on to pursue successful careers in community hospital settings.

Consider the following questions if you suspect that a future in academics may be a consideration for you:

- Are you interested in teaching and/or research?
- Are you interested in fellowship training?
- Does an environment of innovation and intellectual stimulation excite you?
- Are you unsure and not ready to commit?

Careers in academic medicine can provide great satisfaction through professional relationships with colleagues, trainees, and patients, as well as a meaningful work environment that supports a culture of learning and growth. Also, to the surprise of many, academic medicine can often provide good work-life balance, better control over one's schedule, and opportunities to branch out beyond one's core area of expertise such as urban health, global health, and health policy. Thinking critically about your career path early demonstrates your determination, allows you to best choose from available opportunities and, most importantly, does not close any doors for you.

Types of Residency Programs

With the above definition of an academic residency program, let us look at the various types of residency programs that exist within the United States for physicians in training. It is important to recognize that these broad descriptors are not mutually exclusive. The types of residency programs that meet our definition of an "Academic Residency" can change slightly depending on the specialty, the strength of the program, and broader changes in the field of medicine. There is flexibility and overlap within each type of program, such that someone may train at a community program, but go on to develop a promising career in academia. However, it is generally recognized that once one leaves academia it is much more challenging to return.

Increasingly, careers in academic medicine are positioned in one of three categories: clinical/professional practice track, educator track, and research track. The specific nuances of a residency program may prepare you better for one versus the other track. In the end, the program merely supports and serves as a place for

mentorship and opportunities…the individual is the only one that can truly motivate themselves and determine their career direction.

Common Types of Academic Residency Programs:

- *University-/medical school-based residency programs:* These fit the traditional definition of an "Academic Residency." They typically have significant opportunities for involvement with educational and research initiatives. Also, they have a wide range of interests within the faculty group so that it is easier to find a mentor that shares your interests. They often have fellowship programs within the institution, allowing residents to pursue further training at the same location. Research-intensive programs may especially provide an advantage in securing fellowships since publications and research activities are a significant factor in demonstrating commitment to a subspecialty, although that somewhat depends on the specialty and fellowship of interest. Finally, the university affiliation allows residents to gain exposure to a wide range of career paths within academia, while also presenting the opportunity to work in undergraduate medical education. An academic health center can further be an institution that owns or is affiliated with a hospital, a medical school, and at least on other health sciences school (pharmacy, public health, nursing, graduate studies, etc.)
- *County-/public hospital-based residency programs*: These can be free-standing programs, but most tend to be university-affiliated as above, or at least have a close relationship with a university. A unique aspect of these can be their level of community engagement, thereby proving to be a strong attraction for certain specialties or research interests.
- *Community hospital-based residency programs*: Often misconstrued as exclusively nonacademic, the reality is that based on size and setting these may have academic strengths and may provide a niche for individuals interested in a more clinical and less research-oriented program (professional practice track in an academic institution). However, smaller community hospitals and those in more rural settings tend to have limited resources for academic mentorship.
- *Hybrid programs*: These are often private community hospitals that are loosely affiliated with a medical school and offer opportunities for scholarly activity through the affiliate. These may be similar to "county" hospital described above, but with a different focus in patient care. For example, these may be programs that provide training primarily at a community hospital with some exposure to an academic center too. This allows for very different research and mentorship experiences. With the growth of large academic medical centers and hospital consolidation, opportunities for hybrid experiences are becoming more common.
- *Military programs*: These are housed at military sites and usually include a financial assistance program that provides a stipend, reimbursement of books, equipment, and supplies. Residents are usually not pulled away from medical training for deployments, but in exchange, they must participate in a multiple-day training period every year. Upon completion of residency, graduates are required to serve as active duty physicians in their specialty.

Factors Influencing Residency Selection

A number of factors will influence your residency selection. It is rare that one single factor makes the determination…rather typically it is a combination of factors that results in one's match list, and then the final match is algorithm-driven. Also, as much as you will work hard to develop a spreadsheet with weights related to all these factors, you will also soon realize that once you narrow down your initial list of programs to apply to, a lot will come down to the gut level reaction of whether a place "feels right" or not.

There are several references that you may choose to review as you make your initial selection, including Iserson's Getting Into A Residency: A Guide For Medical Students [2], Wright et al.'s article on Finding the Perfect Match [3], the American Medical Association's FREIDA database [4], specialty-specific resources such as the Emergency Medicine Residents' Association EMRA Match [5] and, of course, several others that can be identified by looking through the results in your favorite search engine.

That being said, the factors that will guide you in your initial determination of where to apply can be broken down as shown in Table 10.1.

When considering these factors, and any others you may want to add, it is important to determine which factors are indispensable (such as, living in the same state as your partner) and which factors are negotiable (such as being close to the beach.) You

Table 10.1 Personal and structural factors influencing where to apply for residency

Personal	Structural
Geography/location	Faculty size
Gut feeling at the interview	Faculty academic/research/service interests
Residents	Type of residency/affiliation
Diversity	Clinical setting
Are they happy?	Type of institution (county, private quaternary care, rural, community-based, university-based, etc.)
Do you connect with them?	Variety in clinical sites (vs. single site only)
Do you see yourself in them?	Diversity in patient population
Do you see them becoming your friends?	National/regional reputation
Faculty/program leadership	Facilities – layout, infrastructure, age, etc.
Are they approachable?	Schedule, including call
Do they seem supportive of their residents?	Didactics, including teaching modalities
Do they prioritize education over purse service?	Research requirements and support
Do you buy into their vision and goals for the program?	Subspecialty exposure
Stability of faculty/leadership	Fellowship opportunities
Wellness/work-life balance	Other opportunities (MPH, global health, etc.)
Recommendations of others	
Former graduates (career paths, sub-specialization, etc.)	
Advisors/mentors (fit with you)	
Online sources	

can name them your "negotiables" and "non-negotiables" or your "wants" and "must-haves". You can rank programs by comparing how many non-negotiable and negotiable factors they possess. Don't waver on the non-negotiables that you will need to make it through that residency experience – as much as you may try to rationalize how these may actually be negotiable at later stages in the interview process, you should recognize that personal well-being is critical to being successful in residency. As several of us will say – "A happy resident makes a good resident". Choosing a residency program is a process of self-evaluation and discovery. Information gathering is key and you can expect to feel some anxiety throughout the process. Your initial dream program may not be your final choice as you dig deeper. If you need help, there are many websites and books with frameworks and algorithms out there that you can use to rank residency programs of interest. Most importantly give yourself the leeway and flexibility to be surprised by what you may end up liking and disliking, especially that your "best fit" is not the same as that of our friend's or some online sources.

How to Choose an Academic Residency Program?

In addition to the personal and structural factors above, there are other professional factors in choosing a residency program that are important to your preparation for a career in academia.

- Does the program have expertise in your area/fellowship of interest? If not, do graduates from the program go into fellowships in your area of interest at other institutions?
- What are the opportunities for residents to participate in teaching and curriculum development at both the levels of graduate and undergraduate medical education?
- Do the research opportunities at the program align with your career goals and interests?
- Are the current faculty members experienced in conducting, publishing, and mentoring research in your specialty or area of interest? Are there formal programs to facilitate/support this or is it just based on resident initiative?
- Is there protected/designated time for teaching and/or research?
- Are there facilities and funding sources for teaching and/or research?
- Are there programs in place for mentoring residents and junior faculty who are interested in academic medicine?

Remember, if the faculty is not doing it, it will be harder for the residents to learn how to do it, regardless of the lip service that may be given to it during an interview. Look at the program website for the mission and vision of the program. Review what the faculty members are doing on their profile pages. If you are invited for an interview, determine what questions you want to ask and what you are searching for in the responses. You also want to find out if graduates of the program are in the academic positions you desire. If they tell you about alumni who had similar

interests to yours, you should feel free to ask to be connected to them. If you do speak to them, ask them how the program prepared them for their current role(s).

Also, support for diversity is important, so don't forget to ask! Diversity of faculty, trainees, and patients is important to your education. Take a step back and identify what aspects of this diversity are especially important to you. Are there LGBT faculty members available for mentorship? Are traditionally underrepresented minority groups in medicine not only successful residents in the program but are they represented members of the faculty at all levels (assistant to full professorships). What aspects of diversity (gender, religious, racial, ethnic, etc.) are present or absent at your program of interest? Look closely for insights into why a place may be more or less diverse than you would like/expect.

Sample Cases:

1. John is a Latino-identified fourth-year medical student applying to Emergency Medicine and is interested in becoming a clinician-educator in the future. He attends medical school in New York, but has family in California and desires to train close to his family. He has a list of 50 programs that he has interest in but is having difficulty narrowing his list.
   - What resources can he use to narrow his list?
   - What residency characteristics would you advise him to focus on?
   - On interview day, what are some questions you would advise him to ask about?

   Discussion: If John is certain that he wants to train close to his family, he can list this factor as a "non-negotiable" or a "must-have'. The first step is for him to discuss his "competitiveness" with a specialty advisor. Certain parts of the country are far more challenging to match in than others. One strategy is to do "away" rotations at sites that he may want to match at – this would allow him to impress the residency leadership beyond what an interview would allow. To identify specific programs John could narrow his list of programs to within a desired radius from his home in California – this alone would decrease the list of programs significantly. Given his interest in becoming a clinician-educator, he can then look for programs that provide opportunities for teaching and advanced training in clinical research and/or faculty development. During his rotation and/or interview, he can ask about "resident-as-teacher" opportunities, resident involvement in curriculum development, and what recent graduates are doing. A key strategy in a competitive environment would be for him to highlight his track record so that his commitment to academic medicine is "believable".
2. Sarah is a lesbian-identified first-year medical student with an interest in Urology. Over her first year, she has worked with a faculty mentor (family physician) at her home institution on LGBT health disparities research, which has led to one peer-review publication. She enjoys the research she has performed and wonders if she should engage in more urology-related research to be a more competitive applicant.
   - What would you have done differently?
   - How would you recommend she best assess her career interests?

- What would you recommend she now do to prepare herself for the residency application process?
  Discussion: At this point, Sarah would benefit from mentorship. However, there are two aspects to this mentorship that she needs to seek. First, she needs to discuss with her current mentor the opportunities for her to continue her research/academic interests if she were to match into a Urology program – the presence or absence of these opportunities may serve as a significant guide in her specialty selection. She should also seek out a faculty mentor within Urology. This would serve two purposes – one, to help her mental image of her area of interest truly coincides with the realities of the specialty, and second, to help guide her regarding opportunities for overlap in her future specialty and area of research. Ideally, she would be able to find a mentor that combines her interest in LGBT research topics and Urology. Further, it would be helpful for her to spend the summer after her first-year shadowing a urologist so that she can determine her actual interest for the field – odds are that she would have to undertake some research related to Urology to improve her chances of matching, but she also would not want to commit to this without knowing the day-to-day work of a urologist.

3. James is a Black-identified fourth-year medical student with an interest in cardiology. He has worked with a mentor at his institution on a cardiovascular project that includes community-based participatory research. He has recently been granted interviews at some renowned Internal Medicine programs but has some concerns over his choices. Specifically, he is unsure if the programs would support his community-based interests and he does want to continue this research during residency.
   - What are some resources he can use to compare programs before his interview?
   - What questions would you advise him to ask during the interview, given his desire?
     Discussion: James can use a framework or algorithm from one of the sources mentioned above to rank his programs of interest based on potential overlap with his research interests, the availability of cardiology fellowships, location (if it affects his current research project), and other important factors. During his interview, he would specifically want to ask how many graduates pursue cardiology fellowships, as well as about time and funding to conduct research at that institution. Researching each of the programs in detail with regard to their current faculty members and their areas of interest will be critical to his determining if he could find the necessary mentorship for his research. If such a member of the faculty exists, he may want to consider reaching out to the program director (or that faculty member directly) prior to the interview so that he can meet with them, express interest, and identify if the right opportunities will exist. Given his focused area of interests, it is imperative that he be proactive in ensuring overlap and that he not be swayed simply by the "name" of the program.
4. Shania is a Native-American MD, PhD student entering her last year of medical school. She has conducted physiology research during medical school and published alongside her mentor. She wants to continue her clinical training through

a residency in Anesthesiology or Internal Medicine but suspects she will eventually want to focus exclusively on research within an academic institution.

- How would you advise her to best assess her fit for a specialty and choose potential residency programs?
- What should she ask on interview day?
- Should she admit that she may not continue with clinical medicine during her interview?

Discussion: Shania should consider speaking with a mentor about her career. She needs to dig deep and think seriously about where she sees herself 1, 5, or 10 years after residency. What does she like or not like about Anesthesiology? About Internal Medicine? Which specialty would best help her achieve her career goals? During the interview, she may ask about faculty who are performing research in a similar area of interest. She should also not assume that a clinical residency program would not be interested in a "researcher" – quite the opposite…several departments would find someone like her especially attractive since it would help build the department's research portfolio. So long as Shania plans to complete her residency training and her research interests match the mission and vision of the residency program and/or institution, she would likely make for an excellent candidate. She should absolutely inquire proactively about the support she would get in pursuing her research including the possibility of taking a "research year" during her residency training. She needs to also think a few steps beyond the typical residency candidate since given the investment it takes in obtaining grant funding and conducting research there is a reasonable likelihood that she would end up staying on as faculty at the program she trains at. This means that she needs to consider location, mentorship, fit, etc. even more since this is not a short-term commitment that she is making, but rather has the possibility of becoming her long-term "home".

As you can see over the course of this chapter, there is no single job or definition for what academic medicine encompasses. At the early stage in your career that you are reading this, you may be interested in an academic career because you are interested in teaching and/or research, or just going into a fellowship or because you are unsure and not ready to commit.

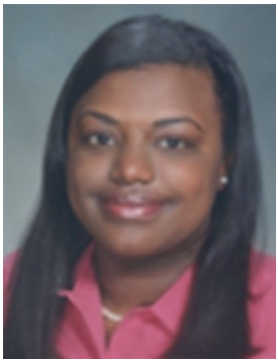
Our key message to you is that an academic career should be an option that you are not intimidated by, but rather an option you should keep open as you grow and your interests evolve. Important considerations as you apply to residency are as follows:

- An important aspect of being part of an academic residency program is mentorship. It is difficult to imagine yourself in a job if you don't have role models in those positions.
- Find a residency program that meets your basic personal, structural, and cultural preferences.
- In order to really explore your interests and passions, the program should also value and support diversity and the individuality you will bring to the program. What aspects of diversity are especially important to you?

Using a framework that assesses all of your wants and needs can help you choose a residency program that aligns with your interests and goals [6]. We encourage you to take a step back and think about all the things you enjoy in medicine…not just related to an academic career, and then put those things in the context this chapter provides you, so that you can determine if an academic residency is the right fit for you.

References

1. Funston GM, Young AMH, Lomas D. Cambridge University Clinical Research Society: promoting academic medicine. Med Educ. 2011;45:1134–5.
2. Iserson KV. Iserson's getting into a residency: a guide for medical students. 8th ed. Tucson: Galen Press.
3. Wright KM, Ryan ER, Gatta JL, Anderson L, Clements DS. Finding the perfect match: factors that influence family medicine residency selection. Fam Med. 2016;48(4):279–85.
4. https://www.ama-assn.org/life-career/search-ama-residency-fellowship-database.
5. https://webapps.emra.org/utils/spa/match#/search/map.
6. Guilliames C, Sule H, Perez H, Hubbi B, Sánchez JP. Providing trainees with both an introduction to and decision-making framework for pursuing an academic residency position. MedEdPORTAL. 2018;14:10667. https://doi.org/10.15766/mep_2374-8265.10667.



Conair Guilliames, MD Assistant Professor, Department of Family and Social Medicine, Associate Director, Medical Student Education, Family & Social Medicine, Department of Family and Social Medicine, Albert Einstein College of Medicine

Harsh Sule, MD, MPP Associate Professor of Emergency Medicine, Residency Program Director, Associate Director, Office of Global Health, Rutgers NJMS

Finding an Academic Position After Residency

11

Valerie N. Williams, Bonnie Simpson Mason, and John P. Sánchez

We are stardust brought to life, then empowered by the universe to figure itself out—and we have only just begun.
– Neil DeGrasse Tyson, 2017

Introduction

Demystifying the process of the critical transition from trainee to academic physician is an important goal in efforts to attract and retain talent in academic medical centers. Providing you with knowledge, skills, and resources that allow for informed decision-making when pursuing a position in academic medicine may help you gain greater self-efficacy towards obtaining an academic physician job. In this chapter, information about finding an academic position after residency is provided along with important considerations for selecting an academic position and preparing for successful academic career progression and promotion.

Recruiting talented physicians into academic faculty positions and retaining them there continues to serve as challenges for academic leadership. One primary barrier to increasing the number of physicians who select an academic career appointment is the lack of available and clear information regarding the process for

V. N. Williams (✉)
University of Oklahoma Health Sciences Center, Center for Learning and Leadership/UCEDD, Oklahoma City, OK, USA
e-mail: valerie-williams@ouhsc.edu

B. S. Mason
Graduate Medical Education, University of Louisville School of Medicine, Louisville, KY, USA

J. P. Sánchez
President, Building the Next Generation of Academic Physicians Inc., Executive Director, Latino Medical Student Association Inc., New York, NY, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_11

securing an academic job [1]. As described here, an academic job is career-focused employment as a physician faculty member at a medical school or health sciences center, where responsibilities explicitly include teaching medical students, residents, and other trainees; conducting scholarly work and research; and providing patient care and service through individual, team, and leadership contributions that are local, regional, national, and/or international. Expectations may differ at medical schools across the country, yet there are basic requirements for anyone hoping to fill an academic faculty position in a medical school or at an academic medical center within a university. While there are differing requirements between large and small and public and private institutions of higher education, there are some important shared considerations for faculty members who want to advance their academic careers through promotion and/or tenure. There are very few formal programs for residents seeking to transition into full-time academic physicians. Thus, many learners completing residency programs do not have adequate or informed chances to consider the benefits and opportunities offered by a career in academic medicine. Although the need for training has been well documented, models for such training are limited [2–4]. Moreover, for diverse trainees, in particular women, underrepresented racial and ethnic minorities, and sexual and gender minorities, there are unique barriers and challenges to becoming faculty or a senior academic center leader [5–9]. This situation provides the context for developing this chapter for medical students and residents, in particular diverse trainees, on finding an academic position after residency.

Faculty Diversity

Around the country, at the nation's 150+ allopathic medical schools, the percentage of minority and underrepresented faculty in academic medicine hovers around 7–8%, and women have yet to reach parity among faculties [10]. As populations of ethnic and culturally underrepresented communities continue to grow, and as the term diversity is increasingly inclusive of LGBT individuals, the somewhat shocking situation about this diverse representation among medical school faculties is not so much the small percentage alone. The surprising feature is rather the fact that as nationwide interest in diversity and inclusion, and enhancing cultural competence, personal cultural humility, and awareness has increased, the numbers of so-defined diverse faculties have remained largely stagnant for 30 years [11]. The number of URM faculty is roughly 7–8%, and the majority of URM MD faculties are in clinical departments, while remaining very significantly underrepresented in basic sciences departments. While numbers of women MD faculties have been increasing, their percent representation among medical school faculties also remains lower than the representation of women among medical school students. While it is affirming that diversity in medical schools is increasing, it is disconcerting that the pace of change is slower than would be expected by the growing diversity of graduating physicians entering practice. How is the looming problem of developing, teaching, and assessing patient care quality based culturally relevant,

inclusive, and engaged care to be addressed in such an environment? One important strategy is to ensure that diverse medical students and residents are informed, mentored, and prepared to seek out, secure, and succeed in careers as academic medicine faculties. As implied by the quote from astrophysicist Neil DeGrasse Tyson, there is much to "figure out" in the future of academic medicine and improving health outcomes for people from every community and culture that will benefit from URM faculty contributions.

A Mentor's Guidance: Our Perspectives

Valerie N. Williams: There are many routes into medicine and the biomedical sciences. Most important, in my view, is keen interest in learning tied to curiosity about how science and medicine align scientific discovery with the evidence basis for effective patient care. Before I was offered a faculty position at the University of Oklahoma, I had completed my Master's degree and took advantage of a nomination to become a Presidential Management Intern (PMI) in Washington, D.C. The Washington experience introduced me to population health policy in the real world when I became a staff member in the Office of the Assistant Secretary for Health in the US Public Health Service. Working for the US Public Health Service afforded me opportunities to work on great projects in service to population health improvement and to work with great mentors. Outstanding among my mentors were two of note, Edward N. Brandt, Jr., MD, PhD, who was then Assistant Secretary for Health (ASH) and Ruth Kirschstein, MD, then Director of the National Institute of General Medical Sciences, and Chair of the Assistant Secretary's Task Force on Women's Health. These two notable physician-scientists had a significant impact on me as mentors. At the time, I was the most junior person at every meeting and the only African American woman on the ASH policy staff. My mentors afforded me opportunities to ask questions, pose ideas, and engage in thoughtful discourse with them, and, through their invitation, with others in leadership who would shape public policy in women's health and in minority health. They set me on an academic path that led directly to my first faculty appointment at the University of Maryland at Baltimore, and then to the University of Oklahoma Health Sciences Center College of Medicine. My mentors consistently asked me to "Listen, think, prepare, and engage" pretty much in that order. The preparation always involved looking at the literature about what was already known on a topic. They each also invited me to regularly debrief and reflect on "lessons learned" from every significant project. In my first faculty position, and to this day, I regularly call upon those tools and skills to teach, problem solve, and to keep learning.

Bonnie Simpson Mason: The need for increased diversity in medical education faculty is critical. All physicians, especially those from diverse backgrounds, should strive to remain an integral part of the medical education process, as adjunct volunteer faculty or as a part- or full-time academic physician in order to drive workforce diversity through being outstanding role models and in order to address healthcare disparities. A greater number of diverse, academic faculty members will encourage a continuous pipeline of diverse physicians, the sharing of relevant, impactful experiences and the modeling of professionalism that will positively influence the next generation of physicians by those with racial/ethnic or gender concordance.

Mentorship is critical to everyone's success, and it is a privilege to mentor others as well. Speaking as the beneficiary of extraordinary mentors myself, which reinforced my belief in myself throughout my matriculation through Howard University, Morehouse School of Medicine and Howard University's Orthopaedic Surgery Residency program. Mentors played a critical role in my ability to successfully navigate into the competitive field of orthopaedic surgery, clinically and academically, especially as a young

African-American woman who did not fit the mold of the typical orthopaedic surgeon. In fact, as a medical student, I was told in no certain terms that, "You will not be an orthopaedic surgeon."

Despite this overt discouragement, I continued to maximize my academic performance, and I proactively sought the counsel of my mentors and colleagues, especially in an effort to avoid feelings of isolation as much as possible. Subsequently, I successfully matched in orthopaedic surgery residency against all odds, literally. Moreover, because of the critical investment of time and encouragement that my mentors made in me, I elected to lead the orthopaedic surgery rotation lectures for 3rd and 4th year medical students throughout my residency training. These monthly teaching opportunities solidified my love for and commitment to teaching our next generation of students even as a practicing physician. Unfortunately, the opportunity to continue teaching after transitioning into practice was not necessarily offered to me as I neared the end of training, but I did not let this dissuade me. In fact, once I inquired about how to become part of the teaching faculty, the academic credentialing process was initiated and completed by the department's leadership, and I became and continue to serve as an adjunct faculty member at two US institutions to date. Once again, self-advocating on my own behalf so that I could realize my goals and personal mission was necessary. I was careful not to let others' limiting thoughts about my capability or potential limit my ability to satisfy my mission of serving future generations of students, which is why I co-authored this chapter to help to clarify the process of becoming a part-time, full-time or adjunct faculty member. I would like to encourage all to be intentional about continuing to teach and to inspire students behind you at all levels.

The Role of Advisors and Mentors

Medical students and residents have explicitly identified mentors, and they have faculty members who would gladly serve in this role if approached for advice or to provide insights about faculty career opportunities. Mentors are different than advisors and this is important to keep in mind. A mentor is often invested in following the work of a protégé and may have assigned stretch opportunities through work, by the protégé, overseen by the mentor, which was of a challenging nature. When a mentor sees the protégé achieve their potential, that mentor is encouraged about connecting the protégé to other experiences or opportunities where knowledge, skill, or aptitudes learned through the mentor's support can be further applied or honed. Without such experiences, it is more difficult for the mentor to appropriately connect the protégé to opportunity. Mentors fulfill a more robust role than advisors can fulfill because a mentor brings to the encounter with the protégé direct knowledge of that person's skills, abilities, *and* aspirations, in addition to confirmed willingness to invest in that individual and help advance the person to new opportunities. An advisor, by comparison is a source of important information, often without the parallel robust connection to the person being advised.

An advisor's role, in the career selection and opportunities for a medical student or resident, can include introducing the learner to materials, resources, events, and unique opportunities to explore areas of interest. This advising role is also critical and one which diverse students and residents should see as advantageous [9, 12–13]. However, in the advising encounter it is the responsibility of the advisee to bring substantive information forward to the advisor about what (possibly mentored) experiences have introduced them to an interest in the faculty career pathway.

Having this information in hand, the advisor can then speak to the faculty career pathways at the home institution, for example, that might likely mesh with the student's interest in research, clinical care, and/or opportunities to teach. Similarly, depending on the position the advisor holds within the college of medicine or university, that individual may be well informed about academic career opportunities at other higher education institutions and colleges of medicine through their own professional networks and affiliations. Mentors would have their own networks and relationships giving them the ability to make more personalized introductions on behalf of the protégé as faculty job opportunities emerge.

Mentors and advisors can offer insights and afford upper division medical students and residents important opportunities to experience a taste of what the academic faculty role entails. Such experiences vary significantly between the medical student and resident years. Such an opportunity should be examined carefully when offered, for the potential to produce or complete a meaningful work product. Thoughtful engagement is necessary, given other and often primary responsibilities for which student and resident, respectively, are primarily accountable. When taken advantage of, introductory experiences, such as short-term research opportunities, or exemplars of peer-to-peer teaching, for example, can be highlighted in the learner's recommendation letter for residency, or in the resident's resume or curriculum vitae in search of the first academic position. Experiences relevant to use of evidence-based practices in service to underserved communities, or research that addresses minority issues independently or within a broader research project, can serve as exemplar evidence of academic leanings. Evidence of such experiences can demonstrate early credentials suited to an academic faculty position. The take-away message is, ask your mentor and/or advisor to share their insights about the variety of roles academic faculty fulfills within the three-part mission of teaching, research, and service/patient care that most US colleges of medicine embrace.

Steps in the Academic Career Hierarchy

Familiarity with the hiring process and academic hierarchy can help diverse candidates appreciate how academic faculties are sought, hired, engaged in the work, and advanced through the academic career steps from early career to seasoned senior academics.

The faculty hiring process begins with a need for new talent, which is often to be fulfilled through a job opening announcement and a search process followed by a letter of offer to the best candidate. Potential candidates for the open faculty position can be made aware of the opening through formal or informal channels. Most typically, the formal channels include position announcements posted on the University's or College's Human Resources website and through paid advertisements in journals or similar publications read by people within the field being sought. Informal channels often include word-of-mouth communication between the leaders and faculty within the department with colleagues and counterparts known to them in similar positions across the country, and with past students, or

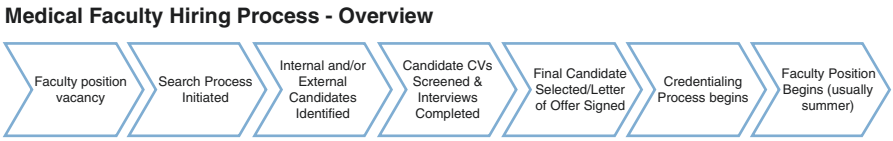
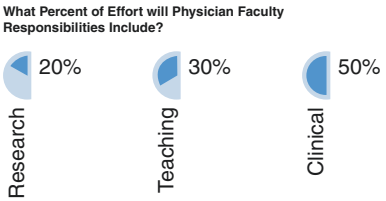


Fig. 11.1 An overview flowchart of the faculty hiring process

advisees, whose particular skills are viewed as potentially suitable to fill the opening. If there are no former diverse (e.g. URM, women, or sexual and gender minorities) medical students or residents in the mind's eye of these mentors and advisors, the informal channel of communication about academic faculty opportunities may be completely occluded (Fig. 11.1).

Faculty position interviews generally include multiple steps. The structure of the interview process for your medical school is something easily raised and discussed with a current mentor or advisor. Following the interview, the faculty candidate perceived to have the best evidence of the experiences and qualifications needed is typically sent a contract or offer letter. This document typically outlines the conditions and expectations associated with the faculty role, states the title, term, and provides additional information about the proposed responsibilities.



Faculty responsibilities can vary significantly. The graphic shows one possible allocation of faculty time to address the college mission, which typically includes teaching, research, and service (patient care.) Discussing how your time will be used and work products evaluated is part of negotiating for the faculty position. The proposed compensation package may be described and access to additional information about the department, institution, policies, or procedures to complete the hiring process may be appended or linked to the contract/letter. The candidate is expected to review the offer letter, ask any remaining questions, in writing or with notation on the contract, and return the signed document as noted. On receipt of the signed document, the department or the college or other administrative office will have follow-up communication with the candidate to confirm a starting date and, in most cases, begin the onboarding process.

Onboarding is the term used by organizations to describe transitioning the new faculty member or employee from someone who is largely unfamiliar with the operations of the organization, to someone who is keenly familiar with the organization and how their new roles and responsibilities are expected to interface with organizational policies, procedures, and people. During the on-boarding process, the organization may identify or assign people within the enterprise to serve as near term

advisors, and possibly mentors, to help the new faculty member get started and feel welcome. Department Chairs may themselves take the lead, or designate a specific individual in the department, to help new faculty make such connections and serve as a resource for answering questions about the department, college, campus, or surrounding community.

Academic Appointment, Promotion, and Tenure Process

An important conversation for academic faculty candidates to have during the interview process and to follow up during the first year onboard is about the college (and University) academic appointment, promotion, and tenure process. Most colleges of medicine will have a written document describing appointment, promotion, and tenure expectations. If the college is part of an academic medical center, including health professions colleges in addition to the medical school, the campus may have a written document as well. At the University of Oklahoma Health Sciences Center (OUHSC), for example, the campus has a published Faculty Handbook, which includes the expectations for faculty and the bylaws for governance of each college. The Faculty Handbook is made available to all faculties on the campus website.

New faculties are usually hired into an early career academic rank. Faculty ranks can vary from one institution to another, but most include one or more of the titles traditional to higher education: Instructor, Assistant Professor, Associate Professor, and Professor. Based on information in the OU College of Medicine promotion guidelines and the OU Health Sciences Center Faculty Handbook, we've described each rank briefly (Table 11.1).

Faculty rank titles may be modified by other terms that indicate the scope, or focus and/or limitations of the role and the related performance and evaluation expectations. Those modifiers can include the words *adjunct*, *clinical*, *research*, or *volunteer* and there may be other terms in addition to these that are used at some colleges/universities. Some of the modifiers can imply that the position is part-time versus full-time. Explore how your medical school currently uses these faculty titles and modifiers, particularly for the first faculty appointment, so that you can understand more about the different career pathways a faculty position can include. Briefly:

- *Adjunct* faculties are generally individuals with an area of subject matter expertise who are hired to teach medical students about a specific knowledge area. Adjunct faculties are usually not eligible for benefits based on their faculty title, but they may be paid a specific sum for the teaching they provide.
- *Clinical* faculty may have predominantly patient care roles, possibly with associated teaching responsibilities focused on medical students, residents, fellows, and/or other health professionals. Faculty with this modifier on their faculty rank title may have part-time or full-time appointments and the roles and responsibilities of their position may vary in scope based on whether they are part-time or full-time. The faculty salary and salary supplement based on clinical productivity

Table 11.1 Faculty rank titles in academic medical schools

Instructor	The rank of Instructor for a physician pre-supposes the achievement of a terminal degree relevant to the discipline in question and minimal qualifications that merit a faculty appointment in the college or school of Medicine. Persons offered faculty appointment as an instructor may be Board eligible but not yet board certified, or may not have completed subspecialty training.
Assistant Professor	Faulty appointment to the rank of Assistant Professor, if a physician, typically is offered when the candidate is board certified or eligible to sit for boards within 12–18 months. Nonphysician appointees to assistant professor rank have usually been awarded a doctoral or professional degree or equivalent. All candidates typically exhibit a commitment to teaching, scholarship, and high caliber professional work through service and/or patient care (in the case of physicians). Assistant Professors are expected to participate in college and university operations and initiatives through service on committees and similar enterprise level work groups beyond the section and possibly beyond the department.
Associate Professor	Associate professor rank is often attained by promotion or appointment after the candidate has held and met the assistant professor rank criteria and demonstrated accomplishments at a higher level (than assistant professor) through assessment of their portfolio of work. Assessment often includes review of the faculty member's curriculum vitae and evidence of teaching, service, and scholarly work along with feedback from objective persons senior to the promotion candidate. Associate Professors are generally expected to have made significant and substantial contributions in more than one area of expected performance. Associate professors may be expected to have at least a regional reputation and the beginnings of national presence and credibility in the field.
Professor	Professor rank is generally the highest academic rank for a regular faculty appointment. A professor is generally expected to meet the requirements for appointment as an associate professor, and add to that a distinguished record of accomplishment. Such accomplishments often include clear recognition and acknowledgement of the professors expertise and credibility at the national level as an educator or scholar whose work has been shared with peers beyond the college and local campus and, as appropriate, the individual has built a national and/or international reputation in her or his field or more broadly.

may be structured differently for clinical faculty than it is for non-clinical faculty or research faculty. This bears discussion with a mentor, advisor, or personal financial advisor.

- *Research* faculty may have part-time or full-time appointments, with the largest part of their roles and responsibilities focused on conducting research, securing extramural sponsorship/funding for research projects, and disseminating the results of research endeavors through the peer-reviewed literature. Faculties with primarily research-focused faculty titles may also be called *clinician scientists* if they are physicians principally engaged with clinical research or if they are not based in a biomedical laboratory sciences setting. Faculties in research-intensive positions are also likely to generate a portion of their income/salary through dedication of a portion, or percent of effort, of the full-time equivalent position, which will be paid by the research sponsor, such as the National Institutes of Health.
- *Volunteer* faculties are likely based in the community and agree to teach medical students in clinical and community settings (including rural and urban primary

and specialty settings), including within their private practice. The role volunteer faculties fulfill within the college is primarily defined by their work with medical students during short rotations or experiential encounters. As the term suggests, volunteer faculties are not paid, but they may receive access to medical school resources or other nonmonetary benefits.

In addition to titles by rank, some faculty positions include a further indicator called *tenure* or a *tenure track* appointment. The easiest way to describe what tenure means is to think of it as a research and scholarly focused pathway in the academic career. Tenure track faculty appointees are subject to a seminal review of their work at a predesignated point in time and a decision to confer or "award," defer or deny the individual a long term contract called *tenure.* The number of medical schools that appoint new faculties on the tenure track has been declining and along with it [11], there is a commensurate decline in the number of tenured medical school faculties. That said, there remain certain types of physician faculties, such as those individuals who hold MD and PhD or other research based degrees and training, who will likely continue to populate the ranks of tenure track and tenured positions.

Essential Considerations When You Become a Faculty Candidate

Faculties in academic medical schools hold a diverse array of responsibilities in the medical school, in owned or affiliated hospitals and clinics, and in research, scholarship, and community-related service roles. Because these roles can vary significantly with the expectations and community presence of a specific medical school, it is advisable for every faculty candidate to include four essential points for discussion during their search for an academic position: (1) faculty duties and responsibilities, (2) the employment term and conditions, (3) the compensation package, and (4) contract termination/nonrenewal, and noncompete clauses in the contract or letter of offer.

1. *Faculty duties and responsibilities*. Academic faculty duties and responsibilities typically include: teaching medical students, residents, and fellows, and may include teaching learners from other disciplines as well, in clinical, classroom, simulation, and/or community-based settings. Teaching may include small (less than 5 students) and large (more than 100 students) groups of learners. Broadly speaking, teaching will often include mentoring and advising roles specific to the faculty member's subject matter or discipline-based expertise. In addition, as part of the teaching role, faculty may be expected to contribute to systematic learner assessment and review of the overall curriculum. Within the role of educator, there are often leadership opportunities which require additional time and which may afford the faculty member additional authority within the section, department, or medical school. The roles of clerkship director, or residency

program director, are two generally recognized examples. Each of these roles includes specific duties and an expected time commitment, and these are outlined in the expectations of accrediting bodies.

An additional component of the typical full-time faculty position in academic medicine is an expectation for scholarly activity. For those significantly vested in advancing knowledge in medicine and related areas of biomedical or clinical sciences, this role can include an expectation for engagement in systematic and extramurally funded research. Generally, as the percent of faculty time and effort dedicated to scholarship and research increases, along with productivity expectations, the evidence of previously mentored and successful research endeavors should increase as well. A typical productivity expectation for faculty with regard to research, in addition to securing extramural funding, is peer-reviewed abstracts and peer-reviewed journal publications.

Physician faculties are usually expected to contribute to the patient care workforce for the medical school, often referred to as the physician practice group. In this aspect of the faculty role, there are specific clinical duties to be fulfilled. These duties can include outpatient, inpatient, operative, and nonoperative responsibilities for patient care and the management of patient material and records. There are opportunities for leadership roles within this area as well, including titles such as medical director for specific clinical services in the affiliated hospital community hospitals, or other community patient care settings that are affiliated with the medical school or the physician faculty practice.

2. *Employment term and conditions*. The faculty *contract*, which may look like a traditional contract or may be presented in letter form as a *letter of offer*, should define and reasonably quantify the initial conditions of employment. This means a written document is provided to the faculty candidate to state, on paper, the scope of the faculty physician's expected day-to-day clinical, research and teaching responsibilities, and the productivity benchmarks within the clinical practices, that are expected to be met. This contract should also state the practice's responsibilities to the physician in sufficient detail for the candidate to make an informed decision to accept, further negotiate the terms, or decline the offered position. If the offered position includes a leadership title and role, such as medical director for a clinical care unit or clerkship director for medical education, those responsibilities and performance benchmarks should be identified in the contract or letter.

   If the faculty appointment is for a specific term of service, such as one-year, three- years, five-years, then the contract should specify that time period and it should also state explicitly if there are any conditions associated with reappointment and or promotion (or tenure) consideration, as relevant to the faculty rank and title.

3. *Compensation package*. Faculty compensation typically includes two separate components: *salary* and *benefits. Salary* is generally the amount the physician will be paid over the full term of the contract, and any optional years. It includes both fixed (salary) and variable (bonus or supplemental) compensation amounts. Medical schools may have a formula used to calculate the salary and bonus/

supplemental amounts. The bonus/supplement may be determined based on productivity expectations for patient care, administrative duty supplements, or other factors. *Benefits* include all other nonsalary compensations, such as retirement benefits, health insurance, and life insurance, which are standard for most employees, and other types of benefits that may be specific to the physician role, and may vary by employing organization, such as liability insurance, dues payments, or CME course fees and so forth.

4. *Contract nonrenewal, termination, and noncompete clauses* in the contract or letter of offer. In the case of nonrenewal of the contract, or the faculty member's decision to leave the academic appointment to pursue other opportunities, the conditions for contract termination by either party, the medical school or the faculty member, need to be stated. A standard clause for the termination of faculty physician employment, for example, may be unsuccessful attempts to secure a license to practice in the state, or inability to secure necessary hospital privileges at affiliated institutions. Not passing specialty boards for certification within a specific time frame may be another cause for contract termination. The contract, or letter of offer, Identifies the circumstances around which employment can be terminated – with or without cause.

   In the situation where an academic physician faculty contract is terminated, a specific clause in the contract, or letter of offer, can come into play – the *noncompete clause*. Noncompete clauses are generally designed to protect the hiring institution from unexpected additional competition for patients based on employees who leave the practice and then establish their own practice or join another practice within an established geographic area or market. Noncompete clauses typically include a substantial penalty clause, should the agreement be broken. Noncompete clause provisions are generally upheld in court, perhaps because they are made transparent at initiation of the contract and address the fundamental business operations of the employing organization. That said, noncompete clauses included in a faculty contract should be reasonable in scope (distance of former faculty member's new practice from the practice of the former employer) and duration (the length of time after leaving he former employer's practice that must expire before a new practice or affiliation with an existing practice can begin).

Expectations of the medical school faculty member may change from one year to the next as the faculty member's role changes. Unless these changes are discussed, a contract can be renewed without change and over time if this happens the contract may not be an accurate reflection of the duties and responsibilities the faculty member currently holds. Promotion (or tenure) eligibility may include timelines, and if so, that should be specified in the contract. As a faculty candidate, it is imperative to be aware that the institution may reference other documents (such as a Faculty Handbook or a policies and procedures document) in the contract (preliminary or final). Candidates for a faculty position, should be given access to these documents for review, and the selected candidate should raise and have addressed any questions about these appended documents before signing the contract/letter of offer.

A Planning Timeline for Seeking an Academic Faculty Position

Finding an academic faculty position requires advance thought and planning and it is never too early to begin preparing for consideration. Opportunities during medical school clerkships or electives can afford a diverse medical student the opportunity to create a meaningful work product and, as importantly, an opportunity to shine as a capable young scholar in the eyes of a mentor. Residents can take on a few of the traditional responsibilities of faculties, such as becoming an effective teacher for medical students, and engaging in and completing scholarly or research projects during residency, which enables the resident to demonstrate specific interest and skills that are commonly called upon in the faculty role.

Beginning the faculty position search in earnest will likely involve a 12-month purposeful effort, with the intensity of effort increasing during the closing 4 months of that timeline. Table 11.2 includes major steps in the timeline recommended by the authors [14, 15].

Here are a few more details on each of the recommended steps in the Finding an Academic Position Timeline:

Step 1: Make Critical Paradigm Shift – 18 Months Prior to the End of Your Training

Shift to thinking like an attending instead of a resident. Get the buy-in of your support system.

Similar to the time frame for applying to medical school, residency, and fellowship training, starting the search for your first position should begin approximately 18 months prior to the end of your training. During this time, work on shifting your mindset to that of becoming a practicing physician, as either an employee or practice owner, which requires that you think about making informed decisions by doing your due diligence, i.e., based on information that you gather from trusted resources and advisors.

Contrary to our experience in applying to medical school or residency, it is important to become more business-minded with each physician taking the time to do your own research to find the best options for your first position which work for you, your family and your specific financial situation. This is not a process that can be crowdsourced, and while helpful, please do not assume that the information that can be solicited from online groups will perfectly apply or be most beneficial for you.

Finally, we highly recommend that each physician find at least 3 potential opportunities for your first position, and the amount of due diligence required to do so takes time. This underscores the need for one to begin their academic search in enough time, hence starting 12–18 months in advance will provide the optimum chance for finding and vetting the best first academic position.

Step 2: Plan, Plan, Plan – 12–14 Months Prior to the End of Training

1. Build your "go to" team of trusted advisors
   - Physician mentor in academics
   - Health law attorney
   - Accountant
   - Financial planner/advisor

One of the key sets of tasks that require both time and organization is the assembly of one's team of advisors. In order to make informed decisions regarding our career, practice, and financial decisions, we must admit that there is a lot that we just do not know, especially in the areas in which these trusted advisors are experts. Thus, it will take time to interview at least 2–3 candidates for each of these

Table 11.2 A sample timeline for searching out and selecting an academic faculty position

Steps to finding an academic practice position timeline		
Process	What to consider/what action to take	Countdown
Step 1	*Make critical paradigm shift* Shift to thinking like an attending instead of a resident. Get the buy-in of your support system	18-months before your first-day on the job in academic practice
Step 2	*Plan, plan, plan* 1. Build your "go to" team Physician mentor in academics Health law attorney Accountant Financial planner 2. Make sure that your personal finances and records are in order	12–14 months ahead
Step 3	*Identify potential practices in your target area and access resources to research key factors critical to your planning* 1. Physician demographics and patient demographics 2. Reimbursement survey 3. Understand current compensation models and comparisons 4. Cost of living 5. Career finders and job boards with academic postings	10–12 months ahead
Step 4	*Evaluate potential practice opportunities* 1. Understand departmental productivity and research benchmarks 2. Evaluate the practice's current environment 3. Evaluate the financial status of the department *Interview window* 2–3 Months to secure faculty position offer and preliminary "contract" or "letter of offer"	10 months ahead
Step 5	*Review the contract with advice of counsel* 1. Restrictive covenant 2. Term and termination 3. Malpractice coverage 4 Fringe benefits 5. Red flags 6. Faculty (departmental package and compensation formula) and retirement benefits (HR)	6–8 months ahead
Step 6	*Obtain necessary licenses and credentials* 1. State medical license 2. DEA 3. NPI 4. Hospital credentialing for each departmental inpatient/outpatient location 5. Insurance panels	4–5 months ahead

(continued)

Table 11.2 (continued)

Steps to finding an academic practice position timeline		
Process	What to consider/what action to take	Countdown
Step 7	*Additional critical decisions when joining a practice* (a) Technology 1. EMR 2. Hardware – computers, etc. (b) Equipment (c) Operations/administration (d) Insurance (e) Human resources (HR) – expectations 1. Tax forms (a) W-2 2. Retirement/Savings Plan Contribution Forms	3–4 months ahead
Step 8	*Make the transition & get started* Prepare for review at 6 months for items related to expectations and commitments (institutional and faculty member)	1–2 months for transition From Day 1–6 months post hire

recommended advisors, and we should build this team with the help and support of our chosen accountability partner because we want to avoid making such important decisions as these in isolation or in a silo. Start by interviewing candidates for your team of trusted advisors by asking colleagues about their advisors, but be sure to research these candidates, each of whom should be willing to work with other members of your advisory team as a means of checks and balances. Aim to interview 2–3 candidates for each advisory position every 6–8 weeks, and you would have secured your team of advisors within a 8–12 month period of time. Your trusted advisors will then be in the position to advise you by reviewing your contract, assist you with contract negotiations, and help you quantify the total value of the compensation packages that you are offered. Your trusted advisors, working in concert, will help you avoid landmines that physicians routinely make. Hence, having your Team of Trusted Advisors in place will be of benefit in the process of finding your first academic position versus waiting to do so after you secure your first position.

Ultimately, in building your Team of Trusted Advisors, your goal is to build relationships with a team of people that you can trust and communicate with as you navigate the most important decisions of your life. Building trust takes time, so start building your team early to give yourself enough time to build the trust necessary to build these highly-valuable relationships.

2. Make sure that your personal finances and records are in order

Also critical to the early stages of finding your academic position is evaluating and assessing your individual financial situation. Prior to completing our training, it is important to know our net worth as determined by one's personal financial statement, your debt burden, if any, and your financial outlook based on the

average, fair market values for the annual salaries for physicians in your specialty. (Salary averages that are specialty and regionally specific can be found in the annual compensation report from the American Association of Medical Colleges.) Here is another benefit of having our Team of Trusted Advisors in place who can be critical in helping us formulate a financial strategy for ourselves and our families.

Step 3: Identify Potential Practices in Your Target Area and Access Resources to Research Key Factors Critical to Your Planning – 10–12 Months Prior to the End of Training

1. Physician demographics and patient demographics – It is important to understand the saturation of physicians in your specialty in the regions in which you are considering for your first position. Urban areas likely have more physicians in your specialty versus more rural areas where there are likely to be fewer physicians, which can mean less competition and a greater demand for physicians in your specialty to provide access to care for patients. Similarly, because of the third-party payer reimbursement system, it is also important to understand the demographics of the patient base that you will be serving. Patient demographics influence patient care decisions within any practice.
2. As many practices become influenced more greatly by corporatization of healthcare, it is important to also understand the payer mix of the reimbursement landscape within the regions in which you are looking at working. This will help you understand the financial aspects of the healthcare environment in which you will work.
3. As previously stated, salary averages that are specialty and regionally specific can be found in the annual compensation report from the American Association of Medical Colleges. Be sure to do your due diligence, i.e., research, to influence your negotiation for your first position. Be careful not to assume that the salary offer is in alignment with average salaries. Again, do your due diligence.
4. Investigate the cost of living in the regions where you are considering taking your first academic position. Make a comparative budget, which will allow you to make an informed and realistic decision about whether you can afford to live in a certain region in addition to meeting all of the financial goals outlined in your financial strategy.
5. Where should you start looking for your first academic position? One outstanding resource of identifying academic positions is by leveraging your own individual networks of physicians in academics. Take time to build your network by presenting at specialty meetings and aiming to meet at least 3 academicians at each meeting. Next, peruse job opportunities presented by your specialty associations. Also, each state has a medical board, which can provide information about the greatest areas of need for physicians in your specialty in their state. Finally, commercial job boards and recruiting firms can also serve as a source of finding available positions.

Step 4: Evaluate Potential Practice Opportunities – 10–12 Months Prior to the End of Training

Approximately 10–12 months prior to completing your training is the optimal time for you to survey academic institutions for available academic positions. This is the time when you will be doing your greatest amount of due diligence, i.e., research, in the following areas:

1. Understand departmental productivity and other academic benchmarks – Gain clarity on the compensation model being offered in the positions that you are considering, namely:
   - Guaranteed salary over a defined period of time
   - Productivity model, in which you will be required to meet a certain number of Relative Value Units
   - Minimum research requirements
   - Teaching requirements
   - Administrative requirements

Your compensation will be a compilation of these above components. Be sure to inquire about each in detail and make sure that these baseline requirements are achievable.

In most situations, you will be offered the standard faculty/departmental package and compensation formula along with retirement benefits. Be sure to know what your negotiables and non-negotiables are before you enter negotiations, and this will allow you to create a win-win position for your first academic position.

2. Evaluate the practice's current environment – Be sure to investigate and inquire about the overall direction and strategy for the academic institution where you are considering becoming a faculty member.
3. Evaluate the financial status of the department – Even academic departments fall prey to embezzlement, which undermines your department's ability to remain financially viable. While this may not be a primary concern for many new attendings, it is important to be assured that you are joining a department that is fiscally responsible to help ensure the stability of your first position.

Towards the end of completing your investigation of 2–3 positions in your ideal regions/institutions, you will submit a letter of interest to each department chair, and the goal is for the leadership of the department to extend to you an interview for the available position following your initial inquiry.

Titles: Review the requirements for the different levels of the academic positions within the institutions which you are considering. Requirements for academic levels/titles will vary between institutions. Depending on your academic accomplishments, be sure to apply/negotiate for the academic title that is commensurate with your level of accomplishment. For example, do not assume that you can only enter academia as a clinical faculty member. If you have an extensive research portfolio and teaching experience, you may meet the criteria for assistant professor title.

Time Frame for Interviewing – Take the time to interview with at least 3 departments so that you can compare one opportunity to at least two others. This allows for an "apples to apples" comparison of the contract terms, and this allows for greater negotiation potential for the aspects of your first position that mean the most to you.

Following your interviews, you may receive a Letter of Intent, which is in fact part of the negotiating process, so do not sign this unless you have conferred with your physician mentor, coach, and health law attorney. Please note that the contract negotiation process can and should take 2–3 months. This process should not be expedited, and be careful about any position that is pressuring you to sign a contract without allowing you time to do your due diligence.

Step 5: Review the Contracts, with Advice of Counsel – 6–8 Months Prior to the End of Training

Again, doing your due diligence is having your potential employment agreements reviewed by members of your Team of Trusted Advisors.

Your contract, also called an employment agreement, should not be signed without being reviewed and the advice of counsel. Specifically, your health law attorney will review your contract for the following terms:

1. Covenant not to compete
2. Term and termination
3. Malpractice coverage
4. Fringe benefits
5. Intellectual property

Academic contracts can take the form of one or both of the following:

- An Employee or Faculty Handbook
- A letter of intent, which can also be called a Term Sheet or Letter which defines the specific contract terms that you have negotiated, plus the institutional employee handbook, which will outline the benefits and the standard policies that apply to the entirety of the institution's employees

Step 6: Obtain Necessary Licenses and Credentials – 4–5 Months Prior to the End of Training

Once both you and the departmental leadership sign the contract or letter, your contract is now considered to be ratified, and now the credentialing process begins. You will need to become credentialed with each of the hospital, medical center, or location where you will see patients. Credentialing is a vetting process where your education, training, licenses, etc., are verified so that the institution can authorize you to become privileged to render healthcare services for that institution. Depending on the institution, credentialing can take 3–6 months, which is another reason to start you academic position search during the recommended time frames.

Credentialing will require that you show proof of the following:

1. Medical License – issued by state medical boards authorizing a physician to practice medicine in that state
2. Drug Enforcement Agency (DEA) registration number – issued by the US Drug Enforcement Agency, which allows physicians and providers to prescribe medications
3. National Provider Identifier Standard (NPI number)– issued by the Centers for Medicare and Medicaid to all providers
4. Degrees

Step 7: Additional Critical Decisions When Joining an Academic Practice
After the credentialing process has commenced, there are additional steps that should be taken in preparing to transition into your first academic position. Be sure to understand the following aspects of the academic practice that you are joining.

(a) Technology
    1. EMR utilized in both outpatient and inpatient settings
    2. Hardware – computer and communications tools, i.e., phones, pagers, that will provided
(b) Equipment – As needed, confirm clinical equipment to be provided so that you can satisfy your clinical/surgical patient care.
(c) Operations/administration – Understand the reporting structure, i.e., who your supervising faculty member will be. It is also critical that you meet the department's administrative staff.
(d) Insurance - Life, disability and health insurance plans.
(e) Human resources (HR) – Expectations concerning supervision of mid-levels in addition to the support staff, medical assistants, etc., that will be allocated to support your clinical responsibilities is critical.
    1. Tax forms
        (a) W-2 – You will be an employee as an academic faculty member. Confer with your tax accountant to help you determine how to complete the initial tax forms which will ask you about the amounts you elect to be withheld from each of your paychecks.
    2. Retirement Savings Plan Contribution Forms - Be sure to inquire with Human Resources abou the required documentation necessary to secure the retirement of savings plan that you wish to enroll in as a new employee.

Step 8: Make the Transition and Get Started
Once you begin your position, building relationships within your department with faculties, staff, and administrators is essential. Prepare for review at 6 months for items related to expectations and commitments with an administrator at the institutional level as well as with a clinical faculty member who can provide feedback on your clinical, research, and teaching efforts during your first 6 months as an attending.

Finding an Academic position suited to your interests and talents requires due diligence throughout the process, and a good bit of self-reflection about the kind of

physician role that will best fulfill your aspirations and engage your talents most effectively.

It is clear from the data about diverse faculties entering academic medicine that every diverse student and resident with the intellectual desire and will to offer their talents to the academic community, and future learners, is a needed asset for academic medicine. Without the presence of diverse faculties, the future for academic medicine and all of its amazing potential to push the frontiers of learning, of science, and in using the evidence from science to improve the outcomes for patients and populations is in jeopardy. This is a critical time in the history of American medicine. This is a critical time for the *stardust* we are as diverse individuals in America, and in American medicine. The invitation to each of us is not only to figure out the universe of what happens next in our individual lives; it is a broader invitation to become stars in our own right, and in that process to reinvent and create a new and more vigorous universe of academic medicine.

References

1. Sánchez JP, Peters L, Lee-Rey E, et al. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013;88(9):1299–307. https://doi.org/10.1097/ACM.0b013e31829f87a7.
2. Hauge LS, Frischknecht AC, Gauger PG, et al. Web-based curriculum improves residents' knowledge of health care business. J Am Coll Surg. 2010;211(6):777–83. https://doi.org/10.1016/j.jamcollsurg.2010.07.011.
3. McArthur TA, Prince EL, Berland LL, et al. Introduction to business for radiology senior residents. J Am Coll Radiol. 2011;8(3):205–8. https://doi.org/10.1016/j.jacr.2010.10.003.
4. Ostapchuk M, Patel PD, Miller KH, Ziegler CH, Greenberg RB, Haynes G. Improving residents' teaching skills: a program evaluation of residents as teachers course. Med Teach. 2010;32(2):e49–56. https://doi.org/10.3109/01421590903199726.
5. AAMC U.S. Medical School Faculty. Table 9–11. https://www.aamc.org/data/facultyroster/reports/494946/usmsf18.html Accessed on 25 April 2019.
6. Zhang L, Lee E, Kenworthy C, Chiang S, Holaday L, Spencer D, Poll-Hunter N, Sánchez JP. Southeast and East Asian medical students' perceptions of careers in academic medicine. J Career Dev. 2017;46:089484531774022.
7. Sánchez NF, Soto-Greene M, Alexander A, Holaday L, Spencer D, Poll N, Sanchez JP. Attracting diverse talent to academia: perspectives of medical students and residents. J Career Dev. 2018;45(5):1–18.
8. Sánchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewster C. Balancing two cultures: American Indian/Alaska native medical students' perceptions of academic medicine careers. J Community Health. 2016;41:871.
9. Sánchez N, Rankin S, Callahan E, Ng H, Holaday L, McIntosh K, Poll-Hunter N, Sánchez JPLGBT. Health professionals perspectives on academic careers – facilitators and challenges. LGBT Health. 2015;2(4):346–56.
10. Analysis in Brief, volume 16, no. 6, December, 2016. Faculty diversity in medical schools: progress and gaps coexist. Association of American Medical Colleges, Washington, DC. Accessed 11/15/18.
11. Analysis in Brief, volume 15, no. 5, May 2015. "The redistribution of tenure tracks for US Medical School Faculty: Clinical MD Faculty (Part 1). Association of American Medical Colleges, Washington, DC. Accessed 8/11/19.
12. Yehia B, Cronholm P, Wilson N, Palmer S, Sisson S, Cuilliames C, Poll-Hunter N, Sánchez JP. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. BioMed Cent Med Educ. 2014;14:26.

13. Sanchez NF, Callahan E, Brewster C, Poll N, Sanchez JP. Mentoring LGBT health professional trainees. LGBT Health, 2018.
14. Mason BS, Landry A, Sánchez JP, Williams VN. How to find an academic position after residency: who, what, when, where, why, and how. MedEdPORTAL. June 2018;14:10727. https://doi.org/10.15766/mep_2374-8265.10727.
15. Beyond the Exam Room. http://www.beyondtheexamroom.co/dr-bonnie-mason.

Valerie N. Williams PhD, MPA Presidential Professor, Graduate College, University of Oklahoma Health Sciences Center; Former Associate Dean, Faculty Affairs, University of Oklahoma College of Medicine; Vice Provost, Academic Affairs and Faculty Development, University of Oklahoma Health Sciences Center

Bonnie Simpson Mason MD Adjunct Associate Professor, Graduate Medical Education, University of Louisville School of Medicine; Adjunct Assistant Professor, Department of Orthopaedic Surgery and Rehabilitation, University of Texas Medical Branch School of Medicine; Chief Executive Officer, Beyond the Exam Room

John Paul Sánchez MD, MPH Associate Professor, Department of Emergency Medicine, Former Inaugural Associate Dean for Diversity and Inclusion, Rutgers New Jersey Medical School

Financing a Career in Academic Medicine

12

Pooja Kothari, Julie Gilbert, Nelson Sánchez, and Dennis Spencer

Personal Story – Nelson Sánchez

I grew up in the Bronx, the son of two Puerto Rican public school educators who stressed the value of an education in achieving your professional and personal goals. My father once said that your education is one of the few things no one could ever take away from you. As valuable as an education is, the increasing costs associated with higher education are placing increasing stresses on career choices for many professionals, including physicians.

I finished NYU School of Medicine in 2008, graduating with approximately one hundred thousand dollars in undergraduate and graduate school debt. My loans were both private and federal. In 2008, the mean education debt for the average medical student was $154,600. I was fortunate to qualify for scholarships during my undergraduate and medical school training that helped defray the high costs of tuition. Upon graduation, I consolidated my individual federal loans into a low-interest rate loan serviced by Navient.

For me, education debt did not influence my specialty choice. I chose an internal medicine residency because the field fit with my interest in direct patient care and using broad clinical knowledge to diagnose and treat medical illnesses. During residency, my passion for education innovations in LGBT health and completing research on marginalized populations sparked my career interest in academia. The opportunity in academia to explore my professional interests in education, research, clinical care, and leadership activities motivated me to seek a job in academic medicine.

Residency was the first time I had a regular full-time job, and I recognized that I had to take greater responsibility for my finances. I began to maintain a spreadsheet of my income and expenses, and I set a goal of paying off my education debts as quickly as possible. Since

P. Kothari (✉)
Rutgers New Jersey Medical School, Newark, NJ, USA
e-mail: ppk25@njms.rutgers.edu

J. Gilbert
Association of American Medical Colleges, Washington, DC, USA

N. Sánchez
Weill Cornell Medical College, New York, NY, USA

D. Spencer
Boston Children's Hospital, Harvard Medical School, Boston, MA, USA

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9_12

finishing residency, I joined the faculty at Memorial Sloan Kettering Cancer Center and Weill Cornell Medicine on the clinical track. As an attending, I set annual short- and long-term financial goals for myself, including paying off my student loans. In 2015, I made the final payment on my student loans.

My financial education began with my parents. They are frugal people and they taught me about hardships associated with a life mired in debt. They explained to me that financial security is not only based on how much you earn, but also on how much you spend. Some achieve their financial goals with the help of a financial planner. I have been able to achieve mine with the help of wise parents. I hope that the advice we share in this chapter will help you realize that a career in academia is a personal, professional, and financially fulfilling option.

Personal Story – Pooja Kothari

Growing up the daughter of two immigrants in a humble household, one of the values my parents instilled in me was the importance of financial security. To this end, they encouraged both my brother and I to pursue higher education that would provide us with a skill set supportive of a solid financial foundation that they both lacked growing up. Luckily, my passions aligned perfectly with medicine, which I knew would provide me with a reliable source of income.

Upon beginning my journey in medicine at Rutgers New Jersey Medical School, I had the opportunity to delve into the many sides of medicine: global health initiatives, clinical research, patient centered care, and more. As my interests developed, I found that going forward I would like to work both as a patient-facing clinician in Internal Medicine and be involved in academic medicine, educating students and residents, as well as participating in clinical research for the betterment of underserved patient care. Having little knowledge of the payment scale in academic medicine, only hearing rumors of the discrepancy in compensation between private clinicians and those in academia, I was not sure if this career choice would provide the financial security that I had hoped to achieve. Additionally, with the interest of pursuing a Master of Public Health degree after medical school to support my ability to conduct and apply clinical research to underserved communities, I became warier of the loans that would continue to build. How would I pay back the loans and growing interest? What if I start a family? Will I be able to support them while working as a resident or fellow with loans to repay? Will I be able to help support my parents on a salary in academic medicine?

I had many concerns that I thought would ultimately inform what career path I chose. However, my growing interest in both internal medicine and academic medicine has not deterred me from pursuing this path; the gratification I know I will get from applying my clinical research to improving patient care and helping shape budding physicians is a powerful motivator. Additionally, with the guidance of mentors, I have learned more about how it is possible to sustain a financially fit lifestyle in this field. Most importantly, I have learned the utility of setting a monthly budget during medical school, which I will carry through in residency, that will help me stay financially sound going forward.

I am lucky that I had mentors that helped educate me about the ways to make a career in academic medicine work for me, but have found that many fellow medical students do not have this same understanding. I hope that educating medical students on the finances of medicine becomes a part of standard curriculum in the near future, so that others can feel confident in their decision to pursue whatever field most interests them without the fear of growing debt and poor financial stability.

Personal Story – Dennis Spencer

While I've always prided myself on being driven by "passion" and my sense of "purpose" rather than simply "following the money," it would be disingenuous to not acknowledge that money factors into my journey. I often downplay the role of money, feeling that I must combat the hypocrisy in the familiar claim "I just want to help people," only to then turn around and perseverate on earning potential differences between specialties.

After all, as medical doctors, we are in a profession that inherently pays better than most jobs in the USA.

One glaring difference I acknowledge is that my very pursuit of an academic medicine career has positioned me not to have the mountain of medical educational debt faced by many of my colleagues. The National Institutes of Health's National Institute of General Medical Sciences has awarded many US institutions a Medical Scientist Training Program Grant that pays for the majority of an accepted student's combined MD-PhD training. Part of the purpose of this award is not to penalize future Physician Scientists for lost earnings potential (that could otherwise be used to pay medical school debt) due to the additional years of needed training. As far as other perks, I wrote for multiple smaller grants and fellowships during my training that both provided me more resources for my lab as well as paid for travel opportunities to attend conferences in Greece, Italy, and the United Arab Emirates to share my work and learn from other groups in my field.

Part of my decision to downplay the role of money in my decision-making is to be consistent with how I advise my mentees not to pursue an MD-PhD combined degree solely because it is a "free medical degree." There are many ways to enter academic medicine and the cost savings that come with pursuing a PhD does not sustain you through the many ups, downs, and uncertainties one faces, especially if they're not truly passionate about pursuing this path. Unlike the medical degree, which has a set curriculum that once completed affords you a medical degree, there is no such certainty with the PhD often pushing the candidate to dig deeper into their mental toughness than they could have ever expected. Just as with the MD, the PhD (maybe even more so) requires the individual to be in it for the right reasons.

I am pursuing a physician-scientist tenure track within the basic sciences, which has been a passion for me. Having a medical degree affords me the privileged opportunity to both see patients in addition to conducting research. Practically speaking, this uniquely provides me job security in a research climate where there are more persons graduating with PhDs (only) than there are faculty positions at most major research institutions. Rather than necessarily befalling to the "publish or perish" paradigm for most basic scientists, I have the added option to shift the percentage of my effort and time towards an additional clinic session or more procedures.

While one certainly can acknowledge that seeing fewer patients or doing less procedures in pursuit of research may result in a salary that may be less than providers doing purely clinical work in the private sector, the privilege to advance science and medicine while objectively remaining a top earner in the USA (even if not a millionaire) continues to motivate me to pursue passion rather than max dollars.

Introduction

The number of medical schools in the continental USA continues to grow, necessitating a parallel growth in physicians involved in academic medicine. However, studies show medical student interest in pursuing roles within academics remains low for several reasons, including a lack of mentors encouraging the pursuit of academic medicine, older average age of entry into medical school, the multitude of academic responsibilities (e.g., publishing, grant writing, etc.) alongside clinical practice, and often, accumulated debt [1].

Loans and perceived low academic salaries have been shown to dissuade some students from pursuing academic medicine. From 2000 to 2010, the mean medical student debt rose by 78% from $88,000 to nearly $158,000, which tripled the rate of inflation [2]. Debt continues to rise, as median medical student debt in 2018 was found to be $194,000 [3]. The high cost of medical education invariably affects participation in fields like primary care [4]. The AAMC graduation questionnaire in

2009 showed that 22% of students were strongly or moderately impacted by debt, altering their choice of residency and subsequent specialty [5].

The literature indicates that student interest in academic medicine is high, but often unable to be realized due to financial constraints, as a result of the perception that an academic career cannot foster a comfortable lifestyle. However, there is ambiguity concerning which factors play the larger roles affecting the perceived and actual gap between academic and private practice salaries, including but not limited to, type of specialty, location of practice, and hours of clinical work. As such, it is important to evaluate what one values both personally and professionally to help determine the most appropriate career path for an individual.

The misalignment between interest in academic medicine and eventual pursuit of this career pathway provides the context for educating medical students and residents about the benefits of a career in academia and the many avenues available to repay loans efficiently so that they can make a well-informed decision on entering the field of academic medicine.

Compensation in Academic Medicine

Common perceived financial barriers to academic medicine include post-graduate debt load, lower overall salary, institution dependent salary capping, and lack of transparency of the compensation package. In terms of overall salary, the AAMC Careers in Medicine website gives an idea of the average salary for different specialties by clinical practice versus academic medicine [6]. The chart below describes the pay scale for Internal Medicine and Anesthesiology in academia and clinical practice [6].

Internal Medicine and Anesthesiology Pay Scale

Internal Medicine

Clinincal	Low	Median	High	Academic	Low	Median	High
Starting Salary	$190,000	$261,000	$475,000	Assistant professor	$180,000	$208,000	$256,000
				Associate/ Full professor	$204,000	$239,000	$289,000

Anesthesiology

Clinincal	Low	Median	High	Academic	Low	Median	High
Starting Salary	$325,000	$371,000	$540,000	Assistant professor	$315,000	$355,000	$403,000
				Associate/ Full professor	$344,000	$394,000	$445,000

Within Internal Medicine, there is a difference in low, median, and high salary between clinical practice and academic medicine. However, more marked is the difference between specialties, suggesting less of an impact between clinical and academic tracks. For example, Anesthesiology take-home pay is almost twice as much as compared to Internal Medicine. Outside of specialty differences, there are many ways in which physicians in academic medicine are compensated that affect total take-home pay.

One factor that affects compensation is dependent on what particular track within academic medicine a physician chooses to follow. For example, a clinical educator pay can be associated with teaching and curriculum building, physician scientist pay can be affiliated with grants, and clinician pay can be dependent on quality improvement and quality assurance metrics. These varying responsibilities within each track affect how the physician spends their time, as well as their salary.

Additionally, understanding the metrics of the system one is working in with regards to how compensation is tallied is critical to understanding the final salary a physician receives. Some factors that affect take-home pay include being evaluated based on number of patients seen, total relative value units (RVU), work RVUs, committees and administrative responsibilities, and/or total grant money acquired. Also, there are financial incentives for discovery from royalties for intellectual property, as well as opportunities for consulting, contracted services, and honoraria. Special situations include competition for grant funding (at times, a physician scientist's salary can be dependent on grants) in addition to compensation from inventions and innovations. Knowing how an institution compensates a physician on a particular track within academic medicine is important as this dictates how one should plan on what to ask for.

Faculty, in particular researchers, may need to supplement their salary from externally funded grants, which can vary by institution. For example, a published University of Cincinnati sample employee agreement notes a benchmark as much as 43.75% of a nine-month salary [7]. In addition, depending on institutional policy, one may be able to engage in consulting activities.

Obtaining grants, especially NIH-funded grants, is quite competitive and requires dedication and endurance. Individuals on the clinician-researcher track can negotiate for a higher proportion of salary support (70–100%) initially, with an expectation that grants will cover an increasing portion of salary in subsequent years. For NIH grants, for FY 2018, the Consolidated Appropriations Act, 2018 (Public Law 114-113), restricts the amount of direct salary to Executive Level II of the Federal Executive pay scale to $189,600 (as of January 7, 2018) [8]. This is the maximum many researchers may request for salary support in their grant proposals.

Most institutions stake ownership of intellectual property if it was developed in whole or in part using their facilities, materials, funds, or other resources owned or administered by the institution. To incentivize innovation and discovery, however, revenue sharing with the investigator(s) is another way take-home pay may be dramatically impacted. The relative amount varies significantly between institutions, but in some cases, it may be negotiated up front prior to a new hire.

Equally as important in considering an offer of employment are the components available for negotiation. Among the negotiable items are the following:

- Salary
- Professional development benefit (i.e., CME)
- Moving / housing expenses
- Office space/procedural equipment (i.e., laparoscopic equipment)
- Teaching responsibilities (time covered to teach medical students or residents)
- Administration/titles (i.e., Director of Community Engagement)
- Research responsibilities (i.e., commitment for protected time towards writing your K-/R-series award may translate to improved success rate)
- Start-up money (often multiyear use)
- Lab facilities
- Tenure "clock" options
- Assistance with spousal employment

Numerous factors contribute to whether one will be successful in negotiating certain components, including the ability to convey effectively how a certain factor is tied to one's personal needs and professional development, and the needs of the institution to hire someone to achieve certain deliverables (like teaching a new course or broadening the research agenda of a department, etc.) It is effective to negotiate for support that will be "beholden" to the employee's responsibilities, but paid for by someone that finds value in the goals the employed is attempting to accomplish.

In summary, reviewing offer of employment letters, especially with the help of lawyers, mentors, or specialty peers, can be of immeasurable value. Taking into account the financial component of the contract, including salary, pension, vacation time, loan repayment, CME credit, etc., as well as the advisory or mentoring component provides a holistic view of total compensation.

Navigating Loan Repayment

As discussed, accumulated loans may sometimes deter medical students and residents from entering academic medicine. However, there are several resources, for example, AAMC's FIRST program, that can help professionals navigate loan repayment and money management during medical school and residency [9].

Debt and expenses are often on students' and residents' minds, though mostly only the periphery due to educational and clinical responsibilities that typically necessitate more attention. It is important to remember that living modestly now can lead to a more satisfying life in the future. Critical debt and expenses to be mindful of are the following:

- Credit card debt
- Loans
- Monthly expenses (i.e., rent, food, recreation, ATM statements)
- Potential future expenses (i.e., new car, growing family, ill parents, dating)

Additionally, when it comes to loan repayment, it is useful to keep deadlines and responsibilities in mind. Missing deadlines and/or not completing paperwork in a timely manner can end up costing more money than necessary. Educating oneself about an individual's loan portfolio by logging into the National Student Loan Data System (NSLDS) helps in keeping up to date about loan specifics [10]. NSLDS is a secure database of federal loan information; it will not contain any information about private loans or institutional loans an individual has borrowed. For institutional loan information, one should contact the financial aid office, and for private loan information, one should either pull their credit report or contact the lender of the funds. One can review their loan repayment options by importing their loan information from NSLDS into AAMC's MedLoans® Organizer and Calculator, which was created for medical students and residents [11]. This calculator considers time in residency, salary during residency, and the expected salary post-residency to show an approximation of loan repayment numbers based upon the different loan repayment plans.

Types of Loans

Knowing the types of loans one has, along with the interest rates, loan disbursement date, and information about who services the loan, can help guide borrowers in selecting the most appropriate repayment strategy for their financial situation. This information can also be helpful if, at some point in time, one is able to make extra payments on a loan; knowing these details can help target the costliest loans. Below is a chart of different types of loans [12–14].

Types of Loans

Direct Unsubsidized
These are federal loans for graduate and undergraduate students, which are not based on financial need. These loans are unsubsidized. Interest will accrue on these loans once disbursed and the interest that is not paid prior to the end of the grace period will capitalize.
Direct PLUS
These loans are federal loans that graduate or professional degree students and parents of dependent undergraduate students can borrow to help pay for education expenses. Direct PLUS loans have an annual fixed interest rate and are not subsidized, which means that interest accrues while the student is enrolled in school.
Primary Care Loans (PCL) and Loans for Disadvantaged Students (LDS)
These are loans funded by the Bureau of Health Workforce and available through some schools. Primary Care Loans are low-interest loans awarded to students who agree to do a residency in primary care within 4 years of medical school graduation, and practice primary care for at least 10 years or until the full loan is paid off, whichever comes first. Loans for disadvantaged students are low-interest loans awarded to students who are disadvantaged and demonstrate financial need. These loans have fixed interest rates, and a 12-month grace period. Deferment may be possible during residency. These are subsidized loans, so will not accrue interest during school or during deferment.
Institutional Loans
Institutional loans vary from school to school and are funded by school resources, alumni, foundations, donors, etc. Not all schools provide institutional loans. They each have their own set of rules for eligibility, loan terms, and repayment. They often offer low interest rates, competitive with federal and private loans.

Private Loans
These loans are offered by various financial institutions. Private loans often require a cosigner, or a higher credit score to qualify. They may have variable or fixed interest rates; however, they will not qualify for federal loan forgiveness or for federal repayment plans, which may make payments higher during residency.

In terms of interest rates, federal rates will differ each year a medical student borrows them. However, once the loan is disbursed, the interest rate is fixed so that the rate will not change during repayment unless one decides to consolidate their loans. A Direct Consolidation Loan allows you to combine several smaller federal loans into one new, larger loan. The new loan may have a slightly higher interest rate because the new rate is the weighted average of all the combined loans, rounded up to the nearest one-eighth of a percent. One reason borrowers consolidate is to simplify loan repayment. Consolidation is not always necessary.

Additionally, some loans will have a grace period. This is a period of time after graduation when payments are not required. Subsidized loans will remain subsidized during the grace period. Unsubsidized loans will remain unsubsidized and continue to accrue interest during the grace period.

Once the grace period is over, capitalization occurs. Capitalization is the addition of unpaid interest to the principal balance of a loan. After capitalization, one can either go into forbearance or start repaying their student loans during residency.

In order to better inform the decision of repayment or forbearance, one needs to focus on their future goals. For example, if one needs as much disposable income as possible for family expenses, or perhaps is worried about repaying private loan debt first, then putting federal loans into forbearance may be a good option. To continue forbearance throughout residency, one must apply annually. Though monthly payments are not required during this period, borrowers can pay their loans at any time and there is no prepayment penalty for doing so. However, despite this caveat, interest continues to accrue over the requested forbearance period. If the borrower requests forbearance annually, then interest capitalization can be delayed until the end of residency. Of note, all residents with federal loans are eligible for a mandatory residency forbearance. To receive a forbearance, a resident must contact their federal loan servicer and complete the necessary paperwork [15].

On the other hand, forbearance may not be the best option if one is considering the Public Service Loan Forgiveness (PSLF) program or an income-driven repayment plan, which offers loan forgiveness. If a borrower is seeking loan forgiveness, they would likely want to start paying off debt monthly so that the required payment could possibly count towards loan forgiveness.

Types of Repayment Plans

There are two types of repayment plans: Traditional and Income-Driven. Determining one's personal repayment goals helps determine which plan is best. Below is a chart that explains the features of each of the repayment plans [16].

Repayment Plans

	Traditional			Income-driven			
	Standard	Extended	Graduated	ICR – Income Contingent Repayment	IBR – Income-Based Repayment	PAYE – Pay As You Earn	REPAYE – Revised Pay As You Earn
Eligible Loans	Direct subsidized Direct unsubsidized Subsidized and unsubsidized Federal Stafford Loans All PLUS[a] loans All Consolidation Loans (Direct and FFEL[b])	Direct subsidized Direct unsubsidized Subsidized and Unsubsidized Federal Stafford Loans All PLUS loans All Consolidation Loans (Direct and FFEL)	Direct subsidized Direct unsubsidized Subsidized and unsubsidized Federal Stafford Loans All PLUS loans All Consolidation Loans (Direct and FFEL)	Direct subsidized Direct unsubsidized Direct PLUS loans Direct Consolidation Loans	Direct subsidized Direct unsubsidized Subsidized and unsubsidized Federal Stafford Loans All PLUS loans All Consolidation Loans (Direct and FFEL) not made to parents	Direct subsidized Direct unsubsidized Direct PLUS loans Direct Consolidation Loans not including PLUS loans made to parents	Direct subsidized Direct unsubsidized Direct PLUS loans Direct Consolidation Loans not including PLUS loans made to parents
Monthly Payment	Fixed	Fixed or graduated	Graduated	Lesser of: 20% of discretionary income or monthly payment over 12 years on fixed payment plan	10–15% of discretionary income and never more than under Standard 10-year payment plan. Percentage of discretionary income depends on when the loan was disbursed.	10% of discretionary income and never more than under Standard 10 year payment plan	10% of discretionary income

(continued)

	Traditional			Income-driven			
	Standard	Extended	Graduated	ICR – Income Contingent Repayment	IBR – Income-Based Repayment	PAYE – Pay As You Earn	REPAYE – Revised Pay As You Earn
Time Frame	Within 10 years (10–30 years for consolidated loans)	Within 25 years	Within 10 years (10–30 years for consolidated loans)	Within 25 years	Within 20–25 years	Within 20 years	Within 25 years
Eligibility	All borrowers	Must owe over $30,000 in Direct or FFEL	All borrowers	Direct loan borrowers with eligible loan type	Must satisfy partial financial hardship requirement	Direct loan borrowers; must satisfy partial financial hardship requirement	Direct loan borrowers with eligible loan type
PSLF qualified?	Eligible	Not eligible	Not eligible	Eligible	Eligible	Eligible	Eligible
Advantage	Often lowest total repayment	Low monthly payment	Good for those expecting increase in income in the future	Initially low payments, increase with income increase. Capitalized interest cannot exceed 10% of original loan balance	Payment recalculated each year based on income and family size	Low monthly payment, based on income and family size	Low monthly payment, based on income and family size

[a]PLUS – federal loans for graduate students

[b]FFEL – Federal Family Education Loan. A type of federal loan made my private lenders and guaranteed by the government. No new FFEL loans as of July 2010, though many remain in the system

In the traditional repayment plans, monthly payments are determined by the length of the repayment term and the loan principal. At times, especially in relation to a resident's salary, payments may seem high, which may make repayment difficult for residents.

Income-driven repayment plans are best for those who want to make payments, but can only afford a minimal payment. These plans are usually more affordable during residency because payment is based on income versus loan principal.

Income-Driven Repayment Plans Offering the Lowest Monthly Payment

While there are a number of income-driven repayment plans, borrowers needing the lowest monthly payment will likely turn to the Pay As You Earn (PAYE) or Revised Pay As You Earn (REPAYE) repayment options because both of these plans base the borrower's monthly payment on 10% of their discretionary income and the size of their household.

The PAYE plan requires that borrowers meet certain eligibility qualifications, like being a new borrower on or after Oct. 1, 2007 and having a loan disbursed after Oct. 1, 2011. PAYE is only available to borrowers with Direct Loans, and in order to qualify, borrowers must have a partial financial hardship (PFH) to qualify. A borrower meets the PFH requirement if their monthly payment under the Standard, 10-year repayment plan is higher than what it would be under the PAYE plan.

PAYE bases the monthly payment on 10% of a borrower's discretionary income and has a 20-year repayment term. If a borrower does not have their balance paid off within 20 years, then any remaining balance would be forgiven; however, any balance forgiven, would be taxable. This plan puts a cap on the monthly payment amount and offers an interest subsidy on direct subsidized loans. For married borrowers who file taxes jointly, the spouse's income will be used in determining the monthly payment amount.

The Revised Pay As You Earn (REPAYE) plan is also available to Direct Loan borrowers, but there is no partial financial hardship requirement. This monthly payment is also based on 10% of a borrower's discretionary income; however, the repayment term is 25 years for graduate/professional students. REPAYE also offers loan forgiveness for any balance remaining after 25 years, and any balance forgiven would be taxed. There is NOT a cap on the monthly payment, but there is an interest subsidy that helps borrowers during periods of negative amortization. For married borrowers, a spouse's income will be used when determining the monthly payment, regardless of how taxes are filed.

Example

Let's look at a hypothetical example of an Internal Medicine resident with a family size of 1, whose 3-year residency starting salary is $57,000. After 3 years, the resident's salary will become $190,000. Net monthly income during residency is

approximately $3,500 and post-residency monthly income is about $10,000 [17]. Below is a chart that describes the estimated monthly payments based upon the Standard, PAYE and REPAYE plans for a resident who is paid $57,000 per year with $200,000 in loan debt [17–18].

Sample Repayment: Standard, PAYE, REPAYE Plans

3 Year Residency - $200,000 Loan Debt					
Repayment Plan	Payment During Residency	Total Years Including Residency	Payment After Residency	Total Repayment Amount	Forgiven
Forbearance then Standard	0	13	$3,000	$365,000	N/A
PAYE	$320 - $370	20	$1,600 - $2,300	$394,000	~$73,000 (taxed)
REPAYE	$320 - $370	25	$1,600 - $2,400	$437,000	$0

With this hypothetical example, the first row of the chart shows a borrower who chooses forbearance to manage loans during residency. The total time to repay (including residency) is 13 years. After residency, the borrower chooses to repay their loan balance with the Standard plan, so that means they will pay the same amount each month for 10 years until the loan is paid off.

With the Pay As You Earn plan (PAYE), the borrower would pay for a total of 20 years, and upon reaching the 20th year of repayment, the remaining loan balance would be forgiven; however the forgiven balance is taxable.

If the borrower didn't qualify for PAYE (because they don't have a partial financial hardship, or they weren't a new borrower), then they might choose REPAYE. With this plan, one pays for a total of 25 years with monthly payments similar to that of the PAYE plan during residency; however, after residency, monthly payments could be higher because there is no "cap" on payment amount. In this example, the borrower would not have any loan balance forgiven because they pay the loan off before the 25-year term is over.

The borrower has the power to ultimately "design" their own repayment plan by making larger payments or multiple payments throughout repayment. By doing so, each borrower can determine their own length of repayment and their overall loan costs. Repayment strategy is up to each borrower, and depends on the borrower's goals and the borrower's financial situation.

With the income-driven repayment plans, and forbearance, borrowers are required to complete annual paperwork. The paperwork is submitted so that the borrower can stay in forbearance or in the case of income-driven repayment

plans, so that the servicer can recalculate the borrower's monthly payment based upon current household size and income.

Consolidation

As mentioned previously, consolidation pays off all current underlying federal loans and creates one new loan. One advantage of consolidation is the simplification of loan repayment [18]. Instead of having to keep track of multiple loans, sometimes with different servicers, one would have a single point of contact and one monthly payment. Another reason to consider consolidation is if a resident is considering Public Service Loan Forgiveness (PSLF), and has loans that are not Direct Loans [19]. In this case, a borrower could consolidate their non-Direct Loan into a Direct Consolidation Loan to make it eligible for PSLF. Additionally, a consolidation may be necessary to make some loans eligible for certain income-driven repayment plans.

Public Service Loan Forgiveness (PSLF)

PSLF is a federal program that forgives the balance of Direct Loans after a borrower makes 120 qualifying, on-time monthly payments while enrolled in a qualifying loan repayment plan and while working for a qualifying employer. After making the qualifying payments, the remaining balance is forgiven tax-free.

In addition to PSLF, there are other loan forgiveness options to consider. Below is a list of a few opportunities. A comprehensive list can be accessed on aamc.org/repayasst [20].

- National Health Service Corps
- Indian Health Service
- National Institutes of Health
- USPHS Commissioned Corps
- Department of Veterans Affairs
- US Air Force
- Department of the Navy
- US Army

Budgeting

Ultimately, one can repay loans and manage financial success in many different ways. One of the best ways to get a true picture of what one can afford to pay during residency is to be aware of one's finances – know how much income one has, and where and how much one is paying toward expenses.

Using a budgeting worksheet in medical school and beyond is a great way to not only keep track of ongoing expenses and also make appropriate changes going forward. Below is a sample of a worksheet that could be helpful to this end [21].

Budget worksheet		
Monthly income	Current	Resident
Aid/income	5833[a]	4333[b]
Gifts	50	0
Other	0	0
Total income	5883	4333
Monthly expenses		
School tuition	3333	0
School supplies	50	0
Housing (rent, internet, utilities, TV)	1100	1275
Transportation	150	200
Insurance (auto, health, home)	200	350
Savings	0	200
Phone	0	0
Student loans	0	250
Food (groceries and dining out)	500	500
Recreation	200	200
Laundry	25	25
Shopping (clothes, books, gifts, toiletries, other)	100	100
Travel	0	200
Other	100	0
Total expenses	5758	3300
Total Income- Total Expenses	**75**	**1003**

[a]Receiving $70,000/ year in loans, $40,000/year in tuition
[b]Receiving $52,000/ year in income [21]

Conclusion

Though academic medicine is commonly misinterpreted as a field with a lower salary, it is important to note the many gratifying aspects of this career pathway, as well as the areas of compensation that can be negotiated in an employment contract. Large amounts of accumulating debt can often be a deterrent for some medical students and residents alike. Additionally, navigating loan repayment can be overwhelming, but with knowledge of the different options available to repay them, examining one's future goals, and using a monthly budget can help form a realistic, manageable plan that uniquely fits an individual's lifestyle.

References

1. Greenberg RB, Ziegler CH, Borges NJ, et al. Medical student interest in academic medical careers: a multi-institutional study. Perspect Med Educ. 2013;2:298. https://doi.org/10.1007/s40037-013-0051-6.

2. Craft JA 3rd, Craft TP. Rising medical education debt a mounting concern. Graduates also face less favorable repayment terms, shortage of training positions. Mo Med. 2012;109(4): 266–70.
3. Seven ways to reduce medical school debt. AAMCNews. https://news.aamc.org/medical-education/article/7-ways-reduce-medical-school-debt/. Published October 8, 2018. Accessed 20 May 2019.
4. Phillips JP, Petterson SM, Bazemore AW, Phillips RL. A retrospective analysis of the relationship between medical student debt and primary care practice in the United States. Ann Fam Med. 2014;12(6):542–9. https://doi.org/10.1370/afm.1697.
5. Association of American Medical Colleges. All schools report (final) 2009. Medical school graduation questionnaire. CME report 1, I-10. [Google Scholar].
6. Careers in medicine. https://www.aamc.org/cim/. Accessed 11 Aug 2019.
7. Sample appointment letter for assistant professor- tenure track. https://www.uc.edu/content/dam/uc/provost/docs/facultyaffairs/sampleappointmentletters/assprof.pdf.
8. NOT-OD-16-045: Notice on salary limitation on grants, cooperative agreements, and contracts. National Institutes of Health. https://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-045.html.
9. Financial Aid. AAMC Students, Applicants and residents. https://students-residents.aamc.org/financial-aid/. Published July 17, 2018.
10. National student loan data system for students. https://nslds.ed.gov/nslds/nslds_SA/. Accessed 13 Aug 2019.
11. MedLoans® Organizer and Calculator (MLOC). AAMC students, applicants and residents. https://students-residents.aamc.org/financial-aid/article/medloans-organizer-and-calculator-mloc/. Published September 28, 2015.
12. PLUS Loans for Parents. Federal student aid. https://studentaid.ed.gov/sa/types/loans/plus/parent#interest. Published July 1, 2019.
13. Student financial aid guidelines health professional programs Primary Care Loan Program (PCL). https://bhw.hrsa.gov/sites/default/files/bhw/pcl.pdf. Published December 2011.
14. Federal versus private loans. Federal student aid. https://studentaid.ed.gov/sa/types/loans/federal-vs-private. Published August 24, 2018.
15. Deferment and Forbearance. Federal student aid. https://studentaid.ed.gov/sa/repay-loans/deferment-forbearance. Published June 4, 2019.
16. Repayment Plans. Federal student aid. https://studentaid.ed.gov/sa/repay-loans/understand/plans. Published November 15, 2018. Accessed 11 Aug 2019.
17. 2018 Review of physician and advanced practitioner recruiting incentives. https://www.merritthawkins.com/uploadedFiles/Merritt_Hawkins_2018_incentive_review.pdf.
18. Loan Consolidation. Federal student aid. https://studentaid.ed.gov/sa/repay-loans/consolidation. Published October 22, 2018.
19. Public Service Loan Forgiveness. Federal student aid. https://studentaid.ed.gov/sa/repay-loans/forgiveness-cancellation/public-service. Published May 1, 2019.
20. Repayment assistance through forgiveness, scholarships, or service. AAMC students, applicants and residents. https://students-residents.aamc.org/financial-aid/article/repymt-asst/. Published February 1, 2016.
21. You made it-will your wallet? How to budget in medical residency. American Medical Association. https://www.ama-assn.org/residents-students/finance/you-made-it-will-your-wallet-how-budget-medical-residency.

Pooja Kothari, BA Fourth Year Medical Student, Rutgers New Jersey Medical School

Julie Gilbert, BS Senior Education Debt Management Specialist, Office of Student Financial Services, Association of American Medical Colleges

Nelson Sánchez, MD Associate Professor of Clinical Medicine, Weill Cornell Medical College

Dennis Spencer, MD, PhD Clinical Fellow, Gastroenterology, Hepatology, and Nutrition Boston Children's Hospital, Harvard Medical School

Index

J. P. Sánchez (ed.), *Succeeding in Academic Medicine*,
https://doi.org/10.1007/978-3-030-33267-9