

Handbook of Research on

Developing Competencies for Pre-Health Professional Students, Advisors, and Programs



Rohini Ganjoo and Lisa S. Schwartz



Handbook of Research on Developing Competencies for Pre-Health Professional Students, Advisors, and Programs

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Supporting the Development of Lifelong Learning Skills..... 1

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Constant self-evaluation and lifelong learning skills are some of the key characteristics of competent healthcare professionals. Additionally, the ability to set goals and use feedback to enhance performance has been identified as one of the core competencies for entering medical students. This chapter uses educational theories to describe the lifelong learning skills required for academic success. This chapter also provides recommendations to pre-health programs on strategies that support the development of these skills. The recommendations include general strategies to foster self-regulated learning and specific academic coaching strategies that promote the holistic development of pre-health professional students.

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Carol Rentas, The George Washington University, USA

What is professionalism as it applies to a healthcare professional, and how is it critical to patient care? It begins with the individual professional. This chapter provides an overview of the professional progression, from building a professional identity to participating in meaningful advocacy in the profession and ultimately leading other professionals in the betterment of the profession. The chapter will highlight tools and exercises advisors and educators can use to cultivate an understanding of the critical steps of this progression. Ultimately, the educators and advisors will be able to equip the pre-health professional with the roadmap to becoming the consummate healthcare professional, which is critical to operating at a level that ensures optimum patient care.

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Jessica Evert, Child Family Health International, USA & University of California, San Francisco, USA

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This chapter provides essential information, perspectives, and talking points for advising students on clinical experience/patient care exposure at home and abroad. The authors will outline different mechanisms for students to get this experience, historical and present-day perspectives on why this is important and impactful, as well as key ethical and legal reasons to scrutinize potential opportunities. Advisors will be equipped to guide key student-facing conversations and institutional approaches.

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Beyond Clinical Experience and Research: How Other Activities Create Well-Rounded Students 62

John Fierst, Rice University, USA

Health professions schools eagerly look for applicants who demonstrate a commitment to service, the potential for leadership, and the ability to work effectively with others as reflected by their core competencies. While these attributes can be developed through clinical experience and research, there are myriad ways for students to gain these important skills in many other contexts as well. Health professions advisors are uniquely positioned to help students explore the activities they would like to pursue and guide them in identifying how their extracurricular endeavors and employment will positively contribute to their development as future healthcare professionals. This chapter offers the importance of community service, leadership, employment, and extracurricular involvement in creating well-rounded pre-health students and suggests strategies that pre-health advisors can use to aid their students and their own offices in these areas.

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Robin A. Selzer, University of Cincinnati, USA

Fatima Khan, University of Cincinnati, USA

Educators at colleges and universities have utilized the American Association of Medical Colleges (AAMC) core competencies to advise students who aspire to become health professionals. Cultural competence is included as a core interpersonal competency and has become increasingly important in the wake of the global pandemic and racial uprising in the United States. This chapter builds on prior research related to the efficacy of using an intercultural competence assessment tool with pre-health professional students. The Intercultural Development Inventory (IDI) and accompanying debrief was utilized with 75 high-achieving, pre-health professional students. Findings corroborated prior outcomes and revealed students continued to significantly overestimate their intercultural competence. The results suggest pre-health advisors could use the IDI LLC guided development® model as an evidence-based best practice to encourage students to practice reflection on perspective-taking as a professional trait and thereby supporting them to be competitive applicants.

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Leigh A. Frame, The George Washington University, USA

Addressing the mental health and well-being of pre-health students is critically important to ensuring their success through college and entry into advanced training or the workforce. Pre-health students represent some of the most motivated, involved, and engaged students on campus. Retaining these students and ensuring a positive undergraduate experience may help improve the development of a robust and diverse healthcare workforce. This chapter considers academic stress points and common mental health concerns among pre-health and graduate-level clinical students and discusses the implications of poor mental health outcomes among these student populations. This chapter is the first in a two-part series designed to understand the experiences of health science students and potential adverse health outcomes they may experience. The second chapter in this series considers practical approaches for pre-health advisors to foster and encourage well-being among students.

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The well-being (health and wellness) of the pre-health student directly contributes to their short-term academic success and their long-term professional and personal aspirations. The pre-health advisor has a role to play in fostering an environment in which the pre-health student can thrive, including supporting their well-being. This chapter addresses major contributing factors: stress management and mental clarity can be accomplished in many ways, e.g., mindfulness meditation. Cognition is dependent upon immune function, which is generally supported by a diverse, plant-rich diet. Physical activity (exercise and natural movement) supports mental health and cognition and are often limited in the pre-health student as well as healthcare professionals without intentional incorporation. Restorative sleep allows for healing and repair throughout the body (including the brain) as well as memory integration; simple steps can improve sleep quality and quantity. Ultimately, the pre-health advisor should utilize cross-campus partnerships to promote a culture of well-being.

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Dana Powell Baker, The University of Kansas Medical Center, USA

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Mentoring is essential to professional development and socialization in many fields, but this relationship is critical to health professions practitioners. These professionals come to their respective disciplines with the requisite learning from their educational programs, but they will also benefit from the guidance of a mentor. Mentoring relationships allow mentees to move their practice along the continuum from novice to expert. This translates to safer, more coordinated care at the bedside and a more holistically developed practitioner. This chapter examines types of mentoring relationships and how professionals can decide which best meets their needs and goals. Review of the characteristics of effective mentors and mentees is an important element of this chapter, as it is crucial for those seeking these roles to know their responsibilities. Discussion of how mentoring diverse groups of health professions students will help to reduce disparities in healthcare is an important focus of this chapter.

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Julie Renee Nelson, The University of Michigan, USA

In this chapter, the author explores the application of counseling approaches in advising pre-health professional students. After identifying and reviewing three counseling models, the chapter offers theory-to-practice strategies for developing psychological flexibility and perspective taking with pre-health students. The author discusses common challenges for all pre-health students and structural inequalities that disadvantage students from underrepresented groups and how counseling approaches help advisors and students build a trusting alliance to address challenges inherent on the path to becoming a health professional. The chapter includes practical tips and suggestions to empower educators and advisors to apply counseling-inspired approaches to enhance advising practice and creatively support this student population.

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Emil Chuck, Health Professional Student Association, USA

Carol Elam, University of Kentucky, USA

This chapter presents organizational templates for advisors and admissions officers when describing or evaluating competency development among prospective students. Using these templates, stakeholders can articulate the strengths and capabilities of individual applicants based on information provided on their applications and letters of evaluation. Each major characteristic and competency are described with example sources identified to demonstrate the concept of “knows how, shows how, and does” for competency development. These concepts are generally reinforced in holistic review training for admissions staff and faculty evaluators to provide a consistent standard of assessment, especially in reviewing letters of evaluation.

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Carl Heng Lam, University at Buffalo, The State University of New York, USA

Michelle Sherman, Boston University, USA

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This chapter explores the intersection of technology and advising students pursuing a health professional program. In consistently serving students, the delivery of the advising experience takes on a new aesthetic. In the chapter, the concept of flipped advising is introduced as a method of delivering information efficiently while leveraging technology. With a wide variety of technological tools available to advisees and advisors, this chapter will highlight the practical integrations on three campuses and examine the technological opportunities and challenges to improve the advising experience.

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Karen L. Ball, Alma College, USA

Nancy Carter Dopke, Alma College, USA

The evolution from a traditional model of individual faculty advising pre-health professional students to a committee structure incorporating both faculty and staff is discussed. In detailing the transition, the advantages, disadvantages, successes, and failures of three models of advising are considered. The goal of this chapter is to assist other institutions that may be considering changes in their pre-health professional student advising model. Key considerations during transitions were the desire to have a consistent message, to address the multiple stakeholders of pre-health advising, and to create a cohesive, robust, collaborative strategy.

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The Foundations of Success in Health Professions Education: Applying Strategic Learning to Training Pre-Health Professions Learners 260

Amber Jene Heck, ScholarRx, LLC, USA

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Courtney Cross, University of North Texas Health Science Center, USA

Pre-health professions learners are physically mature adults. However, in early adulthood, cognitive and emotional development are incomplete, and the transition to higher education presents a challenge for learners. The academic environment is demanding, requiring strong will, advanced skill, and self-regulation ability. Even exceptional learners may struggle. With so many variables, how can pre-health professions educators best support learner success? The goal of this chapter is to establish the model of strategic learning as a foundation for identifying and adopting strategies that support learner success. Here, the authors present the model of strategic learning and each of its four components: academic environment, skill, will, and self-regulation. Within each section, the authors discuss the impact of these on learner success and make recommendations to cultivate a strategic academic environment in pre-health professions programs. The authors conclude by justifying a holistic approach to developing pre-health profession learners into strategic learners.

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Anya Cruz, University of Illinois Chicago, USA

The professional healthcare admissions process is rife with inequalities, and it is imperative that advisors do not amplify the unequal system. Health professions advisors can use their work with historically marginalized students to overcome systemic racism in pre-health advising and the professional school application process. Health professions advisors must support students who have not historically been supported in pursuing admission to professional healthcare programs. In this chapter, advisors will learn how to engage with those who do not fit the traditional image of a “perfect” candidate for professional healthcare programs. Advisors will learn how historically marginalized students, with non-traditional activities, are in fact strong candidates for their respective professional programs. This chapter also recommends specific language that advisors can use to engage with students who have varied experiences in order to support them on their journey to a professional healthcare career.

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Reflecting on Race and Health Outcomes: Through the Eyes of a Pre-Health Professional Student. 305

Savannah J. Salato, University of Minnesota – Twin Cities, USA

Barbara Fifield Brandt, University of Minnesota – Twin Cities, USA

A recently graduated pre-health student reflects on the valuable lessons learned about race and health outcomes in social science and humanities courses throughout her undergraduate interdisciplinary program. Coinciding with her unique college experience were the turbulent events of 2020, with a global pandemic and the murder of George Floyd bringing to light racial inequities in the student author’s own backyard of Minneapolis. These events illustrated the need for empathetic and humanistic health professionals who are aware of and can address race and health inequities. Based upon research from her honors thesis, this chapter will use the example of maternal health disparities to demonstrate the complex history of racism in healthcare and the impact of system levels on health. The authors make the case for using liberal arts courses to prepare students to become health professionals who have interpersonal and intrapersonal awareness necessary to address racism and health inequities.

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Advising the High School Pre-Health Student: Filling the Gaps Between High School and College 328

Deana L. Golini, Brown University, USA

Seth L. Leibowitz, Virginia Commonwealth University, USA

Victoria A. Shivy, Virginia Commonwealth University, USA

Each year thousands of high school students transition to college with the intent to enter the healthcare professions. Despite their intentions, most will be unsuccessful in meeting this educational and career goal. This chapter discusses some of the reasons why and offers suggestions for filling the gap between high school and college in order to improve students’ chances of success. The intent is to highlight these and other gaps that can limit student familiarity with and preparation for college-level classes, as well as students’ self-efficacy in career decision-making. Students from backgrounds underrepresented in the healthcare workforce often attend under-resourced high schools, reducing their understanding of and

self-efficacy in career decision-making; and most high school students have a limited understanding of the preparation needed to be successful in college. The authors share observations from Virginia Commonwealth University’s Health Sciences Academy to show how pre-health advisors can partner with high schools to assist high school pre-health students with their successful transitions to college.

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Disadvantaged students face many obstacles and roadblocks on their journey to becoming a healthcare professional. Concepts such as the bachelor’s hidden curriculum (BHC), imposter syndrome, and limited cognitive bandwidth provide a framework for pre-health advisors working with these students to understand the constraints under which disadvantaged students might navigate. Advisors familiar with these theoretical constructs can provide more pointed and relevant advice to these students as they work toward their goals. The COVID-19 pandemic and the increased racial unrest following the summer of 2020 add additional stresses and obstacles to aspiring health professionals. This chapter revisits the theoretical constructs while examining in greater depth the additional burdens of the pandemic and increased racial unrest. Case studies are also presented to further illuminate key points.

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Pipeline Programs Supporting Underrepresented Pre-Health Students..... 366

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A diverse health professions workforce is critical to healthcare access and quality, but nurturing interest and recruiting students from underrepresented backgrounds into health science careers remain a challenge. Pipeline programs commonly target students who are underrepresented in health professions, including those from racially and ethnically minoritized groups as well as those from rural areas, low socioeconomic backgrounds, first-generation college students, and other marginalized subgroups. The work of a variety of institutions in developing pipeline programs provides many successful models for enhancing diversity in health professions programs. This chapter describes the roles institutions and pre-health advisors can play in connecting underrepresented pre-health students with well-designed pipeline programs.

Chapter 19

How an Anti-Racist Organizational Change Model Can Build Capacity to Support Historically Excluded Students: A Guide for Advisors and Administrators of Pathway Programs 389

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Increasing diversity among the health workforce is not enough to address healthcare disparities. Advisors and administrators need to understand the role of justice, equity, diversity, and inclusion in the development of anti-racist organizations. This chapter considers the history and impact that the systemic exclusion of Black, Indigenous, People of Color (BIPOC) has on the healthcare system, provides an overview of modern efforts to attempt to resolve this problem through pipeline programs, considers one institution's efforts to make anti-racist change, and discusses how administrators and advisors in pre-health programs and pipeline programs can apply an antiracist organizational change model to build their capacity to support historically excluded students.

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Preface

According to the U.S. Bureau of Labor Statistics (2021), jobs in the healthcare industry are expected to grow by 15% over the next decade, resulting in 2.4 million new positions. The COVID-19 pandemic has also caused an unprecedented increase in applications to health professions programs, with the American Association of Medical Colleges (AAMC) reporting an 18% increase in applications in 2020, more than seven times the typical annual increase of 2.5% (Weiner, 2020). As the demand and interest for health professionals to join the workforce expands, institutions of higher education (IHEs) must support the academic and career development of a diverse set of pre-health professional students. In addition, it is crucial for pre-health advisors, staff, and faculty to guide and advise students as they embark on their academic journey.

The majority of health professional programs practice a holistic review of student applications in their admissions process (Conrad et al., 2016). While science-based content knowledge is key, the AAMC with input from practitioners, professionals, and educators, developed a set of 15 core competencies (AAMC, 2022). These competencies are broadly grouped into four categories: interpersonal, intrapersonal, thinking and reasoning, and science. Other health professions have a similar set of competencies expected among applicants to their programs. These competencies are required for incoming health professional students so they are prepared to meaningfully advance the health and well-being of the patients and communities they will serve. Admission into health professional programs continues to be a competitive process requiring intentionality, purpose, and planning.

Individuals who work with undergraduate pre-health students must guide students to create a balanced set of competencies and ensure that students do not fall through the cracks due to a lack of advising. An approach that is tailored to stitch together the unique needs and interests of each student, as they consider their upbringing, interests, and gaps in their application, will strengthen the application. Advisors can be instrumental in having conversations with students on developing their core competencies, as these are not just a box to check on the application. Intentionally guiding students to consider their interests, what inspires them, what they value, and how they see themselves in the healthcare system is paramount to their success.

Despite the critical need to both develop and articulate these competencies in a pre-health professional program application, many students, particularly those underrepresented in health professions, may face significant barriers. Individuals and IHEs responsible for advising and developing pre-health students must recognize and mitigate these disparities. In addition, the pre-health application process is complex and costly, creating a substantial barrier to otherwise highly qualified students from underrepresented backgrounds in the healthcare workforce. Increasing access to advanced study and career opportunities in healthcare can help effectively ensure that the future workforce is more representative of the populations

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it serves. Recognizing that there is no one-size-fits-all academic journey, and providing a safe space for students to share and overcome these challenges, is needed now more than ever.

This book serves as a companion to the *Handbook of Research on Advising and Developing the Pre-Health Professional Student* (Schwartz & Ganjoo, 2022). These books intend to inform IHE administrators, faculty, and staff involved in the development of students who wish to be future health professionals so they may best support students to successfully navigate through the complex academic and professional development and application process. The contributors of these books include IHE faculty and staff in leadership positions in academic advising and career development, particularly for pre-health professional students. The authors offer guidance based on theory, research, and countless hours of professional experience working with pre-health students and health professional program admissions leaders.

ORGANIZATION OF THE BOOK

The book is organized into four sections with 19 chapters in all. A brief description of each of the sections and chapters follows:

The first section, “Promoting Competency Development Among Pre-Health Students,” offers pre-health advisors strategies to support pre-health student competency development so that they may organically develop a well-rounded competitive application while considering the diverse opportunities and stressors that pre-health students may face. This section contains seven chapters.

Chapter 1, “Supporting the Development of Lifelong Learning Skills,” by Priyadarshini Dattathreya, presents an approach by which students can engage in self-evaluation in a continuous iterative process resulting in academic success and lifelong learning. Backed by theory, the chapter describes skills and strategies to highlight the importance of developing an interprofessional healthcare team and prepare future healthcare students to navigate the workforce. The chapter provides recommendations intended for programs and advisors to leverage the intersection of personal, environmental, and behavioral factors to create a learning environment that promotes self-regulated learning among pre-health students regardless of their cultural, socioeconomic, and ethnic backgrounds

Chapter 2, “Cultivating Professionalism in the Healthcare Professional,” written by Carol Rentas, recognizes that students in the health professions will collaborate as members of an interprofessional team and must be acclimatized to working as a cohesive team. The chapter explains why it is important for students to build a professional identity while also advocating for the advancement of their chosen field. This professionalism may include amongst other factors, ethical behaviors, learned skills, cultural interactions, and the continual improvement and education of oneself.

Chapter 3, “Advising on Clinical Experience and Patient Care Exposure at Home and Abroad,” by Tricia Todd, Virginia Rowthorn, and Jessica Evert, focuses on the competencies students can develop by participating in clinical experiences. Illustrating clinical experiences in healthcare has long been an expectation of applicants to health professional programs, however, these clinical experiences can differ based on their location and breadth of opportunity. Thus, advisors should assist students in aligning their goals with appropriate clinical experiences, whether at home or abroad.

Chapter 4, “Beyond Clinical Experience and Research: How Other Activities Create Well-Rounded Students,” by John Fierst, provides insights into activities outside the classroom which students may not recognize as relevant to their preparation as healthcare professionals. These activities should be positioned

as a strength in a student's application as they align with the health profession's core competencies and impart valuable transferable skills that can be applied in any professional setting.

In Chapter 5, "Developing the AAMC Competencies With Pre-Health Professional Students Through the Use of the Intercultural Development Inventory™," Robin Selzer and Fatima Khan share information regarding the Intercultural Development Inventory, an intercultural competence assessment. The assessment provides students with intercultural training to understand implicit biases, learn to treat the patient, not the disease, and become patient advocates.

Chapter 6, "Common Academic Stress Points and Mental Health Concerns Among Pre-Health and Health Science Students," is the first chapter of a two-part series collaboratively written by seven authors, Patrick Corr, Mandy Siglin, Kirsti Dyer, Cynthia Powell, Donnell Dawson, Alison Warren, and Leigh Frame. This chapter focuses on stressors and common mental health disorders that may present in pre-health students, including the short and long-term impacts these disorders may have on their academic performance. The role of advisors in fostering mental health in students is emphasized including an overview of career satisfaction and wellness trends among health professionals.

Chapter 7, "Fostering Resilience and Well-Being Among Pre-Health Students," follows the previous chapter and is authored by Leigh Frame, Kirsti Dyer, Cynthia Powell, Donnell Dawson, Alison Warren, Patrick Corr, and Mandy Siglin. The authors dive deep into the details of how being mindful and contributing to one's well-being is important for successful career fulfillment. The benefits of movement, nutrition, sleep, and mindfulness on well-being, specifically with respect to cognition and academic performance, are highlighted. It is vital for pre-health students to make the connection between well-being, academic success, and their future careers so that they can enjoy a meaningful career and well-lived life.

The second section, "Supporting Professional Development of Pre-Health Advisors," provides readers with an array of tools aimed to assist advisors to connect with students while staying organized and effective. This section contains four chapters.

Chapter 8, "Mentorship of Pre-Health Professional Students," by Dana Baker and Linda Cassar, emphasizes the importance of mentorship, a collaborative relationship that requires commitment and communication. Professional learning, lived experiences and a structured approach for advising can enrich the overall mentorship experience for a student along their health professions path. The authors posit that creating a collaborative and inclusive environment can help optimize mentoring relationships while also promoting diversity and cultural competency in the health professions.

Chapter 9, "Understanding Backwards: Effective Counseling Approaches for Advising Pre-Health Students," authored by Julie Nelson, appreciates the value of students and advisors moving forward through the advising journey with a willingness to navigate the uncertainties of the process. Pre-health students begin the process of matriculating into a pre-health profession not knowing if they will be successful, while pre-health academic advisors cannot predict the success of these students. Thus, both the students and the advisors "understand backwards" by engaging together in a collaborative process, the meaning of which evolves over time and cannot be known until the student attempts a pre-health program of study. The author offers advisors theoretical approaches, intentional strategies, and evidence-based practices to help students develop flexibility, stay motivated, and gain cultural awareness as they navigate this process.

Chapter 10, "Using Pre-Professional Competencies in Advising, Tracking, and Writing Letters of Evaluation," written by Emil Chuck and Carol Elam, discusses the benefits of guidance, consistency, and transparency in how to prepare for medical school. Medical schools and advisors have the same overarching goal of selecting and training the next generation of doctors who are competent in their

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practice and interpersonal effectiveness. Using the school's holistic mission and vision as a framework, the templates in this chapter are meant to guide admissions committees through the application review process. Broadly the templates can be used by students, advisors, and programs to track attainment, evaluation, and planning strategies for all of the required competencies.

Chapter 11, “Flipping the Script: Leveraging Technology to Enhance the Pre-Health Advising Experience,” by Carl Lam, Michelle Sherman, and Lisa Schwartz, showcases a few of the common, readily accessible technologies that pre-health advisors can utilize to effectively advise students. Due to the impact of COVID-19, technology was instrumental in letting people feel closer and connected while augmenting the pre-health advisor's efficiency and productivity. Flipped advising allows advisors to focus on the content effectively, while students can engage with the content at their own pace, re-watch pertinent sections and foster a sense of reflection. The chapter highlights the use of video conferencing, screencasting, instructional graphics, social media, learning management systems, and ePortfolios to tailor student advising.

The third section, “Creating Effective Pre-Health Programs,” presents institutional changes to pre-health advising services that were adopted and may serve as a model for other IHEs. This section contains two chapters.

In Chapter 12, “Effective Transition From Individual Faculty Advising to Committee Structure for Pre-Health Professional Student Advising,” Karen Ball and Nancy Dopke provide a faculty and staff advising roadmap that was created at Alma College, a small private liberal arts institution. The authors share the advantages, disadvantages, and successes of converting their advising model from a faculty-only model. The authors hope that other institutions considering using faculty and staff for advising can learn from their iterative process and are cognizant of the rewards and pitfalls of the model.

Chapter 13, “The Foundations of Success in Health Professions Education: Applying Strategic Learning to Training Pre-Health Professional Students,” by Amber Heck, Amanda Chase, and Courtney Cross, articulates the diversity of factors that impact learning within the pre-health student population, including non-cognitive skills. Using the model of strategic learning, the authors provide strategies to address these critical skills.

The fourth section, “Committing to Diversity, Equity, and Inclusion in the Health Professions,” provides strategies needed at all levels of pre-health professional training to recognize inequity, racism, and stigma. Teaching about the systemic inequities that impact health and wellness is important to create socially responsible future health professionals. This section contains six chapters.

Chapter 14, “Overcoming Systemic Racism in Health Professions Advising,” by Anya Cruz, postulates that to create an inclusive, creative and supportive advising model to support historically marginalized students, advisors should use core competencies to guide their practice and create a safe space for students. Supporting qualified students who need intentional advising through the process is required to move beyond biases. The author shares examples of pre-health students and their career paths and how opportunities for growth and related competencies can be used to encourage and motivate students on their academic journey.

Chapter 15, “Reflecting on Race and Health Outcomes: Through the Eyes of a Pre-Health Professional Student,” written by Savannah Salato as an undergraduate student, along with her mentor, Barbara Fifield Brandt, uses the history of maternal health disparities to explain how implicit bias, social determinants of health, and racism impact healthcare delivery today. The authors argue that a liberal arts education can prepare students to address these issues as health professionals.

Chapter 16, “Advising the High School Pre-Health Student: Strategies to Fill in the Gaps Between High School and College,” by Deana Golini, Seth Leibowitz, and Victoria Shivy, discusses the significant gaps in the academic environment that result in some pre-health students being unsuccessful in meeting their academic and career goals. Many underrepresented students lack mentors and role models, proving to be a barrier to their success. To mitigate this, the authors recommend mentoring to begin in high school for students interested in the health professions to ensure they do not fall through the cracks.

Chapter 17, “The Playing Field Is Not Level Advising Disadvantaged Students Through Undergraduate Education: Pre-Health Students’ Preparation for the Next Step,” by Lolita Wood-Hill and Jan Reichard-Brown, discusses why disadvantaged students face many obstacles to becoming health professionals, including the Bachelors Hidden Curriculum, Imposter syndrome and limited cognitive bandwidth. Advisors can help mitigate these barriers by validating the students’ sense of inclusion into the world of health professionals, thereby, potentially increasing the diversity of the health care workforce.

Chapter 18, “Pipeline Programs Supporting Underrepresented Pre-Health Students,” by Lillian Sims, Carol Elam, Joslyn Isaac, Jane F. Mbeng Ako, and Ima Ebong, discusses strategies to increase health professional student diversity through pipeline programs. These programs can serve to engage and support underrepresented students by making connections and building their capacity for academic success.

Finally, in Chapter 19, “How an Antiracist Organizational Change Model Can Build Capacity to Support Historically Excluded Students,” Maranda Ward, Patrick Corr, Vivika Fernes, and Tammy Wang, provide a model by which IHEs can reduce the challenges faced by historically excluded student communities. The role of the advisor as central to addressing these systemic barriers and creating meaningful change within institutions and programs is highlighted.

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Section 1

Promoting Competency Development Among Pre- Health Students

Chapter 1

Supporting the Development of Lifelong Learning Skills

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ABSTRACT

Constant self-evaluation and lifelong learning skills are some of the key characteristics of competent healthcare professionals. Additionally, the ability to set goals and use feedback to enhance performance has been identified as one of the core competencies for entering medical students. This chapter uses educational theories to describe the lifelong learning skills required for academic success. This chapter also provides recommendations to pre-health programs on strategies that support the development of these skills. The recommendations include general strategies to foster self-regulated learning and specific academic coaching strategies that promote the holistic development of pre-health professional students.

INTRODUCTION

Twenty first century healthcare is witnessing a paradigm shift toward an integrated patient-centered care (Lipstein & Kellermann, 2016). The complex and dynamic nature of healthcare emphasizes the importance of developing collaborative interprofessional healthcare teams with knowledge, skills, attitudes, and behaviors that model patient-centered care. The significance of a healthcare team collaboratively working toward sharing expertise depends on the ability of individual members of the team to adapt to the dynamic nature of delivering quality care (Braithwaite, 2018). Consequently, healthcare systems and healthcare education are redefining competency and competent healthcare practice. The knowledge, skills, attitudes, and behaviors that are required to provide quality care are not limited to the presence of technical competencies developed through formal training. Instead, the importance of holistic development of health professionals where equal emphasis is given to teamwork, flexibility, and adaptability has been receiving increasing consideration (Murdoch-Eaton & Whittle, 2012). This paradigm shift has brought forward the significance of lifelong learning skills among pre-health professionals and the importance of the development of these skills during healthcare education.

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This chapter provides a background on the significance of lifelong learning skills in health professions education, highlights the salient skills supported by their theoretical underpinnings and provides recommendations to pre-health programs and advisors on how to develop lifelong learning skills to prepare pre-health students.

BACKGROUND

The fundamental element of providing quality patient-centered care is “addressing and incorporating diversity in care, health promotion and patient engagement” (Santana et al., 2018, p. 432). This approach requires a multidisciplinary and culturally competent healthcare workforce that is representative of the diverse population with regards to race, ethnicity, gender, sexuality, etc. Healthcare organizations have made concerted efforts to increase equity and representation among healthcare professionals through various initiatives. One example is Project 3000 by 2000, initiated by the Association of American Medical Colleges (AAMC) in 1990. The project was a national campaign to increase the matriculation of medical students from underrepresented minority groups (URM). The goal was to increase the annual matriculation number of URM students from 1,485 to 3,000 by 2000 (Nickens et al., 1994). The Health Resources and Services Administration (HRSA) reported a need to increase diversity among nursing students through recruitment and training of pre-health students from underrepresented and disadvantaged backgrounds (Wakefield, 2014). Additionally, the American Association of Colleges of Pharmacy (AACP) emphasized the importance of achieving diversity in classrooms to increase diversity in the healthcare workforce (Alonzo et al., 2019). This movement toward widening access to healthcare education initiated several pipeline programs that expanded options in healthcare careers for high school and graduate students from racial and ethnic minorities (Shields, 1994).

However, this movement also accentuated the systemic gap in performance and preparedness levels of URM to their non-URM counterparts. For example, the Medical College Admission Test (MCAT), which is a standardized score for preparedness for medical school, is typically an important factor in prospective medical students’ applications because it is considered an important indicator for success in medical school (Patterson et al., 2016). It was found that the mean scores of URM applicants are lower compared to the mean scores of student groups who are well represented in medicine (Girotti et al., 2020; Lucey & Saguil, 2020). A study found large standardized mean differences between MCAT scores of URM students when compared to non-URM students which indicates a wide gap in the level of their preparedness for medical school (Davis et al., 2013). Similarly, a study found that URM and older students were less likely to matriculate into Physician Assistant (PA) programs when compared to non-URM and younger students (Yuen & Honda, 2019). Therefore, to provide equitable opportunities for all students, healthcare education institutions have embraced a holistic approach to reviewing applications by considering personal attributes and lived experiences that add value to healthcare professionals (Powis et al., 2020). Assessment methods such as psychometric tests, situational judgment tests, and multiple mini-interviews have found their way into the admissions and recruitment processes to help with the holistic review (Powis, 2015; Webster et al., 2020). These methods assess the applicant’s ability to think critically and communicate in an effective manner. Some of these methods also present students with ethical and social dilemmas to assess their attitudes about them (Pau et al., 2013). The holistic review approach has made significant contributions to increasing diversity among incoming health profession students (Glazer et al., 2016). In 2014, a national survey collected data from 228 individual health pro-

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professions schools in 45 states, of which 132 reported using a holistic review process. Of those schools, 72% self-reported an increase in the diversity of their student population (Glazer et al., 2016). This shift toward a competency-based holistic admissions process emphasizes the importance of non-cognitive measures of students' ability to excel as healthcare professionals.

This shift has several implications, two of which are within the scope of this chapter. First, a holistic approach to admissions has broadened opportunities for prospective health profession students to highlight their noteworthy personal attributes in support of their application benefiting students who would otherwise have been stifled by a grade-based admissions process. Second, pre-health programs have been driven to develop innovative courses and offerings that foster the holistic development of their students. To envision the scope of holistic development, it is important to consider the knowledge, skills, attitudes, and behaviors that constitute the non-cognitive measures in a prospective student's application. To aid this process, the AAMC recommended a set of competencies for entering medical students. In addition to science competencies which involve knowledge of pre-med sciences, the AAMC has also proposed interpersonal (e.g., social skills and teamwork), intrapersonal (capacity for improvement and adaptability), and thinking and reasoning competencies as predictors of student success in medical schools (AAMC, 2021). These competencies are linked to the core physician competencies established by the Accreditation Council for Graduate Medical Education (ACGME; Koenig et al., 2013). In particular, the ACGME competency of practice-based learning and improvement requires practicing physicians to engage in constant self-evaluation and lifelong learning, further emphasizing the significance of lifelong learning skills (Collins, 2009). Therefore, a broad examination of lifelong learning skills is beneficial for both prospective students as they begin to consider health-profession as their career of choice, pre-health programs faculty, and advisors.

LIFELONG LEARNING SKILLS

The concept of lifelong learning entered the educational glossary around the 1990s and was popularized by the European Commission when they announced 1996 as the European Year of Lifelong Learning (Volles, 2016). The core principle of lifelong learning is engagement in continuous learning and development that is not necessarily confined to formal educational settings. Lifelong learning highlights the flexible, continuous, and ubiquitous nature of learning, and it reinforces that learning is student-centered and individualized. Fostering lifelong learning empowers students to take control of their learning (Gopee, 2001).

Cognitive psychologists and educational researchers outlined several non-cognitive measures that could be used as predictors of academic performance. The scope of lifelong learning can be explored through the theoretical basis of some of these non-cognitive measures, their interrelationships, and their associations with academic performance.

Self-Regulated Learning and Metacognition

Self-regulated learning has been closely associated with lifelong learning and has often been used synonymously. It has been defined as a cyclical process involving formulation of learning goals, application of strategies to monitor the advancement of these goals, followed by reflecting on said performance. The outcome of reflection in self-regulated learning informs the revision of learning goals or formulation of

new goals (Siddaiah-Subramanya et al., 2017). Self-regulated learners take control of their learning using “self-generated thoughts, feelings, and behaviors that are oriented to attaining goals” (Zimmerman, 2002, p. 65). These learners can use metacognitive skills to modify their learning processes based on the type of learning tasks to meet their goals. Due to the close relationship between metacognition and self-regulated learning, an examination of metacognition and metacognitive skills can provide further insight into self-regulated learning skills (Williamson, 2015).

Metacognition, or thinking about thinking, can be defined as higher-order thinking that involves active control over the cognitive processes engaged in learning (Livingston, 2003). It describes a strategic and active use of the cognitive processes to meet a learning goal. This strategic process involves knowledge of cognition and regulation of cognition before, during, and after learning events (Ozturk, 2017).

Knowledge of Cognition

Knowledge of cognition consists of three types: declarative, procedural, and conditional knowledge. Declarative knowledge is the ‘what’ of the learning task and mainly comprises explicit knowledge of facts and concepts. It also relates to students’ awareness of themselves, how they learn best, their capabilities, and what factors influence their learning. Additionally, it consists of knowledge of various learning strategies (Peña-Ayala, 2015). Procedural knowledge is an understanding of ‘how’ these learning strategies or skills are applied to a learning task at hand and which learning strategies are appropriate for the learning goal (Mahdavi, 2014). In comparison, conditional knowledge reflects the students’ knowledge of ‘when’ and ‘why’ to use the declarative and procedural knowledge. Conditional knowledge allows for strategies to be modified and adjusted based on the learning condition (Livingston, 2003).

Effective learners have a high degree of knowledge of cognition (Ward & Butler, 2019). These students have a large mental catalog of strategies and are more automatically able to select the most effective strategy to perform learning tasks compared to ineffective learners (Zimmerman, 2002). Knowledge of cognition has also been found to be helpful in being strategic when determining how resources are allocated based on the level and complexity of the learning task (Hartman, 2001).

Regulation of Cognition

Regulation of cognition involves tasks undertaken to ensure that effective learning takes place before, during, and after a learning event (Livingston, 2003). This can also be categorized into three types: planning, monitoring, and evaluation. Planning relates to time and resource management strategies used prior to a learning event. Some examples include setting goals, determining an action plan, selecting strategies that best fit the task, and allocating resources accordingly (Kaplan, 2008). Monitoring is the “awareness of comprehension and performance,” which takes place during the learning task (Versteeg et al., 2021, p. 4). This involves the utilization of problem-solving strategies and includes continuous monitoring of whether learning is taking place. Evaluation pertains to assessing the outcomes of the task after the learning event (Williamson, 2015).

Self-regulated learning has been shown to be a predictor of academic performance (Panadero et al., 2016). Several self-regulated learning and metacognitive skills have been associated with academic success. Some examples include using time management strategies, setting learning goals, organizing time and resources required to achieve goals, self-testing to monitor comprehension, adjusting strategies when goals are not met, reflecting on performance, and adjusting goals based on outcomes (Zimmer-

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man, 2002). Regulation of metacognitive skills guarantees the successful achievement of learning goals. This enhances students' satisfaction with their study process and hence their motivation to continue to improve learning (Zimmerman, 2002).

Sociocultural Theory

Vygotsky's sociocultural theory places social interaction at the center of all human learning. According to Vygotsky, knowledge is constructed by a learner in a social context and is internalized individually thereafter (Newman, 2018). This theory also describes a sensitive learning zone that exists between a learner's current level of competence (where the learner can perform all tasks independently) and the level where the learner strives to be. This sensitive learning zone, or the zone of proximal development (ZPD), consists of tasks a learner can do with the help of appropriate support and guidance (Eun, 2019). Learning in the ZPD takes place in the presence of purposeful and meaningful social interactions that consist of small and manageable steps in increasing complexity. Learning in ZPD is reinforced by immediate and constructive feedback (Taber, 2020).

Vygotsky's sociocultural theory also emphasizes that learning takes place in the presence of others who have a higher level of knowledge, skill, or experiences. These individuals are aptly described as more knowledgeable others (MKO; Abtahi, 2017). The function of MKO is to use their knowledge, skills, and experience when interacting with learners to help solve problems. The role of MKO can be performed by individuals such as tutors, teaching assistants, or professors (Abtahi, 2014). Interestingly, an argument has also been made regarding the role of MKO being played by technology. Innovative technology provides students with the type of scaffolding and feedback that is typically the function of MKO (Shen, 2010). The influence of social interaction with MKOs on a learner's self-regulated learning is further supported by the notion of co-regulated learning (CRL). According to CRL, social interactions between students and MKO foster co-construction of knowledge and skills and subsequent development of self-regulated learning (Bransen et al., 2020). In addition to MKO, interactions among peers who have comparable levels of knowledge when working toward a common learning goal, the phenomenon is termed socially shared regulation. These types of interactions also support student learning (Panadero et al., 2016).

Due to the benefits of engaging with others, seeking social assistance is also one form of self-regulation (Paris & Paris, 2001). Successful students are more likely to be open to asking for help compared to low-performing students (Dattathreya & Shillingford, 2017). Therefore, the association between self-regulation and social support fortifies the need to adjust one's learning environment to ensure active and collaborative learning.

Theory of Preventative Stress Management

According to the theory of preventative stress management (TPSM), response to a stressful stimulus can either be positive or negative (Hargrove et al., 2011). Positive responses, also known as eustress, helps increase motivation and drive. Negative responses, on the other hand, could lead to physical or psychological distress, which may contribute to unhealthy lifestyles, such as skipping meals, lack of exercise, or a lack of sleep (Bergmann et al., 2019). The consequences of negative responses to stressors impact cognition and performance. For example, lack of sleep has been associated with poor academic performance (Ahrberg et al., 2012). Conversely, self-care methods such as mindfulness, exercise, and sleep have been associated with increased academic performance (Kudesia, 2019).

The correlation between stress and cognition is receiving increasing attention. The most recent survey conducted in 2021 by the American College Health Association (ACHA) showed stress was the biggest factor that impacted the academic performance of college students. According to the report, 35.6% of all respondents stated that stress was one of the factors that negatively impacted their class performance or delayed their academic progress. Of these individuals, 30.6% reported experiencing high levels of stress (ACHA, 2021). A prolonged negative response to stress is associated with burnout, a psychological condition characterized by emotional exhaustion and decreased personal achievement and motivation (Doulougeri et al., 2016).

According to TPSPM, stress responses can be prevented through primary and secondary interventions. Primary interventions aim to reduce stressors to levels that promote positive stress responses and create conditions of eustress. For example, social support is an important primary prevention method (Alarcon, 2011). Secondary prevention aims to reduce negative stress responses using techniques such as mindfulness and other wellness activities (Hargrove et al., 2011). Diet and exercise are some examples of practices that prevent distress (Henderson et al., 2015).

The high prevalence of burnout among healthcare professionals and its associated risks has heightened the need to further explore the role of TPSPM in lifelong learning. Interestingly, a significant relationship has been shown between self-regulation capacity, psychological wellbeing, and burnout. A study found that nurses who experience burnout are less likely to use their self-regulatory skills to proactively optimize their performance (Roczniewska & Bakker, 2021). Similarly, a significant positive association was found between physicians' and resident physicians' capacity for self-regulation and their overall well-being (Simon & Durand-Bush, 2014). Self-regulation is also strongly associated with academic achievement and social competence. Children and young adults with better self-regulation skills were consistently more adaptable than those with low self-regulation in terms of how they coped with stressful events (Buckner et al., 2009). Therefore, the association between self-regulation and wellness supports the need to adjust one's personal environment to ensure mind and body wellness.

Summary

Lifelong learning encompasses strategies, practices, and behaviors that adopt a continuous loop of plan-act-observe-reflect to help achieve learning goals. The inter-relationships between the aforementioned theories and their association with academic performance highlights two critical arguments. First, the constructs of metacognition and self-regulation are analogous to the phenomenon of lifelong learning (Kaplan, 2008). Together, they embody deliberate and intentional approaches demonstrated to support academic success. Second, self-regulated learning is influenced by personal, environmental, and behavioral factors (Panadero, 2017). Examples of personal factors include the ability of the learner to use constructive coping mechanisms to avoid negative consequences of stress. An example of environmental factors includes the ability of the learner to modify their environment to make it conducive to learning, including collaborating with individuals who can support their learning (Ben-Eliyahu & Bernacki, 2015). Behavioral factors include using effective metacognitive strategies to enhance learning. A learner's ability to regulate all these factors to ensure successful progression toward their goals is the essence of lifelong learning.

IMPLICATIONS FOR PRACTICE

An ability to set meaningful learning goals, actively participate in one's learning process, adapt strategies to meet the goals, accurately monitor progress, and critically reflect on performance are competencies critical for health professions students (Moos & Ringdal, 2012). However, lifelong learning is not a personality trait; rather, it is a set of transferable skills (Cazan, 2013; Schuster et al., 2020). Self-regulation and metacognitive skills can be developed with deliberate practice and feedback. Fostering lifelong learning skills is crucial for the holistic development of students, particularly the URM students due to the following reasons. Firstly, providing intentional opportunities to practice these skills has been shown to disproportionately increase the course grades of URM pre-health students when compared to their non-URM counterparts. This has been attributed to the impact of lifelong learning skills on URM students' self-efficacy or their beliefs in their own abilities to attain academic success (Ballen et al., 2017). Regular collaborative learning activities and opportunities for academic monitoring has been shown to increase the preparedness levels of URM students and decrease the achievement gap between URM and non-URM students (Ballen & Mason, 2017). Secondly, enhancing the lifelong learning skills among URM students could address some of their barriers to success such as academic under-preparedness, use of ineffective study habits and social isolation. Programs that provide explicit instruction on self-regulated learning skills for URM students have seen an increase in students' self-awareness on their own strengths and areas of improvements, their goal orientation and motivation to engage in collaborative learning (Finn et al., 2019). Thirdly, an ability to regulate personal, behavioral, and environmental factors to enhance learning has been correlated with students' performance in standardized exams (Deng et al., 2015; West et al., 2014). Academic enhancement programs that included deliberate instruction on lifelong learning skills have found a positive impact on student academic performance (Keith & Hollar, 2012; Markel et al., 2008). Therefore, developing lifelong learning skills can enhance the academic success of pre-health URM students and support their matriculation into health professions programs.

A student-centered holistic approach to developing lifelong learning skills could incorporate the following:

1. Ensuring that students receive instruction and support on the importance of developing lifelong learning skills proactively at the outset of their undergraduate education. This will promote equal emphasis on cognitive and non-cognitive skills for success.
2. Providing explicit instructions on metacognitive skills such as planning, monitoring, and evaluating. This can enhance their performance on the pre-health prerequisite courses, hence increasing their competitiveness.
3. Creating opportunities for students to continually evaluate their study strategies and make necessary adjustments. This will promote flexibility and adaptability to change which are some of the key competencies of healthcare professionals.
4. Advocating self-care and the importance of work-life balance. This will help prevent burn-out and increase their chances of academic success in their prerequisite course work.
5. Promoting collaborative learning activities that encourage sharing of knowledge, ideas, and resources. This will increase student awareness on the merits of engaging with an MKO. Normalizing group work could also increase interpersonal communication skills, nurture help-seeking behavior and reduce social isolation.

6. Reinforcing the merits of critical self-reflection on continuous development. This will encourage application of the above skills and promote self-regulated learning.
7. Creating a supportive environment where individual students can communicate their goals, identify opportunities and obstacles, and develop action plans for success. Access to such opportunities earlier on during their undergraduate education can help students explore their individual unique attributes and identify courses, experiences, and resources to support their application (e.g., advanced placements, research, service opportunities, leadership roles, mentors etc.). Such individualized support is critical to holistic development of students.

RECOMMENDATIONS: HOW TO DEVELOP LIFELONG LEARNING SKILLS

Pre-health programs can structure their learning environments to increase student awareness of the impact of lifelong learning skills on their academic success and include deliberate practice with feedback to foster the development of these skills (Cazan, 2013). There are several mechanisms through which pre-health programs can create opportunities and learning experiences for students to develop and practice lifelong learning skills. This section will provide several recommendations on how to support holistic development of pre-health students. The recommendations are described at three distinct levels depending on where they can be applied – curriculum, classroom, and student levels.

Curriculum Level

The following recommendations are for the consideration of educators responsible for designing the pre-health curriculum.

Encourage Self-Assessment of Learning

Regular structured self-assessments foster learning and promote academic self-regulation (Panadero et al., 2017). Self-assessment is a core element of self-regulation because it involves awareness of one's learning goals and monitoring progress toward those goals (Andrade & Valtcheva, 2009). Self-assessments when structured in increasing order of difficulty and when combined with constructive and timely feedback, can meet students at their respective zones of proximal development and help them advance toward their personal mastery of goals (Taber, 2020). When these assessments are low stakes with no associated negative outcomes, they also help increase student motivation (Paris & Paris, 2001).

Some examples of strategies on how to encourage self-assessment of learning include:

1. Incorporating regular formative assessments as a curricular norm enhances self-regulated learning through feedback. By definition, formative assessments are low-stakes exams that measure student learning and provide feedback. The feedback highlights the gap between current and desired level of performance, helps in progress monitoring and adjustment of learning (Panadero et al., 2018; Rushton, 2005). Formative assessments could include frequent quizzes, practice tests, low stakes assignments, written papers, presentations etc.

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2. Providing rubrics to guide assignments and establish clear criteria with regards to levels of performance (Andrade & Valtcheva, 2009). Rubrics enhance self-regulation and reduce assessment related stress when compared to traditional assessment methods (Panadero & Romero, 2014).

Foster Group Work

Like self-assessment, peer assessment of learning is important for providing students an opportunity to develop metacognitive strategies. Creating a collaborative learning environment in which teachers and learners team up to solve problems fosters both co-regulation and socially shared regulation (Panadero et al., 2018).

Some examples of strategies on how to encourage collaborative learning include:

1. Incorporate group-based learning activities. Examples of such learning activities that are popular in health professions education include problem-based learning (PBL), team-based learning (TBL) and case-based learning (CBL; Paris & Paris, 2001). These learning activities are inquiry-driven, goal-oriented (solving of cases or problems), purposefully designed to engage students in collaborative higher-order reasoning (Turan et al., 2009). For example, in PBL, students encounter authentic real-life problems as a group prior to being introduced to any relevant knowledge. They utilize their prior knowledge and work through the problem as a group, identify knowledge gaps and formulate learning issues for independent study. They explore resources to address their knowledge gap and monitor their learning during the process. Students then share their newly acquired knowledge from self-study back with the group and receive feedback (Loyens et al., 2008). Therefore, students follow the cyclical process of self-regulated learning while also developing collaborative and communication skills, all of which are key components of lifelong learning.
2. Promote collaboration and community building through peer assisted learning. Examples of peer assisted learning include peer mentoring, tutoring, supplemental instruction programs etc. Participation in these programs is known to increase metacognition, exam performance and student retention, regardless of the students' prior performance levels (Dawson et al., 2014; Gazula et al., 2017). Programs that successfully supported the academic success of URM students were found to have robust peer assisted learning opportunities (Oyewole, 2001).

Emphasize Wellness

Fostering self-care is a shared responsibility of both learner and the learning environment. Programs that provide training in self-care and promote healthy habits among learners, nurture healthy coping mechanisms in response to stress and increase resilience (Dyrbye & Shanafelt, 2011; Kudesia, 2019). Some examples of wellness interventions include training in mindfulness and meditation, athletic competitions or events that promote physical activity, social events to build community, informational sessions on the impact of sleep and exercise on learning, nutrition training etc. (Dyrbye et al., 2019).

Create Space for Self-Reflection

At the core of self-regulation is the ability to critically reflect on learning goals, one's progression towards those goals and the quality of the learning strategies used (Panadero, 2017). Self-reflection is also a skill that can be taught via deliberate practice.

Some strategies to help students identify their strengths and areas of improvement include:

1. The use of self-reported instruments that measure the use of metacognitive skills. Examples of such instruments include Academic Self-Efficacy Scale (AES), Learning and Study Strategies Inventory (LASSI), or Motivated Strategies for Learning Questionnaire (MSLQ) (Cho et al., 2017; González-Torres & Torrano, 2008). The feedback from these instruments increases student awareness of their own strengths and areas of improvement with regards to the use of metacognitive skills and strategies. Students can use the feedback to set learning goals for improvement.
2. Additionally, regular self-reflection can be prompted through journaling and maintaining of learning portfolios. Reflective journals help students monitor progress towards their academic goals and regulate the use of their learning strategies (Paris & Paris, 2001). Combining the use of reflective journals and portfolios with other objective self-assessment activities such as tests and exams, promote creativity and increase motivation.

Classroom Level

The following recommendations are for the consideration of educators responsible for classroom instruction of pre-health students.

Scaffold Cognitive and Metacognitive Skills

Teaching lifelong learning skills starts with promoting awareness of various study strategies and their effectiveness (Ness & Middleton, 2012). However, teaching study skills in isolation without including the appropriate contexts reduces the transferability of the skills (Schuster et al., 2020). Integrating the teaching of cognitive and metacognitive skills is highly recommended to enhance students' academic performance in pre-health programs and to ensure that students are equipped to apply these skills in more complex health professions education settings. Explicit instruction on planning, monitoring, and evaluation of learning can be introduced in the classroom.

Some examples of strategies include

1. Providing workshops on lifelong learning skills and emphasizing its impact on academic success. Workshop topics include time management, critical thinking and higher order reasoning skills, active learning, wellness practices etc. Introducing these skills earlier on during freshman year, particularly to students who begin to struggle academically, increases their chances of success (Oyewole, 2001).
2. Modeling metacognitive strategies such as problem-solving techniques followed by providing opportunities for individual practice (Colby & Atkinson, 2004; Paris & Paris, 2001). When combined with feedback, this involves the gradual transfer of responsibilities to students and increases student autonomy when solving similar problems in the future (Van De Pol et al., 2010).

Student Level

Individualized support is powerful in fostering student academic success when each student is acknowledged as an individual with unique abilities, skills and needs regardless of their cultural, socioeconomic, and ethnic background (Oyewole, 2001). Creating an environment that increases self-awareness, interpersonal communication skills, motivation, higher-order reasoning, and self-care is conducive to holistic development of students (Glazer et al., 2016). Individualized support also helps students to reflect on and uncover their attributes, accomplishments, and life experiences that could shape their identities as prospective health-professionals. These attributes are highly valued by the health professions' admissions process and make students more competitive (Stratton & Elam, 2014).

The following recommendations are for the consideration of pre-health academic advisors responsible for providing individual support to pre-health students.

Strengths-Based Academic Coaching

Academic coaching is emerging as an effective tool to nurture holistic and individualized, learner-centered development of lifelong learning skills by virtue of its ability to promote goal setting, reflection, and self-regulation (Deiorio et al., 2016; Erdos & Ramseyer, 2021). Unlike mentoring or advising, coaching does not take a directive approach. Coaches rarely offer advice or share recommendations with their learners. Rather, they employ techniques that help students reflect on their learning process, establish learning goals, and help identify specific action items to achieve desired outcomes (Deiorio et al., 2016).

There are two distinctive approaches in coaching: deficit-based and strengths-based. Deficit-based coaching assumes that an intervention is necessary to address students' deficits whereas strengths-based coaching employs a developmental approach. (Salter & Gannon, 2015). It uses students' current strengths to develop new strengths that will help them advance towards their learning goals. A strengths-based approach empowers students to take ownership of their own learning and development (Van Zyl & Stander, 2013).

Strengths-based coaching is more effective than deficit-based approach towards developing lifelong learning skills in URM students due to several reasons. Firstly, strengths-based coaching is rooted in positive psychology which makes it more likely to produce and sustain long lasting changes in habits and behavior when compared to a deficit-based approach (Seligman & Csikszentmihalyi, 2014). Secondly, since the approach builds on past successes and strengths, the habits and practices developed through strengths-based coaching can be transferred to other learning environments (Moen & Allgood, 2009). Pre-health students can therefore use the tools acquired through coaching for success in their future health sciences education. Thirdly, this approach is student-centered and versatile. It leverages the unique cultures, backgrounds, experiences and characteristics of students when creating learning goals (Van Zyl & Stander, 2013). Strengths-based coaching is an ideal approach to holistic development of diverse population of students. Finally, the empowerment conferred to the students by this approach is more likely to increase motivation to pursue goals when compared to deficit-based approach, thereby increasing self-regulated learning (Barato & Rodríguez Moneo, 2021).

Therefore, strengths-based academic coaching can support the holistic development of pre-health students. Pre-health institutions can provide coaching support by establishing formal student success programs run by trained academic coaches. However, the scope of coaching is not limited to formal settings led by expert academic coaches which can be resource intensive. Rather, this approach can be

applied to any setting that involves an interaction of an MKO with an individual student. For example, pre-health advisors and/or academic support staff can integrate the use of basic coaching skills when supporting students. This approach is beneficial to all aspiring pre-health students and in particular, those minority students who have unique academic needs.

The following section highlights some of the underlying principles, mindsets, and skills of strengths-based coaching. The section also integrates all the above into a practical model that can be used by pre-health advisors to guide their coaching conversations.

Coaching Principles

Strengths-based coaching conversations are often guided by the philosophy of Appreciative Inquiry (AI) to promote continuous development (Sandars & Murdoch-Eaton, 2017). This philosophy is guided by the following underlying principles (Mohr & Watkins, 2002).

1. **The Constructionist Principle:** Development is influenced by the images created based on the questions asked. As students describe their goals, practices, habits, and behaviors, they construct their reality and influence their development. Creating a space for students to articulate their learning approach and progress, supports growth and development.
2. **The Principle of Simultaneity:** Change begins the moment questions are asked. Probing and reflective questions have the power to initiate the change process. Coaching conversations that use reflective questions can engage students in a thought process that supports positive change, when compared to questions with apparent right or wrong answers.
3. **The Anticipatory Principle:** Present behavior is influenced by the anticipated future. Working towards creating a desirable future has more positive effects on motivation than working to avoid an unfavorable outcome. Coaching conversations that shift the focus from the undesirable (e.g., failing, rejection, getting waitlisted, low scores etc.) to the desirable (e.g., exploring extracurriculars, strengthening clinical experience, enhancing science knowledge etc.) influences student behavior and motivation.
4. **The Poetic Principle:** There are no boundaries as to what can be created; what is focused on grows. Students come with a wide range of experiences and interpretations of their past successes and failures. These interpretations can influence their current beliefs about their abilities and can often enhance or limit their capacity to grow and improve. Coaching conversations that are steered towards exploring their maximum potential despite past failures can help students discard limiting beliefs that are not conducive to success.
5. **The Positive Principle:** When guiding a change process, building strengths with positive questions is more effective than correcting weaknesses. Coaching conversations that deliberately use reassuring and supporting questions are more likely to inspire change than discouraging and critical comments.

Coaching Mindset

The following set of attitudes and approaches apply the aforementioned principles to coaching conversations:

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1. **Curiosity:** A coach's willingness to be receptive to learning about the student's study approach without pre-conceived notions creates a non-judgmental and trusting environment. Students are more likely to respond to open-ended, curious questions as opposed to leading or judgmental types of questions (Wolff et al., 2020).
2. **Student-Centeredness:** Being student-centric assumes that students are the experts of themselves and their contexts, and places them in the center of the decision making. Student centeredness emerges from the coach's ability to encourage students to critically reflect on their performance and identify learning goals that are meaningful and motivational for them. Coaches who are student-centered are better able to encourage students to explore possible solutions before identifying a positive and actionable goal (Wolff et al., 2020).
3. **Goal Orientation:** Strengths-based coaching is typically a goal-oriented approach as opposed to being problem-oriented. It encourages commitment to a goal followed by the creation of an action plan that informs immediate adjustments of the student's learning process in relation to the goal. Goal orientation shifts the attention from past mistakes and shortcomings to the student's strengths and opportunities for development with the intention of changing behaviors (Grant et al., 2010).

Coaching Model and Techniques

The principles and approaches of strengths-based coaching suggest that coaching conversations be directed through questioning and challenging. Questioning stimulates deeper reflection to highlight any challenges to academic success, whereas challenging helps learners confront their assumptions to identify approaches that are better aligned with their learning goals (Wolff et al., 2020).

The questioning and challenging strategies can be applied by pre-health advisors and academic support faculty during routine dialogues with students to encourage reflection, self-regulation, and lifelong learning. There are several coaching models and frameworks in literature. However, the 4D model of AI integrates the coaching principles and approaches to guide students through the self-regulatory cycle of planning, monitoring, and evaluation. The 4D model consists of four phases: discovery, dream, design, and destiny (Gordon, 2008). Guiding the students through all four phases during a coaching conversation helps them reflect on their present, set goals for improvement and create an action plan. The purpose of each phase followed by prompts to guide questioning and challenging can be found in Table 1. The advisors can use these prompts to guide students through the four phases during the individual conversations with students.

Table 1. 4D model of appreciative inquiry and strengths-based coaching prompts

Phase	Purpose of Phase	Coaching Prompts
Discovery	The identification of processes that work well increases self-awareness and provides a deeper insight into the learner’s current processes.	“What is working well?” “What is good about what you are currently doing?” “What strategies do you think have been effective?” “What are your strengths?”
Dream	Envisioning what the current situation could be like in the future encourages innovation and offers a sense of purpose.	“What does success look like for you?” “What is your ideal approach?” “How do you wish to perform in your next exam?” “What skills do you want to develop?” “What experiences/activities would highlight your unique characteristics?”
Design	Planning and prioritizing processes that would work well promotes strategic decision-making and openness to change.	“What needs to be done differently to achieve your desired results?” “What resources are required, or who can help you, to achieve your goal?” “What changes do you need to make to your study methods to reach that goal?”
Destiny	The implementation (execution) of the proposed design promotes monitoring and flexibility.	“How can you sustain the changes you have made?” “What needs to be done to ensure that the changes continue?” “How will you know you are progressing?”

The discovery phase encourages critical and deeper reflection whereas the dream phase inspires the establishment of a positive target. In the design phase, students are empowered to identify goals that they consider meaningful and impactful (Sandars & Murdoch-Eaton, 2017). These goals could range from the application of higher-order metacognitive skills, engaging in collaborative learning to a focus on their mind-body wellness. This level of flexibility of the strengths-based coaching approach makes it a powerful strategy to promote lifelong learning at an individual level for all students.

Benefits of Strengths-Based Coaching

Incorporating coaching skills and approaches during routine advising conversations with students has the following benefits:

1. It creates a judgement-free safe space for students to critically reflect on their strengths and areas of improvement, giving them more clarity on their individual strategies for success.
2. It helps tailor conversations to individual unique needs and contexts (for example, first-year student planning their course schedule, a second-year student performing poorly in exams or a fourth-year student preparing for interviews). This shifts the focus from a one-size fits all approach to advising to a customized action plans that consider the student’s personal, environmental, and behavioral factors.
3. It empowers students to determine their own paths for success. Advisors can offer recommendations to students regarding pre-requisite courses, personal development, and service opportunities, etc., but strengths-based approach helps students make decisions that best meet their goals and needs.
4. It shifts the focus from imparting information to helping students find pertinent information based on their interests.

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5. It helps students to transform the pre-health requirements check-list into a set of self-determined actionable goals.
6. Self-determined goals can increase student motivation and commitment to succeed.

CONCLUSION

Lifelong learning is a key competency for students as well as future professionals. Pre-health and health professional education students who engage in constant self-evaluation and continuous development are flexible and adaptable (Glazer et al., 2016; Stratton & Elam, 2014). When deliberate instruction in self-regulated learning skills is combined with strengths-based coaching, students are equipped with skills required for their holistic development. The recommendations provided by this chapter are not exhaustive, rather they are intended for pre-health programs and advisors to inspect their current practices within the context of supporting lifelong learning. Pre-health programs can leverage the dynamic interrelationships between personal, environmental, and behavioral factors and student academic performance to create a learning environment that promotes self-regulated learning among students regardless of their cultural, socioeconomic, and ethnic backgrounds. The skills developed in such a learning environment can support academic success not only in pre-health courses but all the way through their healthcare professional life, thus advancing toward lifelong learning. In conclusion, supporting the development of lifelong learning skills of pre-health students could advance the movement of diversifying the healthcare workforce.

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KEY TERMS AND DEFINITIONS

Appreciative Inquiry: A strength-based approach to create sustainable change.

Supporting the Development of Lifelong Learning Skills

Coaching: A collaborative and developmental approach where a more experienced person (coach) helps learner to reach their maximum potential through questioning and challenging.

Higher-Order Reasoning: A level of thinking that is higher than basic memorization and recall. Some examples include application, analysis, evaluation, and creation.

Metacognition: A type of higher-order thinking involving active control over the cognitive processes engaged in learning.

More Knowledgeable Other (MKO): Individuals who have a higher level of knowledge, skill, or experience.

Reflection: A type of thinking that involves processing thoughts and feelings related to an event, idea, or experience.

Self-Assessment: An analysis and evaluation of one's learning and performance.

Self-Regulated Learning: A cyclical process involving the formulation of learning goals, application of strategies to monitor the advancement toward these goals, followed by reflecting on said performance.

Underrepresented Minority in Medicine: Underrepresented racial and ethnic populations in the medical profession relative to their numbers in the general population.

Zone of Proximal Development: The distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem-solving under guidance or in collaboration with more capable peers.

Chapter 2

Cultivating Professionalism in the Healthcare Professional

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ABSTRACT

What is professionalism as it applies to a healthcare professional, and how is it critical to patient care? It begins with the individual professional. This chapter provides an overview of the professional progression, from building a professional identity to participating in meaningful advocacy in the profession and ultimately leading other professionals in the betterment of the profession. The chapter will highlight tools and exercises advisors and educators can use to cultivate an understanding of the critical steps of this progression. Ultimately, the educators and advisors will be able to equip the pre-health professional with the roadmap to becoming the consummate healthcare professional, which is critical to operating at a level that ensures optimum patient care.

INTRODUCTION

This chapter will describe the basic elements of professionalism and the essential skill set necessary to succeed as a healthcare professional. In addition, the following questions will be addressed: What tools and exercises can be used to cultivate professional habits which foster a professionally appropriate demeanor? What are the specific challenges or barriers for pre-health and early healthcare professionals that make it challenging to develop a professional identity? How can we measure professional identity formation and nurture its progression?

Objectives

1. Describe the key elements of professionalism necessary to succeed as a healthcare professional.
2. List factors that contribute to professional identity formation (PIF).
3. Identify the barriers which may impede professional identity formation (PIF).

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4. Recognize the importance of effective teamwork and its role in professional identity formation (PIF).
5. Describe the challenges to effective and collaborative professional partnerships.
6. Employ tools and exercises to monitor and cultivate PIF progression.

BACKGROUND

What Is Professionalism?

What is professionalism as it applies to a healthcare professional, and how is it critical to patient care? Professionalism begins with the individual professional. In general, professionalism can be defined as the standard or code of conduct or ethics that characterize a profession and influence the practitioner's behavior. According to the World Health Organization Guidelines (WHO, 2019, p. 57), "*Transforming and Scaling Up Health Professionals' Education and Training*," a healthcare professional can be described as any person who "maintains health in humans through the application of the principles and procedures of evidence-based medicine and caring." Healthcare professionals include any professional who contributes to the health outcomes of the population they serve. No one professional can ultimately provide for the patient without the other members of the health care team, which includes physicians, nurses, physician assistants, pharmacists, medical laboratorians, to name just a few. Rogers and Ballantyne (2010, p. 250) described professionalism, as it relates to the healthcare professional, as a set of "attitudes [which] should lead to intentions to engage in appropriate professional behaviors." That begs the question, what are the desired behaviors, and how do attitudes influence those behaviors? In Rogers and Ballantyne's analysis to find a practical definition for professional conduct, they proposed five behavioral domains that should be considered the center of professional practice.

- Responsibility
- Honesty
- Self-awareness and reflective capacity
- Collaboration with colleagues
- Relationships with and respect for the patient

But are these taught or traits we need to ensure each health care professional possesses? As we expand our understanding of professionalism, let us review the challenges medical educators experience in developing professionalism curricula and assessing professionalism in their student populations.

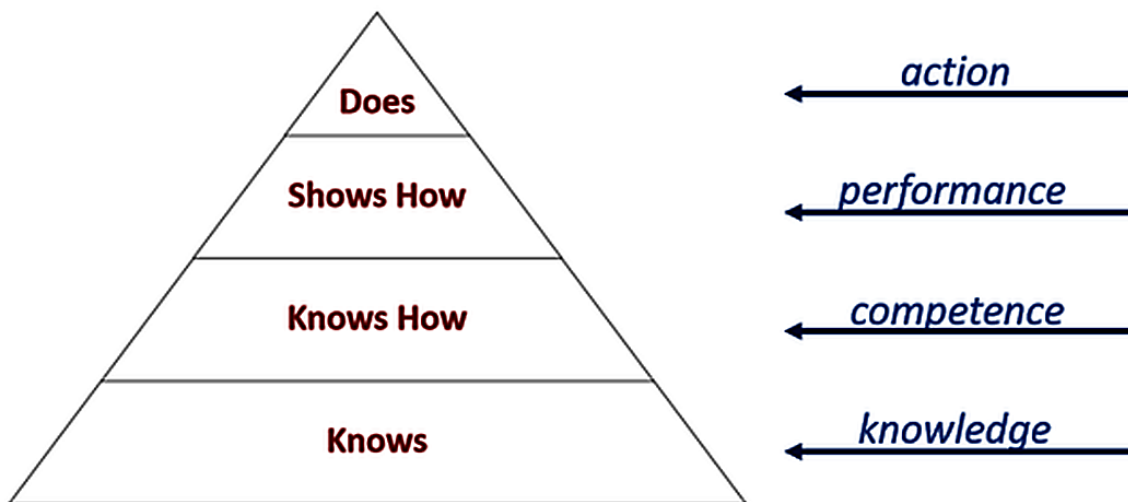
How Is Healthcare Professionalism Taught?

One of the most significant developments in health professional education was the assessment of competence. Before the turn of the century, competency became recognized as the gold standard for medical professionals since 1990 when George Miller published the "Assessment of Clinical Skills / Competence / Performance" (Miller, 1990). In this landmark paper, Miller described four progressive levels of competence to reach full competency, the standard of practice. In Miller's Pyramid of Clinical Competence (see Figure 1), as it became known, the most basic level of training started with ensuring that early pre-

professionals have the knowledge to practice their profession. This early introduction to the profession is the “knows” stage of competency. Once the novice has reached a sufficient level of knowledge, the novice must practice the skills of the profession, known as the “knows how” stage of competency. Next, entry-level professional, through practice, has acquired the ability to show others how to perform those skills competently, the “shows how.” Finally, Miller proposed that the professional would then reach a level of competency where the professional could practice those skills autonomously as a working professional, the “does” stage of competency. Miller had intended that competence be measured and confirmed at each stage so that the pre-professional would not move to the next level until successful at the current level of practice.

Figure 1.

Miller’s Pyramid of Clinical Competence



At the turn of the century, graduate medical education (GME) accreditation standards had been revised from a specified number of hours in clinical rotations to the implementation of a competency-based assessment system, known as the Accreditation Council for Graduate Medical Education (ACGME) Outcome Project. This new system was intended to assess medical residents and their residency programs in six areas of competency: medical knowledge, patient care, practice-based learning and improvement, systems-based practice, interpersonal and communication skills, and professionalism. Of these, professionalism seemed the most difficult to define and measure and was instilled through commonly used educational methods at the time, such as role-modeling. As such, the ACGME competency professionalism inspired numerous academic studies in the medical, educational community over the past 20 years.

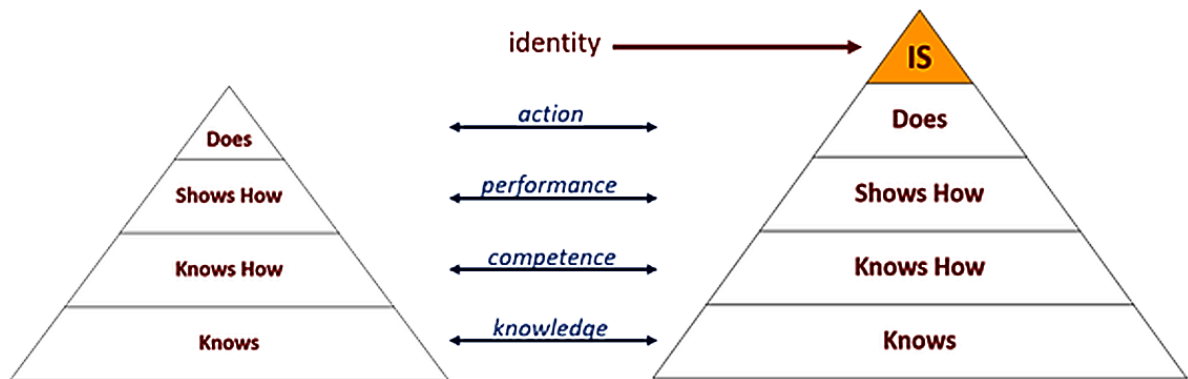
REVIEW OF CONCEPTUAL FRAMEWORKS OF PROFESSIONALISM

Before 1999, professionalism was primarily considered a set of ethical behaviors modeled in seasoned professionals and adopted by new professionals. However in 2005, Huddle questioned the feasibility of teaching professionalism to medical students as a moral construct. Huddle contended that professionalism required a developmental change in moral outlook that started with forming one’s personal identity and was molded by many of life’s lessons and challenges, not by replicating limited behaviors seen in clinical education. And so, Huddle concluded that trying to address the ACGME professional competency by using role-modeling as a sole teaching strategy was a mistake. There needed to be a cognitive component in the explicit curriculum that could address professionalism development in pre-professionals.

What Is Professional Competence, Especially as It Relates to One’s Professional Identity?

Research by Cruess et al. (2016) suggested that performing the responsibilities of a healthcare professional at Miller’s “does” stage does not, at first, provide the entry-level professional with the recognition that “I am a doctor” (or whatever area of practice the individual has entered; See Figure 2). The identity of being a practicing professional has not yet been reconciled with the knowledge and skills acquired. Even though this early professional might be competent in the skills required, they do not identify with the profession yet, but there are ways to assist in the professional identity formation process.

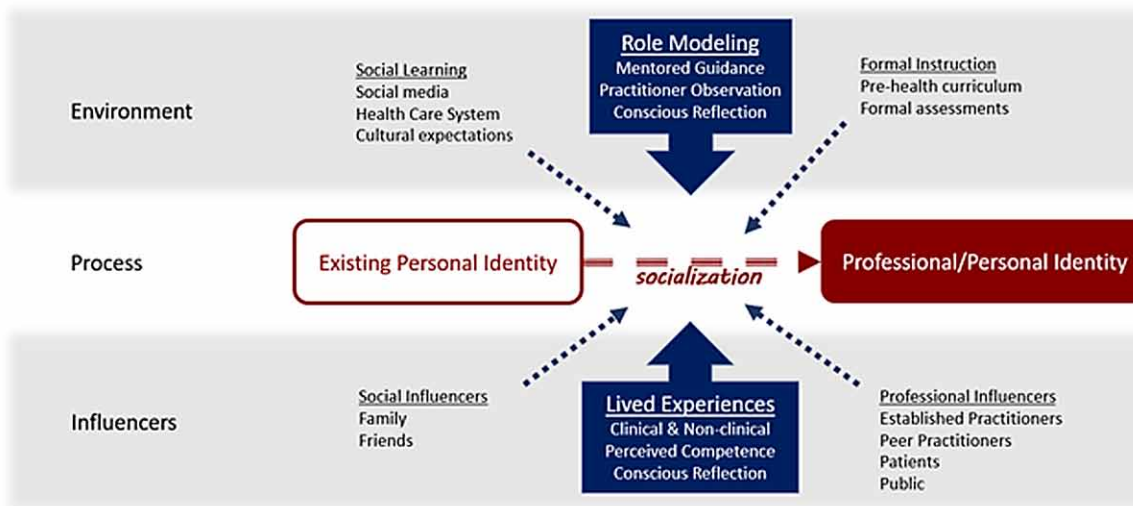
Figure 2.



What Factors Contribute to Professional Identity Formation (PIF)?

So, when does professional identity formation begin? It does not start with training within that profession but much before that. According to Cruess et al. (2019), professional identity formation is a developmental path, like personal identity, impacted by multiple factors, as illustrated in Figure 3. Socialization factors that mold the personal identity of the pre-health professional include social learning cues such as social media, experiences using the healthcare system as a consumer, and cultural expectations of healthcare practices.

Figure 3.



The educator/advisor needs to realize that the pre-health professional may be significantly influenced by their own personal interactions with family members and friends who share their own experiences and opinions about healthcare practice and practitioners. Another catalyst for advancing professional identity development is the formal instruction available within the pre-professional and professional curriculum. Along with the basic and clinical science instruction necessary to understand and practice in the discipline, Miller’s stage 1, the pre-professional should be introduced to the concepts of professionalism and professional identity formation (PIF). This instruction may be provided via a formal curriculum within the specific professional program or provided in less discipline-specific or traditional means, such as a series of workshops and interviews offered by interprofessional advising programs.

In either case, it is ideal to include identified objectives, exercises, and assessments that increase the pre-health professional’s awareness of the process of professional identity formation. Cruess et al. (2019) suggest several curriculum objectives:

- Define the process of identity formation, especially as it relates to professional identity.
- Describe the type of professional you envision becoming.
- Explain the socialization process and mechanisms which influence the identity standards.
- Identify the barriers, challenges, and springboards to professional identity formation.
- Determine your stage of growth in the professional identity formation continuum.

Learning about the professional identity formation process is not enough – the pre-health professional must understand and recognize where they are in this journey. Some of the most influential driving forces of PIF come from how the developing professional perceives others in the practice while forming a perception of themselves as a practitioner. And the key to making the most of the clinical and non-clinical experience is cultivating perceived competence.

According to several studies (Chandran et al., 2019; Findyartini et al., 2020; George et al., 2021), conscious reflection can play a crucial role in facilitating this socialization process. Guided self-assessment

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and reflective exercises can be practiced with mentors and advisors at different points during the pre-professional program and are especially useful during various points of significant transition, such as at the start of the clinical experience (e.g., clerkship, clinical practica, or clinical rotations) and before entry into the profession (pre-graduation). At these times, the pre-health professional must receive the support and guidance to navigate these times of uncertainty.

The early research in professional identity formation advocated for the design and implementation of curricula that would explicitly teach professionalism to medical students as fundamental to their professional identity formation. However, calls for the redesign of the curriculum came from the highest levels based on a study published by the Carnegie Foundation for the Advancement of Teaching entitled “Educating Physicians: A Call for Reform of Medical School and Residency” (O’Brien & Irby, 2013). From that report, a strong recommendation emerged - make professional identity formation (PIF) a central focus in the curriculum.

How Does Professional Identity Formation Differ for Under-Represented in Medicine (UiM) Pre-Professionals?

In addition to understanding how the socialization factors and influencers affect PIF, educators and advisors must be cognizant that many pre-health professionals come from different cultures and have very different experiences and relationships with medical practitioners and the healthcare system than others. For example, because of historical discrimination and mistreatment experienced by Black Americans as both unwitting clinical research participants and patients, there is a significant level of mistrust of healthcare providers and systems among Black Americans (Alsan et al., 2019). This mistrust of the profession they aspire to practice may create great dissonance in the professional identity process. The young Black health professional may have to reconcile his ideal for the profession with the reality of a profession where racial and cultural biases still affect the profession’s practice. The educator/advisor must create opportunities for reflection on these two internal juxtaposing viewpoints as these individuals progress through their professional identity journey.

Wyatt et al. (2021) point out that early PIF research has not investigated the effect of the unique experiences of ethnically/racially minoritized clinicians. The Association of American Medical Colleges (AAMC) uses the term underrepresented in medicine (UiM) to signify physicians who belong to racial or ethnic populations that are underrepresented relative to their numbers in the general population. The need to consider race/ethnicity in PIF is critical, especially in the professional identity formation of UiM practitioners, and speaks to a call to explore these issues in the professional identity formation of non-UiM clinicians and their relationship with UiM practitioners. All developing professionals need to be self-aware of biases inherent in the PIF process.

Wyatt et al. (2020) found a feeling of isolation felt by Black residents during training, noting that the only blacks visible in the healthcare setting were the ancillary staff. As a matter of fact, Black residents were often mistaken for being nurses, janitors, or other staff members, but not physicians. As of 2018, the number of Black/African American physicians was estimated to be only 6% (Williams, 2018). Therefore, there are few UiM clinician role models within the healthcare setting. To ensure that UiM novices are provided the appropriate support during the professional identity formation, they must be paired with mentors that are UiM professionals that have previously navigated that path. Reflective exercises that engage thinking about how being a Black clinician and their choice of specialization might improve the social and health well-being in their racial/ethnic community can be especially effective. This method

is often helpful to alleviate some dissonance in reconciling their cultural perceptions and threats of the profession to their community with the philanthropic ideals of the profession and their willingness to make a difference through that profession. Here is an example of the reflections of one UiM participant in Wyatt et al.’s (2021) study:

Part of being a good doctor, or my professional identity, is to make sure people are treated equally and respectfully in ways that would make sense to everyone. (p. 189)

Equity in health care and medical practice is often an underlying objective of their choice to practice. Therefore, a key component of professional identity is serving their constituent UiM community. Reflecting on their role in the profession can solidify their purpose and identity as Black healthcare professionals. A pre-health educator/advisor may consider arranging a panel of UiM professionals to discuss their challenges and resolutions in the professional journey.

Building on the premise of cognitive and moral elements of professional identity development, Taylor et al. (2011) suggested that the emotional intelligence (EI) model could be used to define the critical elements of professionalism. They proposed several teaching strategies that can teach and assess EI skills that work to reinforce the student’s professional identity. Emotional intelligence is based on two dimensions, the relationship with self and with others. In addition, in each of these dimensions, the professional must become competent in several skills and manage circumstances that may arise. Taylor et al. distilled EI abilities into four types: self-awareness, social awareness, self-management, and relationship management. So, for instance, a student that is competent in self-awareness will be emotionally self-aware, able to ascertain an accurate self-assessment, and will usually be relatively self-confident. Whereas a pre-health professional skilled at relationship management will be proficient in developing and influencing others, working well on a team, and inspiring change within that collaborative framework while neutralizing conflicts in the group. Refer to Table 1 to review the four abilities and skills of emotional intelligence, as laid out by Taylor et al.

Table 1. Emotional intelligence’s four abilities and their associated skills (Taylor et al., 2011)

Emotional Intelligence - Abilities and Skills		
	Personal Competence	Social Competence
Self-management	Quadrant 1: Self-awareness <ul style="list-style-type: none"> • Emotional self-awareness • Accurate self-assessment • Self-confidence 	Quadrant 3: Social awareness <ul style="list-style-type: none"> • Empathy • Organizational awareness • Service orientation
Relationship management	Quadrant 2: Self-management <ul style="list-style-type: none"> • Emotional self-control • Transparency • Adaptability • Achievement orientation • Initiative • Optimism 	Quadrant 4: Relationship management <ul style="list-style-type: none"> • Developing others • Inspirational leadership • Influence • Teamwork and collaboration • Change catalyst • Conflict resolution

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Pre-health professionals should be introduced to the concept of emotional intelligence and how to cultivate any skills they may be lacking. Taylor et al. also suggested educational exercises that could develop each of these EI skills, as listed below in Table 2.

Table 2. Proposed curricular elements for teaching professionalism using the EI model (Taylor et al., 2011)

Quadrant 1 Enhance Personal Discovery	Quadrant 3 Enhance Awareness of Groups
<ul style="list-style-type: none"> • Myers-Briggs Type Assessment • 360-degree feedback • Learning styles preferences • Identifying your ideal self 	<ul style="list-style-type: none"> • Active listening • Empathy • Cultural competency • Systems thinking
Quadrant 2 Enhance Ability to Manage Oneself	Quadrant 4 Enhance Ability to Manage Relationships
<ul style="list-style-type: none"> • Time management • Communication with patients & groups • Coping strategies • Stress management • Developing a vision for oneself 	<ul style="list-style-type: none"> • Team building • Conflict resolution • Creative problem-solving • Change management

As the search for the appropriate strategies to teach professionalism continued in several health professions, it became clear that professionalism was a more complex construct than expected.

In 2016, Irby and Hamstra, reviewed the professionalism literature and proposed three frameworks for education and training in professionalism: virtue-based professionalism, behavior-based professionalism, and professional identity formation. Table 3 describes the focus, assumptions, and strengths of each of these frameworks.

Table 3. Frameworks for teaching professionalism (Irby & Hamstra, 2016)

Professionalism Frameworks			
Framework	Focus	Actions Result From	Strengths
Virtue-based professionalism	Moral character and reasoning	Internalizing the correct values	Prioritizes internal values & motivation
Behavior-based professionalism	Behaviors, milestones, and competencies	Clear expectations, feedback, and reinforcement	Clarifies expectations. Certifies competence
Professional identity formation (PIF)	Evolving and changing identities	PIF via socialization into a community of practice	Defines developmental milestones of PIF

For each of the three frameworks, Irby and Hamstra (2016) proposed curricular, pedagogical, and assessment strategies for teaching professionalism, as outlined below. These pedagogical tools and assessments can cultivate pre-health professionals as they progress through their education programs. Refer to Table 4 below.

Table 4. Practical applications for professionalism frameworks (Irby & Hamstra, 2016)

Practical Applications for Professionalism Frameworks			
Framework	Curriculum	Pedagogy	Assessment
Virtue-based	Ethics and moral development Patient communication. Ethics codes	Direct instruction Role modeling Case Studies Reflective writing ----- Guided discussion Appreciative inquiry	Traditional exams Self-assessment Observations/Feedback Moral Reasoning Assessments
Behavior-based	Competencies Crisis communication Systems thinking	Direct instruction Role modeling Case Studies Reflective writing ----- Coaching Simulations	Traditional exams Self-assessment Observations/Feedback Performance Assessments Critical Incident Reports
Professional Identity Formation (PIF)	Stages of identity formation, development, values, and ethics	Direct instruction Role modeling Case Studies Reflective writing ----- Guided discussion Appreciative inquiry	Self-assessment Moral Reasoning Assessments Feedback using aspirational frameworks

REVIEW OF STRATEGIES TO SUPPORT PROFESSIONALISM EDUCATION

Can Professional Identity Be Measured?

To discuss professional identity at the pre-professional level, we must first understand the concept of professional consciousness. Professional consciousness can be defined as being aware of and responsive to one’s professional surroundings. In other words, “How do I fit in”? This question is one of the first questions pre-health professionals will ask themselves and continue doing so throughout their pre-professional and professional journey. The literature points out several strategies or tools that can increase the self-awareness of the student’s PIF. Several researchers, including Crossley and Vivekanada-Schmidt (2009), Tan et al. (2017), Tagawa (2019), and Daan et al. (2021), have created scales to evaluate professional identity formation.

Tan et al. (2017) described professional identity as “the self that has been developed with the commitment to perform competently and legitimately in the context of the profession, and its development can continue over the course of the individuals’ careers” (p. 1505). Tan et al.’s study had participants explore five dimensions: knowledge about professional practices, identifying with professional role models, experience in the profession, preference for a particular profession, and professional self-efficacy. Each dimension contained items for which the participant rated each on a five-point Likert scale with 1: Never True, 2: Not Really True, 3: Neutral, 4: Somewhat True, and 5: Definitely True. Refer to Table 5 to review the dimensions and items assessed in this study.

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Table 5. Measures of professional identity (Tan et al., 2017)

Five Dimensions of Professional Identity Assessment (Revised for Pre-Health Professionals)	
Dimension	Items
Knowledge of Professional Practices	<ul style="list-style-type: none"> • I know the nature of the work I will do in my future profession. • In most work environments, professionals with different backgrounds work together. I know of the different types of professionals I will be collaborating with. • I have a good idea about the roles and responsibilities of my future job. • I know what kind of applications, tools, and equipment I will handle in my future occupation. • I am aware of the impact of the decisions I make as a professional in the healthcare industry. • I have a good idea about the rules and regulations in the healthcare industry.
Experience with the Profession	<ul style="list-style-type: none"> • I work part-time in (or am running) a business related to what I am studying. • I am part of an interest group related to my profession. • I know personally some people who work in my future profession. • I follow developments in my future industry in newspapers and on television. • Before I entered this pre-health professional program, I already had some prior work experience related to or in the profession of my choice. • I have interacted with professionals in the healthcare industry (outside of this program or through events organized in this program).
Identifying with Professional Role Models	<ul style="list-style-type: none"> • When working on problems in this program, I imagine myself to be in the shoes of a professional in my future work environment. • I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation. • I believe I can already think and reason like a professional in a company or organization. • I admire most those educators who are professionals in the area that I would like to enter. • I admire professionals who are already working in my future work environment.
Preference for the Profession	<ul style="list-style-type: none"> • Do you already know what kind of work or profession you prefer? • I am already pretty sure what kind of profession I will enter after completing this program and/or university education.
Professional Self-Efficacy	<ul style="list-style-type: none"> • I am sure I will have no problems dressing and behaving professionally in the healthcare industry. • I feel poorly prepared for a real job. (reversed Likert scoring) • I believe that I will easily get along with my future colleagues, get their cooperation, and have informal conversations with them. • I'm confident that I can do an excellent job in the future. • I am not sure about the kind of challenges faced by the professional in the industry I will work in. (reversed Likert scoring) • I have no doubt that I will master all the skills necessary to succeed in my future work.

Tan et al. (2017) suggest that this scale can be used to not only measure professional identity of students relative to each other and at previous points in time (entry into the program and before graduation) but also to assess the success of curriculum in bringing about changes in the student's professional identity development. This scale is not specific to the healthcare professions, and the educator/advisor may want to adjust to the particular area of study. In addition, this tool may be used qualitatively with the students to explore their progress and reflect on their growth in any one area.

Tagawa (2019) created a "developing scale" to assess the overall degree of PIF, named for the fact it would quantify individual maturation and professional development, specifically in the medical profession. This evaluation instrument included items that measured the respondent's emotional self-control as a professional, recognition of professional roles, and the level of internalization of external values and social requirements. In addition, this tool measured reflective and self-assessment behaviors that would be expected of clinicians practicing the profession. In this study, a self-administered questionnaire was created with 15 items. Each item was scored on a 7-point Likert scale ranging from 1: completely appli-

cable to 7: greatly applicable with 4: neutral. Refer to Table 6 below. It shows the professional development factor and each item associated with each of those factors. Items 1 - 6 and 15 were reverse coded.

Table 6. Scale to evaluate medical professional identity (Tagawa., 2019)

Medical Professional Identity Assessment	
Factor	Items
Self-control as a physician	<ul style="list-style-type: none"> • I cannot tolerate that colleagues who sympathize with my actions have a different mindset than me. • I find it difficult to suppress my desires and act rationally. • It is difficult for me to adjust and act according to the different values of each medical professional and demands for physicians. • I have never thought about the reasons or principles behind the required code of conduct. • I am sometimes unable to do something I was not interested in despite understanding its necessity. • The way I behave in medical settings is not my true self.
Awareness of being a medical doctor	<ul style="list-style-type: none"> • I behave correctly as a physician on a daily basis. • I am aware of my position as a physician.
Reflection as a medical doctor	<ul style="list-style-type: none"> • I have accepted the words of gratitude and the frustration and anger of patients as a personal evaluation of myself. • I consider long-term significance and concerns when I think about what I should do now. • I have used my own beliefs and ideals as a standard to evaluate my own actions as a physician.
Execution of social responsibility	<ul style="list-style-type: none"> • If I were able to play a role in improving society and organizations, I would be satisfied even if I did not receive individual recognition. • I induce action in the people around me based on the principles I believe in to fulfill my role as a physician. • I take on various roles in accordance with the demands of society.
External & Internal self-harmonization	<ul style="list-style-type: none"> • I feel that I need to change my current mindset and everyday behavior.

While creating this scale, Tagawa included many respondents across the PIF continuum, such as clinicians, instructors, medical residents, and medical students. As expected, this showed a progression of scores starting with the pre-health professional (medical students) to the practicing professional (clinicians). This scale may be used by the pre-health educator/advisor to discuss the various factors that play into developing one’s professional identity. However, Daan et al. (2021) worked to validate one of the first tools to assess professional identity, Brown et al.’s (1986) Professional Identity Questionnaire (PIQ). Brown originally developed this tool to measure the social identification of the participant with a specific group. It contains 10 items scored on a 5-point Likert scale, with 1: strongly disagree, 2: disagree, 3: neutral, 4: agree, and 5: strongly agree. For items 6 – 9, scoring was reversed before analysis. See Table 7 below to review each of the items.

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Table 7. Professional identity questionnaire (Daan, et al., 2021)

Professional Identity Questionnaire Items
1. I am a person who considers the doctors' group important. 2. I am a person who identifies with the doctors' group. 3. I am a person who feels strong ties with the doctors' group. 4. I am a person who is glad to belong to the doctors' group. 5. I am a person who sees myself belonging to the doctors' group. 6. I am a person who makes excuses for belonging to the doctors' group. 7. I am a person who tries to hide belonging to the doctors' group. 8. I am a person who feels held back by the doctors' groups. 9. I am a person who is annoyed to say that I'm a member of the doctors' group. 10. I am a person who would feel guilty for not belonging to the doctors' group.

Daan et al. concluded that the PIQ could be used as a quantitative measure of progress of professional identity formation. As with the other PIF tools, no scale and scoring rubric determines the stages of PIF, but these tools can be used to semi-quantitatively track an individual's increase in their score over time and may be helpful for educators/advisors to determine if the curriculum used effectively contributes to increased PIF. Also, educators/advisors may use the PIQ in other creative ways, such as a reflection exercise with each item as a point of discussion.

Why Cultivate Professional Identity Formation (PIF)?

There are many reasons to develop PIF in students and entry-level professionals. An educator may seek to do so to:

- Help guide new professionals to a more appropriate identity that better serves themselves and the patients they serve.
- Increase the effectiveness of healthcare teams by ensuring that each team member understands the relationship between their identity and that of the others practicing alongside.
- Increase the sense of belonging in the profession, increasing the retention of pre-professionals, thereby helping to alleviate shortages of healthcare professionals.

A comprehensive literature review by Sarraf-Yazdi et al. (2021) lists several techniques which can be used to support professional identity formation, which includes:

- Formal ethics curriculum
- Interaction opportunities with practitioners, healthcare teams, and professional organizations
- Reflective practices and storytelling exercises
- Mentorship programs
- Role modeling during clinical experiences
- Symbolic socialization practices and events include white coat ceremonies, professional codes of conduct (see Appendix A), and professional weeks and awareness months (see Appendix B).

What Additional Strategies Support Professional Development?

Pre-health educators/advisors can support professional development in several other ways. As discussed earlier, it is important to connect students with models of their profession. Interactions with other novice and seasoned practitioners are essential to the formation of one's professional identity. One effective way for an educator or advisor to ensure an increased number of professional interactions for any student is to encourage the student to explore or join a professional society. A professional society is a group of people belonging to the same profession who are engaged in maintaining oversight of the practice of that profession. Many professional societies are active accrediting degrees or certifications, defining standards and competencies of the profession. Beyond that, it provides professionals an opportunity to network, share professional experiences and best practices, and support other fellow practitioners. This type of group membership can accelerate a sense of professional identity because it answers the question, "How do I fit in?" There is usually at least one professional society associated with each healthcare profession. Membership fees are often discounted for student or entry-level members. Listed below are several healthcare professional societies.

- Physicians: American Medical Association (AMA) - ama-assn.org/
- Physician Assistants: American Academy of Physician Associates (AAPA) - aapa.org/
- Nurses: American Nurses Association (ANA) - nursingworld.org/
- Physical Therapists: American Physical Therapy Association (APTA) - apta.org/
- Medical Lab Professionals – American Society for Clinical Laboratory Science – ascls.org

How Does Interprofessional Team Membership Influence Professional Identity?

As the pre-health or early health professional begins to hone professional skills, each professional will be embedded as a member of several interprofessional healthcare teams. The pre-health professional must be acclimated to being a member of those healthcare teams. Much of the formation of our identity is based on how we see ourselves and how we interact with others to accomplish a goal or mission. The student should be familiarized with the benefits of working on a professional team and the difficulties that may arise in team interactions. In seeing how others view and react to us, we adjust our own professional identity. In considering the effect of team membership on one's professional identity, several questions need to be answered. How does participation in a professional team increase the professional's sense of belonging and buy-in to the institutional and professional mission? What skills can be used to navigate these complex relationships that exist within the workplace? What tools can be used to cultivate the professional skillset as it relates to team-based interactions and environments?

Let's first answer the question, "What is a healthcare team?" Babiker et al. (2014) defined a team as "... a set of two or more people who interact dynamically, interdependently, and adaptively towards a common and valued goal/objective/mission..." (p. 10). A healthcare team's shared goal is to coordinate services to provide high-quality care to the patient. A team has little value if it is not effective. Mikan and Rodger (2005) developed six characteristics (Figure 4) required to operate as an effective healthcare team: the team must have a common purpose with measurable goals, which require an effective leader or leaders to ensure efficient communications and protocols. And finally, interactions within the group must be based on mutual respect, which should ultimately lead to group cohesion and more rewarding collaborative experiences.

Figure 4.



Pre-health professionals must understand that one of the core competencies of being a practicing professional is working effectively with other healthcare team members. To ensure buy-in of the value of this collaborative practice, developing professionals must first realize the benefits of effective teamwork. In their paper, Babiker et al. the following benefits are described at four levels of practice: benefits to the patient, to the team members themselves, to the team as a whole, and the organization. See Table 8 below to review the benefits of effective collaboration.

Table 8. *Benefits of effective collaborative practices in healthcare teams*

Benefits of Effective Collaborative Practices Within a Healthcare Team				
Improved Area of Practice	Benefits for the Patient	Benefits for the Team Members	Benefits for the Team	Benefits for the Organization
Quality Care	Reduced medical errors	Enhanced job satisfaction	Improved coordination of care	Reduced hospitalization times and costs
Efficient Care	Increased patient satisfaction and compliance	Increased clarity of professional roles	Efficient use of available services	Reduced unexpected admissions
Accessible Care	Improved health outcomes	Enhanced sense of professional belonging & well-being	Enhanced communication and professional diversity	Increased accessibility of services

As important as it is for the pre-health professional to recognize the value of effective teamwork, it is equally essential to be aware of the barriers to establishing and maintaining an effective team. Several researchers (Anderson et al., 2016a; Babiker et al., 2014; WHO, 2011) agree on the challenges to ensuring effective teamwork. Those challenges include overlapping responsibilities and changing professional roles, which may confuse role allocation. It is essential that the duties of each team member are clearly defined and recognized by the entire team. Another barrier that might affect team members' ability to collaborate effectively would be the imposition of a healthcare hierarchy that may overshadow the views and opinions of critical team members. There must be a free flow of communication between the team members, and unequal distribution of responsibilities may intimidate some team members from speaking out to ensure patient safety or quality care.

Interestingly, one of the barriers to effective teamwork is the inflexible and autonomous functioning of the team's professional roles, where the relationship is seen as a one-to-one relationship between the patient and the provider. If the team members do not recognize the contributions of all team members, then communication and care break down. This can also lead to disagreement and conflict. Resolution of disputes is critical, not only to the successful functioning of the team but impacts the professional identity of each of its members. Members must be reminded of the benefit of reciprocity of interconnected professional skills. Finally, organizational management and team members need to recognize the time it requires for a team to evolve into an efficient, effective body. The team and team members require a socialization process that allows each member to refine their professional identity as it relates to other team members and the team's roles and responsibilities.

So how might educators and advisors assist students in understanding their roles within teams? What strategies might be used to orient pre-professional students to the practices of healthcare teams, especially as it contributes to accomplishing the patient care mission? WHO (2011) lists several activities that can be used to acclimate the pre-professional to healthcare teams:

- **Shadowing/Mentoring:** Arrange shadowing or mentoring opportunities with a practicing professional embedded in a healthcare team. Encourage the mentor to share their personal experiences participating in ineffective versus effective teams. You might provide a set of questions or prompts for the assigned mentor, which can be used to effectively relay their experiences to the shadow/mentee. Example questions that may be provided to the mentor include:
 - What characteristics have you found in an effective team?
 - What professions were represented on the team?
 - How was your profession valued as part of the team?
 - What was your professional role on the team?
 - Did the team have clear goals?
 - Was their effective leadership to guide the team?
 - How did members of the team communicate?
 - What is the patient considered part of the healthcare team?
- **Simulated Healthcare Team:** Gather pre-professionals together for a group mock-healthcare team exercise. Provide practice scenarios for each team to navigate through and guide them to achieve effective outcomes. Be sure to include example scenarios that highlight characteristics of successful teams and examples that introduce the barriers to team-based success.
- **Expert Panel Discussion:** Arrange a panel discussion consisting of professional members of a healthcare team and invite the students to ask questions of the panel members. Provide students

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with example questions, especially if they have not had the opportunity to shadow a healthcare team.

- **Reflective exercises:** After the student participates in any of the above opportunities, ask the student to complete these reflective statements:
 - My participation on a healthcare team is valuable because ...
 - My profession is a critical part of health care because ...
 - Teams are cohesive when ...
 - My professional identity as it relates to the healthcare team is important to me because ...

How Does Professional Advocacy Support Professional Identity Development?

Accomplishing the profession's mission and goals often requires that individual professionals step up into leadership roles or positions. All professionals can serve in leadership roles by advancing the practice or its mission in direct and indirect ways. Professional advocacy is action to promote the profession by bolstering pride in the profession and giving back to others by training others to understand and value the contributions of the profession.

This section will address professional advocacy and leadership by answering the following questions: What is professional advocacy, and why is it essential for each healthcare profession and healthcare system in general? How does the individual professional use advocacy to contribute to the larger mission of the healthcare professions? In what ways can the pre-health and early health professionals participate in professional advocacy? What professional barriers exist that might be overcome by concerted professional advocacy and activism?

Professional advocacy consists of any actions that positively promote the profession. These activities may include large-scale, organized efforts to change federal or state legislation or policies that affect professional practices and developing competencies and standards for the accreditation of professional programs. But small-scale actions such as recruiting entry-level professionals or visiting schools to increase the profession's visibility are also acts of professional advocacy (ACA Advocacy Task Force, 2020).

Professional advocacy is important because it can be used to address critical concerns that may affect the status or practice of the professional community and impact patient care. For example, advocacy can adjust the public's viewpoint of the profession by accurately representing the profession and increasing visibility and recognition in the public sphere. This snapshot of the profession can be critical, for instance, to fill sorely needed workforce shortages that impact patient care. In addition, advocacy can ensure that the profession can maintain a high standard of practice, especially in the face of pressure to decrease training costs by lowering standards. For these reasons, professional advocacy can work to improve the career experience of the professional and meet the health care needs of the patient community. Just as importantly, it is crucial to consider professional advocacy as a reinforcing factor in professional identity formation. Health professionals must recognize and promote their worth as part of the healthcare team. Doing so strengthens and confirms their realization of who they are as practitioners their professional identity.

Kirsh (2015) argues, at least in the case of occupational therapists, advocacy must become part of the process of professional socialization and is a professional imperative. Indeed, respect and pride in one's profession would be key to taking steps to promote that profession. Each health profession may need to focus on different areas of advocacy based on the present circumstances and status of the profession as it operates within the larger national and global healthcare communities. Educators and advisors should

ensure that pre-health professionals become familiar with the critical areas of advocacy in their respective professions. A significant need for advocacy often includes the health and safety of the healthcare professional, fair pay and wages commensurate with the educational investment, professional responsibilities, liabilities, and risks of the profession, and licensing and labor laws as applied to the profession.

Several small-scale activities would also cultivate this aspect of the pre-health professional's identity. For instance, educators could assign a professional service project during their professional program, or advisors might enlist student volunteers in public outreach opportunities such as health fairs and K-12 career workshops. Educators and advisors might also make the pre-health professional student aware of the political action committees affiliated with the student's chosen profession. Most health professional organizations have political action committees that interested pre-professionals and professionals can join. See Appendix C for a list of PACs associated with some common health professions.

CONCLUSION

This chapter defined the critical elements of professionalism from several perspectives. Historically, our understanding of professionalism related to healthcare has evolved from innate ethical behaviors and learned skills to the formation of a professional identity influenced by our perception of ourselves and based on our relationship with other practitioners. This includes cultural interactions as well as collaborative practice in healthcare teams. It is important the education of pre-health professionals is situated so that students can recognize the barriers that impede PIF and are given tools to mitigate these hurdles. In addition, educators/advisors can help the pre-health professional assess their professional identity formation progress and work with the many pedagogical tools available, such as mentoring, simulation, discussion, and reflective practice, to further cultivate their professional identity.

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Cultivating Professionalism in the Healthcare Professional

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ADDITIONAL READING

Anderson, L., & Bolt, S. (2016). *Professionalism: Skills for Workplace Success* (4th ed.). Pearson.

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KEY TERMS AND DEFINITIONS

Professional Advocacy: Those actions that positively promote the profession.

Professional Identity Formation (PIF): The development of knowledge, skills, and attitudes which allow a professional to incorporate past values or beliefs to accept the identity of their profession.

Professionalism: The standard or code of conduct that characterizes a profession and influences the practitioner's behavior.

APPENDIX 1

Professional Awareness Dates

Table 9. Professional awareness events

Professional Awareness Event	Annually Celebrated on
National Physicians Week	March 25 - 31
National Physician Assistants Week	October 6 - 12
National Nurses Week	May 6 - 12
Medical Lab Professionals Week	April 18 - 24
National Physical Therapy Month	October

APPENDIX 2

Codes of Conduct for Various Healthcare Professions

Table 10. Professional codes of conduct

Healthcare Profession	Professional Code of Conduct	Resource Link
Physicians	AMA Code of Medical Ethics	https://www.ama-assn.org/delivering-care/ethics/code-medical-ethics-overview
Nurses	ANA Code of Ethics	https://nurse.org/education/nursing-code-of-ethics/
Physician Assistants	AAPA Code of Ethical Conduct	https://www.aapa.org/wp-content/uploads/2017/02/16-EthicalConduct.pdf
Physical Therapists	APTA Guide for Professional Conduct	https://www.apta.org/contentassets/7b03fbc1fa5440668a480d2921c5a0b6/apta-guide-for-conduct-pt.pdf
Medical Laboratory Scientists	ASCLS Code of Ethics	https://ascls.org/code-of-ethics/

APPENDIX 3

Political Action Committees (PAC) Representing Various Healthcare Professions

Table 11. Political action committees

Healthcare Profession	Political Action Committee (PAC)	Resource Link
Physicians	AMA Political Action Committee (AMPAC)	ama-assn.org/health-care-advocacy/access-care/ampac
Nurses	ANA Political Action Committee (ANA PAC)	rnaction.org/SitePages/pac.aspx
Physician Assistants	AAPA Political Action Committee (PA PAC)	aapa.org/advocacy-central/federal-advocacy/aapa-political-action-committee-pa-pac/
Physical Therapists	PT Political Action Committee (PTPAC)	ptpac.apta.org/
Medical Laboratory Scientists	ASCLS Political Action Committee (ASCLS PAC)	ascls.org/pac/

Chapter 3

Advising on Clinical Experience and Patient Care Exposure at Home and Abroad

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ABSTRACT

This chapter provides essential information, perspectives, and talking points for advising students on clinical experience/patient care exposure at home and abroad. The authors will outline different mechanisms for students to get this experience, historical and present-day perspectives on why this is important and impactful, as well as key ethical and legal reasons to scrutinize potential opportunities. Advisors will be equipped to guide key student-facing conversations and institutional approaches.

INTRODUCTION

Getting into a health professional school is a little bit like making it to the pro level in athletics. It is a very competitive process and requires a great deal of intentionality. According to the national data, only about 36% of all 2021 applicants to U.S. medical schools were accepted (American Association of Medical Colleges [AAMC], 2021a). On average, U.S. medical schools accept 7% of their applicants, thus students must submit applications to more than one school (MedEdits, 2021). The average student applies to 16 different medical schools (Shemmassian Academic Consulting, 2021). The data is different for other health professions but still competitive. Many students, after being rejected, give up, and find another career option forgoing the reapplication process.

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Advising on Clinical Experience and Patient Care Exposure

Demonstrating exposure to clinical settings on applications has long been considered beneficial for pre-health students. Admissions committees in almost every health profession want to see candidates with insight into the career they are pursuing. Some have very specific requirements and others may use vague language like “medical exposure” or “clinical experience” (AAMC, 2016). The vague language used by admissions committees can be confusing for advisors and students who often lack clarity on what type of experience is expected for the admissions process or beneficial to student development. There are a variety of ways and settings in which students may acquire this exposure and, in general, well-designed clinical exposure can further students’ pre-professional competencies, self-awareness, service orientation, and more (Wang et al., 2015).

MAIN FOCUS OF THE CHAPTER

In the US, most hospitals have formal volunteer programs that are well structured and provide students clear guidance on what they are allowed and expected to do. Interaction with patients is limited to non-technical conversations; ensuring clinical care is provided by appropriate personnel. Those limitations on activities lead some students to look for locations domestically or abroad where they can experience less oversight, and therefore, greater freedom to be involved in patient care. The desire to gain more significant experience may result in students selecting clinical experiences that might be inappropriate, unethical, illegal and unsafe. In the worst-case scenario, this might even allow predatory organizations to lure students into poorly designed clinical interactions. These are particularly prevalent with vulnerable and disempowered patient populations mostly abroad, but on occasion domestically (Allen et al., 2014). This chapter will describe the features of a well-designed clinical experience and what to look for as well as describe features of programs that embrace unethical and potentially illegal practices. Well-versed advisors can assist students in selecting appropriate opportunities, actively engaging them in the experience, and articulating resultant personal and professional impacts. The take-home message is not all clinical exposure opportunities are created equal (Kitsis & Goldsammer, 2013). Opportunities differ in terms of their impact on students and professional pursuits, their impact on the patients and health care settings where the programs take place, and their alignment with health education competencies, values, and ethos. Advisors must be familiar with the broad range of mechanisms for clinical exposure and be able to guide students’ discernment of opportunities that adhere to best practices. In addition, advisors assist students in setting goals for clinical exposure, as well as articulating the impacts of their exposure in reflective fashions. This chapter will lay the foundation for supporting students to do everything they can to prepare a strong portfolio for application to a health profession program, including experiential learning at home and abroad, while also helping them understand how to do so in legally and ethically sound ways.

Issues, Controversies, and Problems

Advisors need to be versed in the critical dialogues around clinical experience and patient care exposure. These dialogues include topics such as unequal access to opportunity, ethical conundrums, experiences that sacrifice professionalism, and more.

Unequal Access to Clinical Experiences and Patient Care Exposure

While gaining experiences in health care settings has long been an expectation of students, access to those experiences is often affected by multiple factors. First-generation students often lack the personal resources that other students might be able to access to help them find experiences to prepare for a health profession. Not only do first-generation students not have access to health professionals in their immediate family, but they lack the support of parents who understand the college experience. Students and/or those with parents with health professional degrees are more likely to have access to physicians for shadowing opportunities through family connections. In this way, the emphasis on shadowing/clinical exposure during health professional school applications can compound the privilege already experienced by some students. Students who come from underserved communities may lack the quality K-12 education to allow them to be prepared for college courses. Additionally, students who come from under-resourced communities or families often find themselves needing to use extra time to work to support themselves, and sometimes their families, while in college. This takes away precious time to shadow or volunteer. Students in rural areas, or locations that have less healthcare infrastructure, have less access to opportunities (Hashmi & Huzaifa, 2021).

Advisors have an important role in encouraging students of all backgrounds to engage in clinical exposure activities. When working with students who face complex challenges, advisors need to consider all those challenges when suggesting strategies to gain experience. Advisors may need to use other existing resources on campuses to encourage students to explore and gain experience, including career offices, academic success offices, and diversity, equity, and inclusion programs. This is easier to do at larger universities that have health profession programs. For smaller colleges without easy access, reaching into the community to create relationships with local health care providers is a key strategy. Consider approaching local hospitals, medical societies, chapters of organizations such as Students National Medical Association (SNMA), American Medical Women's Association (AMWA), National Rural Health Association (NRHA), Do No Harm Coalition, National Medical Association (NMA), National Hispanic Medical Association (NHMA), White Coats for Black Lives, and American Medical Association (AMA). Building partnerships with physicians, nurses, and other health care workers who have a commitment to a diverse pipeline will open doors for students to gain exposure and mentorship.

Ethical Issues With Shadowing

A number of articles have been published regarding the ethics of shadowing (Bing-You et al., 2014; Kitsis, 2013). According to Dr. Elizabeth Kitsis (2013), shadowing is fraught with potential ethical challenges from patients believing the extra person in the exam room is a trained health care provider, to patients not knowing they can decline their presence, or perhaps worse, patients feeling embarrassed to share information about their health with a stranger in the room. Students with little or no knowledge of health professions, because they either don't have a health professional in their family or access to a health professional to learn about the field, would benefit from reading or watching quality videos about the profession prior to shadowing. Many professional organizations also provide quality materials students can use prior to shadowing (AAMC, 2022). AAMC provides alternative options to shadowing that can help students gain exposure to healthcare. There is a growing abundance of information for pre-health students on the internet about gaining experiences. The concern for advisors is to make sure to share quality information with students from a reliable source.

International Health-Focused Experiences

Many students are interested in obtaining clinical experience in international settings, particularly low-income settings so that they can combine their desire for clinical exposure with a desire to “help.” When students are abroad in settings that are linguistically and culturally novel, there is even greater risk for ethical, legal and patient safety issues (Rowthorn, et al., 2019; Lasker, et al., 2018). Students have participated in international clinical experiences for more than 60 years under the auspices of international medicine and medical missions. With the advent of Global Health as a field of study research and practice (Koplan et al., 2009), there are no longer excuses for students to participate in poorly designed activities which are often antithetical to professionalism, self-awareness, and health equity (Evert et al., 2015).

Activities undertaken by students in international medical programs vary significantly in nature, invasiveness, and supervision (Rassiwala et al., 2013; Evert et al., 2015; Lasker et al., 2018). They range from shadowing health care providers, providing patient education or community health workshops, working with human or animal cadavers, observing surgeries, distributing medications, and engaging in hands-on clinical patient care. Patient care activities can include observation, obtaining patient histories, assessment, physical exam, non-invasive physical maneuvers, diagnosis, counseling and guidance, issuing prescriptions, procedural treatments (e.g., biopsy, suture, needles, foreign body removals, wound care), intimate examinations, surgeries, and obstetric deliveries. At times, to meet volunteer desires, some organizations are known to explicitly or tacitly allow untrained volunteers to engage in activities across the full spectrum of patient care.

Studies have documented numerous concerns with overseas clinical programs, including the strain that many place on health care personnel and patients in low-resourced medical settings; the lack of equity in bidirectional training opportunities; and the absence of ethical community engagement, capacity building, and sustainability practices evidenced by some programs (Campus Compact, 2014). Of particular concern to pre-medical advisors, “hands-on” clinical work by students lacking medical training raises issues of patient safety, violating local licensing laws, privacy violations, and lack of professionalism (Rowthorn et al., 2019). Such activities would never be afforded to similarly unqualified individuals in the United States.

In a related concern, many articles have been written critiquing the power/privilege dynamic of clinical experiences, particularly in international settings, where the terms “voluntourism” and “white saviorism” have been applied. Unequal power dynamics are present when a student moves from their high-resourced frame of reference to a lower-resourced frame of reference or setting (Eichbaum et al., 2020). An effort to bring attention to the ways many international medical externship programs perpetuate unequal power dynamics has come to the fore in the last few years. A recent article described a student hospital experience as little more than adventure travel “in its new wafer-thin disguise as a more ethical and moral pastime of the new bourgeoisie” (Wendland, 2012).

SOLUTIONS AND RECOMMENDATIONS

Types of Clinical Experiences

As advisors work with students to be high-quality candidates for health professional schools, advising on choosing the right types of clinical experiences and outlining the benefits of these experiences is

central to the advising process. Table 1 lists the myriad of mechanisms and roles for pre-health students to gain real-world exposure. Increasingly, students have access to career exploration classes or special programs that give them an understanding of health professions. There is an increase in the development of courses concurrent to shadowing experiences which result in greater quality and impact (Clark, 2017). Videos available on the internet and books written by health professionals are sources of information as well. Exposure to patient care can happen domestically or internationally and can be unpaid or paid. Paid roles generally require greater training and commitment timelines than volunteer positions.

Table 1. Types of clinical experience and patient care exposure

Shadowing
Simulation
Volunteering
Service-Learning
Internship
Employment
<ul style="list-style-type: none"> • Medical Assistant (MA)
<ul style="list-style-type: none"> • Clinical Nurse Assistant (CNA)
<ul style="list-style-type: none"> • Community Health Worker (CHW)
<ul style="list-style-type: none"> • Emergency Medical Technician (EMT)
<ul style="list-style-type: none"> • Pharmacy Technician
<ul style="list-style-type: none"> • Hospice Bath Aid
<ul style="list-style-type: none"> • Scribe
<ul style="list-style-type: none"> • Health Navigator • Clerical • Patient Transport
<ul style="list-style-type: none"> • Patient Advocate
<ul style="list-style-type: none"> • Clinical Research Assistant
<ul style="list-style-type: none"> • Interpreter

It is useful to further differentiate these experiences into those that occur in a formal healthcare setting and those that occur in an informal setting. Formal healthcare settings are those that operate longitudinally, answer to local/national standards of accreditation/licensure/regulations and have standard of care staffing models and professional roles. Examples of formal health settings include academic medical centers, private practice primary care offices, federally-qualified health centers, or community-based skilled nursing facilities. Informal approaches include free clinics, short-term medical missions, health fairs, and volunteer clinics. Both formal and informal settings exist at home and abroad.

Clinical experiences for students tend to be common in low-resourced environments, internationally and domestically, due to the perception, and often reality, of unmet needs and high disease burden. In these contexts, students are often given greater flexibility with less oversight. Unfortunately, the lack of resources makes it difficult to have or enforce mechanisms that protect all parties involved such as patient safety training, infectious disease training, patient privacy, informed consent and feedback ses-

Advising on Clinical Experience and Patient Care Exposure

sions. Without these mechanisms, students may find themselves involved in unethical or dangerous situations. It is important for advisors to be able to differentiate between settings that provide more formal experiences and those with less oversight. Whether the advisee is considering patient care exposure in formal or informal healthcare settings, it is key to lead the student through an inquiry-based process to understand the risk profile of each opportunity in terms of ethical, legal, patient safety and other aspects of best practices (American Medical Association, 2016). Experiences that have appropriate safeguards and rigor have great benefits for pre-professional trainees.

The Benefits of Clinical Experience and Patient Care Exposure

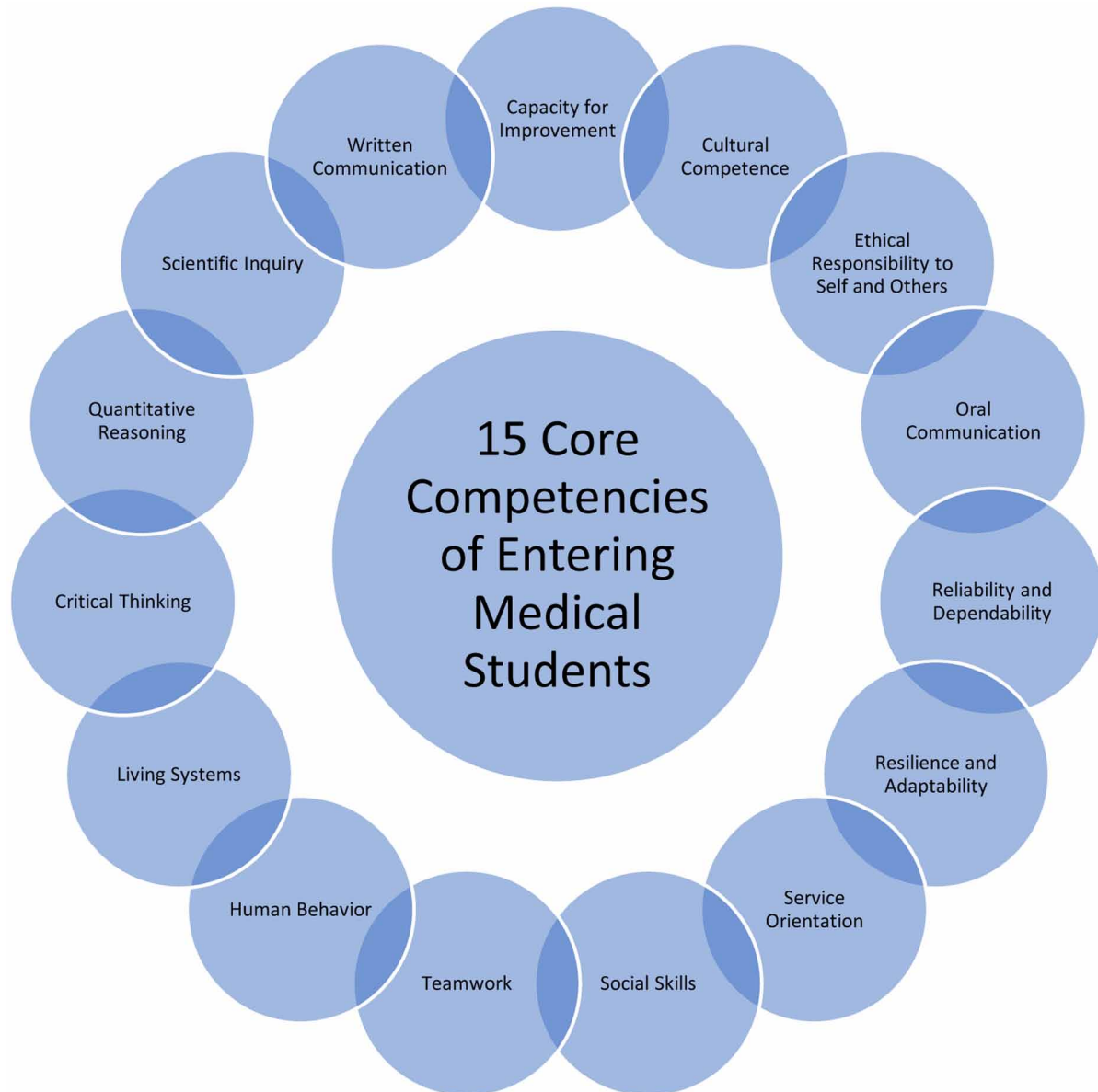
The benefits of well-designed pre-health clinical experience are multifaceted. For the applicant the benefits include deeper understanding of the realities of healthcare, exposure to the therapeutic patient/professional relationship, and a honed understanding of their future day-to-day work environment and role (Kitsis, 2011; Stoeckle et al., 1993). When clinical exposure occurs in a setting that is geographically, culturally, and socioeconomically unique compared to the student's frame of reference, positive impacts include increased cultural fluency and humility, appreciation of different levels of resources for care, the impact of social determinants of health, and appreciation of public health (Margolis, et al., 2017; McCunney et al., 2019). For health professions schools, which are in part ranked based on attrition rates, ensuring students have pre-existing exposure to their future profession is a mechanism to reduce attrition due to mismatch between student expectations and healthcare realities (AAMC, 2016). Importantly, engaging in well-designed experiential learning experiences maximizes the positive impacts of clinical experiences for pre-health students (Maslov et al., 2012).

Medical School Core Competencies

The AAMC has defined a set of 15 core competencies for entering medical students (see Figure 1). These are consistent across many of the health professions, with some additional expectations from programs such as dentistry (AAMC, 2021b). Importantly, students can be impacted in the direction of increased competency or, if exposed to a poorly designed clinical experience, assimilated into suboptimal attitudes and care approaches. An example is a student shadowing a physician in a community-based hospital and the physician remarks, "This patient is an illegal immigrant. There's no way I'm going to offer him dialysis." For students who are impressionable and seeking role models for how they should think, speak, and act, harmful attitudes of health professionals and health systems can be normed and unquestioned if the student is not presented with an intentional, facilitated experiential learning framework designed for a particular setting (Baernstein et al., 2009; Marya & Patel, 2021).

As advisors, asking students to explore the structure that accompanies the experience is important. Any experiential learning should be framed with solid pedagogy. The National Society for Experiential Education has a wide variety of information on what it takes to be a quality program, including listing this set of principles for good practice in service learning which students can use to identify strengths and weaknesses of programs and organizations (Howard, 2001).

Figure 1. The core competencies of entering medical students (AAMC, 2021b)



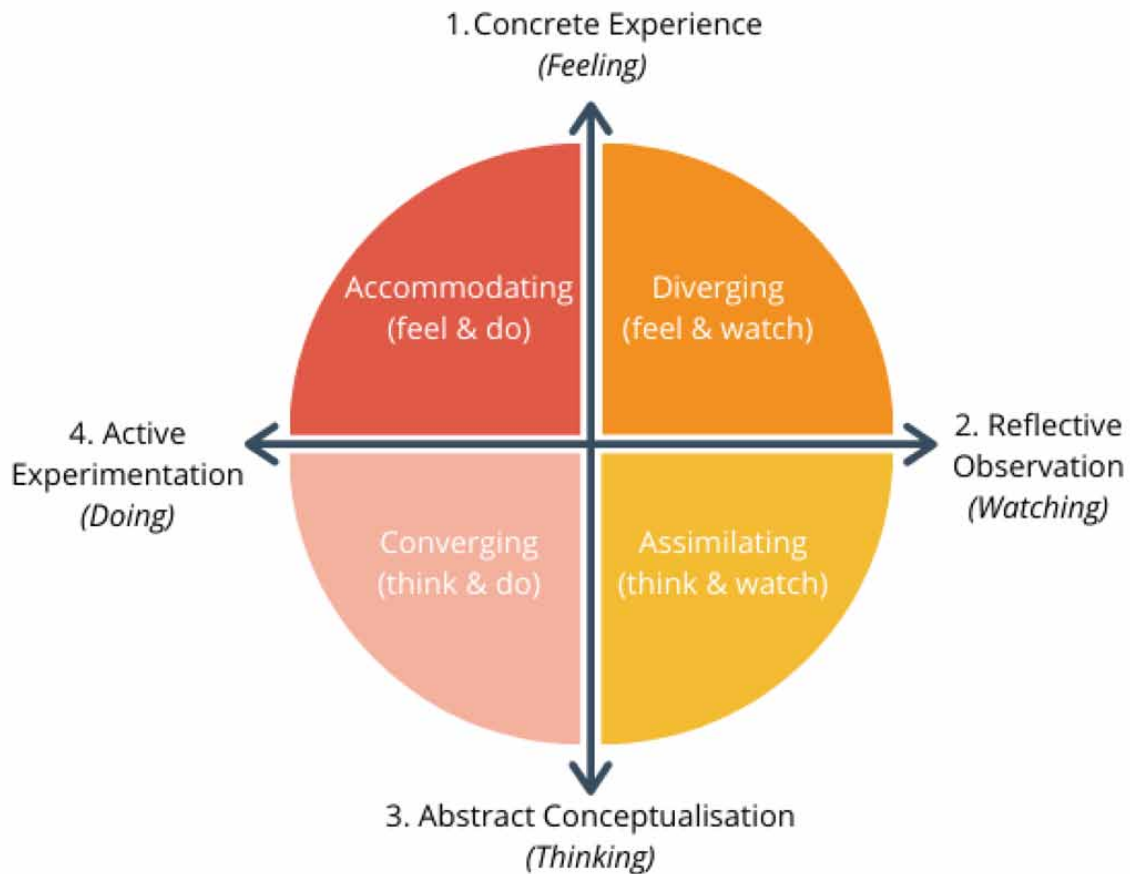
The Experiential Learning Framework and Clinical Experiences

Advisors can assist students by highlighting the need for a clinical experience that is accompanied by an experiential learning framework to increase awareness and articulation of competency development, as well as critical thinking around aspects of care that are unjust, unethical, and deleterious for the health of all members of our global community. David Kolb, a psychologist focusing on adult education, published the Experiential Learning Theory which confirmed that learning is knowledge created through

Advising on Clinical Experience and Patient Care Exposure

transformational experiences. (Kolb, 1984; see Figure 2). Kolb emphasized a process whereby students are feeling, watching, thinking, and doing. Thereby students develop emotionally and cognitively, while synthesizing the experience so that it impacts students in deep and sustained ways.

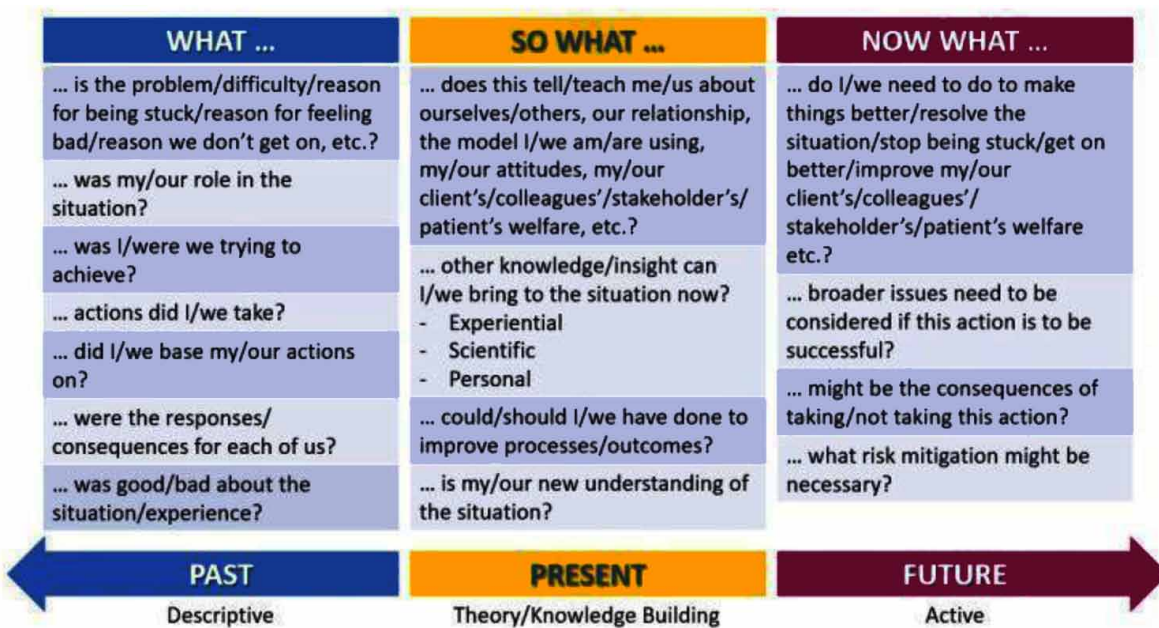
Figure 2. Kolb's Learning Cycle
(Expert Program Management, 2018)



Frequently, clinical experience opportunities lack critical reflection frameworks. Developing students' reflective skills is linked to better communication and observational skills, critical in the health field (Karnieli-Miller et al., 2021). Noteworthy, there is a distinction between reflection and critical reflection. Reflection, such as unstructured journaling, lacks the intentional cognitive framework that underscores critical reflection. Critical reflection allows students to connect past experiences with future actions and application of new perspectives gained through the reflection process (Reflective Practice, 2007). One of the simplest approaches for critical reflection is the "The 'What?' 'So What?' 'Now What?'" framework designed by Gary Rolfe and initially implemented in nursing (Rolfe et al., 2001). Rolfe's approach is based on work by Terry Borton that outlined stages of student development: sensing (what), transforming (so what), and acting (now what). In using this framework, students learn first to "step outside their own experience and question it" and then to "step outside their way of experiencing

and question that.” Using this framework can guide students as they step into a new health immersion experience and question their ways of thinking and acting (Rolfe et al., 2001). In brief, the “What” is the subjective experience or observation of the student (Pearson, 2019; see Figure 3). The “So What” is how this experience or observation impacted them, highlighted what others know/think about the topic (students can consult literature, mentors, others), challenged prior understanding, or otherwise had an impact on their heart/mind/spirit. The “Now What” is how the student will integrate this experience and inform future perspective, action, approaches.

Figure 3. The What, So What, Now What Reflection Framework (Pearson, 2019)



To guide advisors in this area, there are numerous resources available, many developed in the global health education space (see Table 2). The values and principles underlying global health, such as honesty, openness, humility, and sustainability create a framework through which clinical experiences can be vetted by advisors and students (Redwood-Campbell et al., 2010; see Figure 4). For instance, is the organization honest with patients about the student's level of training (or lack thereof)? Is the student encouraged to be humble regarding their ability to change a community or individuals' health in a week or month? Is the organization and student accountable to local regulations, international laws, and Ministry of Health protocols?

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Figure 4. Framework for Global Health Education
(Redwood-Campbell et al., 2010)

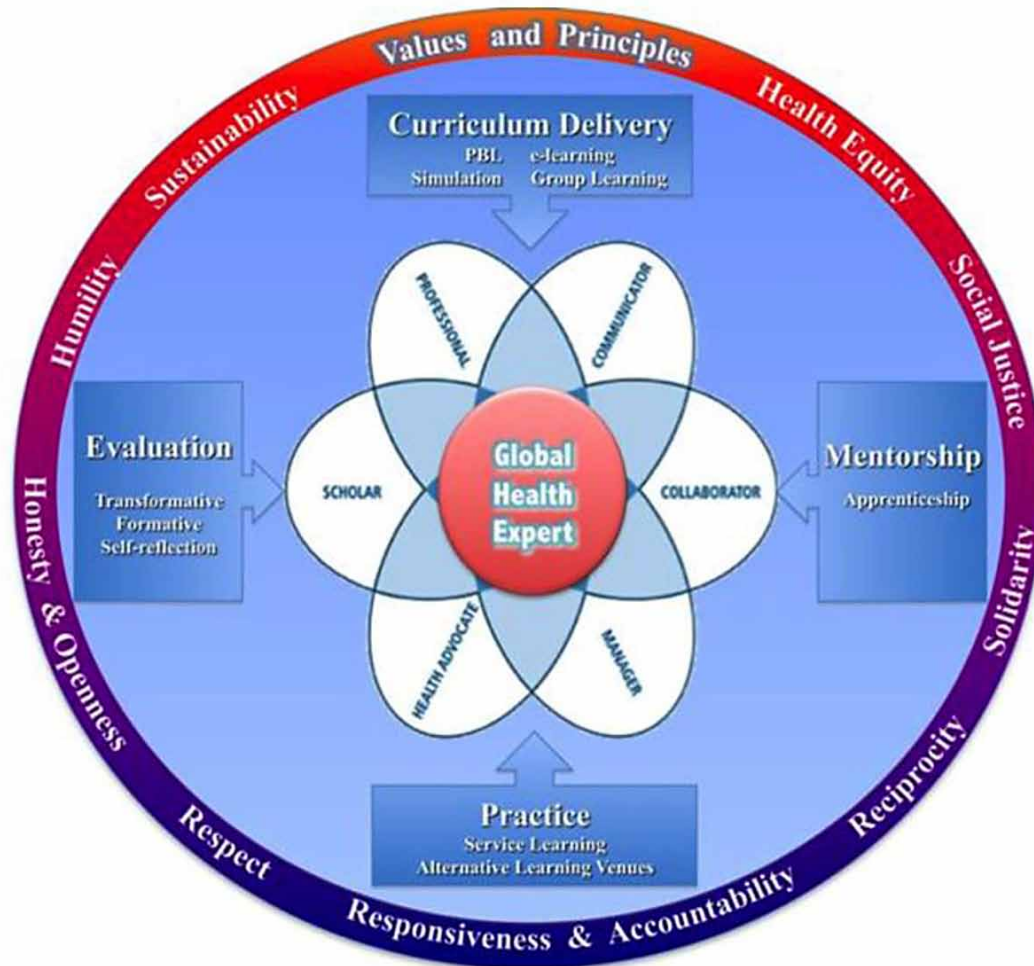


Table 2. Key resources for advisors regarding clinical experiences

The Forum on Education Abroad Guidelines for Undergraduate Health-Related Experiences Abroad	https://forumea.org/resources/guidelines/undergraduate-health-related-experiences
The Brocher Declaration, Advocacy for Global Health Partnerships	https://www.ghpartnerships.org/brocher
The Working Group on Global Activities of Students at Pre-Health Levels (GASP)	http://www.gaspworkinggroup.org
Global Ambassadors for Patient Safety	https://healthcareers.umn.edu/courses-and-events/online-workshops/global-ambassadors-patient-safety
Fair-Trade Learning	https://compact.org/ftl
The Forum on Education Abroad	https://forumea.org
Child Family Health International	https://www.cfhi.org/global-health-programs-resources
The Community-Based Global Learning Collaborative	https://compact.org/global-sl

Guiding Students to Positive Clinical Exposure Experiences Overseas

The concerns noted above have raised the question of whether students can engage in clinical care of any sort, particularly outside the United States. For the most part, except in specific situations where an undergraduate has undergone emergency medical technician (EMT) training or taken part in another heavily regulated early training program, undergraduate students cannot engage in clinical care in any state in the US. This is doubly true in an international setting where US students are not trained, licensed, or allowed to interact with patients in any capacity. Even if a student were to pursue medical licensure in another country, no medical board would provide such licensure to a young person with no locally-recognized medical credentials. As such, any clinical interaction that an undergraduate student engages in overseas is quite likely illegal under that country's laws and regulations. While it may be true that norms of hospitality, unequal power dynamics, and financial agreements with local clinics or host partners can create situations where students may be invited to participate in clinical activities, they still may be contrary to local law. (Rowthorn et al; 2019)

That said, an international health experience that is focused on ethical engagement and critical self-reflection can help students develop in a transformational way. A quality experience includes using an asset-based lens to understand and affirm the resources that already exist in the community and opportunities to interrogate one's own biases. When students enter a new situation with a deficit lens, they will compare it to what they have and find it lacking. Conversely, those students who enter with an asset lens will find new qualities that expand their understanding of communities and cultures.

Checklist to Guide Students in Identifying Appropriate Clinical Experiences

Following are some key questions that advisors and others can use when helping students think deeper about seeking appropriate domestic or international clinical experiences. The bolded questions are specifically for international experiences.

Exploration Phase

- What are your goals for participating in a clinical experience?
- **What are your goals for participating in an international experience?**
- Why are those goals important for you?
- What do you know about the organization that is creating this opportunity?
- What measures are in place to keep you and patients safe?
- Are marketing/outreach materials giving you a sense of impact that is unrealistic?
- Is something temporary or artificial being set up to give you experience, like a pop-up clinic? If so, how is this sustainable?

Motivations

- What are your motivations for participating in a clinical experience?
- **What are your motivations for participating in an international clinical experience?**
- What are the motivations of the organization/individuals who are facilitating your experience?

Advising on Clinical Experience and Patient Care Exposure

- How are community health impacts being measured, if that is the stated goal?
- If you are interested in helping, what does helping others mean?
- What assumptions underlie the idea of help?
- Why do you believe that you can be helpful?
- How are you going to be a learner first, rather than trying to jump into service?

Planning to Participate

- What do you know about the community where the clinic is located?
- **If in a different country, what do you know about the country you will be visiting?**
- What do you know about the country's history and colonialism?
- What do you think would be important to know about the country/community?
- What does cultural humility mean to you?
- What does an asset-based approach look like? Are you focusing on strengths or deficits? How does that inform the narrative you or an organization has?
- **What activities will you be involved with while in the country?**
- How is your safety/security ensured during the experience?

In-Country/Community

- What am I learning about myself?
- What is different from my own experience back home and how is it good?
- Am I taking advantage of my power and privilege as an outsider?
- How am I learning about the locally-staffed health system that comes before and after me?
- What are the social determinants of health and how do they impact patients?
- How am I challenged being in a different culture? How am I seeking and sitting with discomfort of being different?

Post-Experience Debriefing

- How did I change because of this experience?
- **What did I learn about the world, the global burden of disease, and realities of healthcare?**
- What do I have in common with people from other places?
- What assumptions did I carry with me? How were they challenged?
- How will I be a better professional and person because of this experience?
- How did I learn about complexities of health and healthcare? How will that inform my understanding and actions?

Establishing the Legal Risk Profile of Clinical Experience Opportunities

There are key questions to ask of potential clinical experiences and exposures to determine different types of legal risk. Risk can come in many forms, including legal, patient safety, student safety, professionalism, ethical, and more. The following considerations can assist advisors and students establish a risk profile for new or even long-time clinical experiences. In terms of answering these questions, some information may appear on program websites or in materials sent to applicants. However, many of these questions must be asked directly of organizations by students or advisors. An organization's ability to answer any of these questions openly and thoroughly will be an indication of the organization's attention to these critical considerations. To manage the number of issues at play in considering legal risk, many advisors have a few trusted organizations to which they feel comfortable sending applicants.

Legal Risk Profile Considerations

The bolded questions are specifically for international experiences.

- Will the student engage in any clinical activities (e.g., engage in interviewing, examining, diagnosing, treating, or advising patients)?
 - If yes, is the student engaging in these activities in conformance with an affiliation agreement or MOU that outlines the allowed activities and required supervision?
 - If yes, is the student's clinical activity in compliance with local, departmental, or national regulations or laws relating to the practice of medicine?
- Is the clinic/hospital/site operating within the formal, government/regulator-vetted, health system? If not, what entity is sponsoring, condoning, and responsible for the clinical activities?
- What is the specific role/job description for the student? **Are the tasks undertaken by the student those that they would be allowed to do in a formal, regulated health setting in the United States?**
- Is the student's participation in the health-related experience related to their major or post-graduate aspirations (e.g., application to health science program?). Is the program supported, sponsored, or advertised by a university office or official? If so, harm caused by the student or illegality could be attributed to the university.
- Is the student delivering or distributing prescription or over-the-counter drugs in the setting?

FUTURE RESEARCH DIRECTIONS

Ongoing research into the role of pre-health professional students in clinical experience at home and abroad is needed. This includes research into ensuring optimal access to quality, safe, impactful opportunities for students of all backgrounds, geographies, and resource levels. There should also be ongoing inquiry into the impacts of various kinds of opportunities that develop unique competencies. In addition, research into how medical and health professions schools are taking clinical experience and exposure into account during the admissions process is needed.

CONCLUSION

Advisors play a fundamental role in supporting students as they develop their portfolio for health professions applications. Exposure to clinical settings, domestically and internationally, can be transformational. When these experiences are in culturally diverse settings accompanied by intentional frameworks, they may lead to the development of students in terms of global citizenship, cross-cultural effectiveness, appreciation of social determinants of health, and much more. This chapter provides helpful information to help advisors support students as they critically reflect on their motivations and goals. Pre-health professional advisors can help students identify ethical programs that will foster a mindset to allow them to make sound conclusions regarding conduct in a variety of domestic and international clinical settings.

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Chapter 4

Beyond Clinical Experience and Research: How Other Activities Create Well-Rounded Students

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ABSTRACT

Health professions schools eagerly look for applicants who demonstrate a commitment to service, the potential for leadership, and the ability to work effectively with others as reflected by their core competencies. While these attributes can be developed through clinical experience and research, there are myriad ways for students to gain these important skills in many other contexts as well. Health professions advisors are uniquely positioned to help students explore the activities they would like to pursue and guide them in identifying how their extracurricular endeavors and employment will positively contribute to their development as future healthcare professionals. This chapter offers the importance of community service, leadership, employment, and extracurricular involvement in creating well-rounded pre-health students and suggests strategies that pre-health advisors can use to aid their students and their own offices in these areas.

INTRODUCTION

Pre-health students are often encouraged, if not required, to engage in clinical experiences such as shadowing, volunteering, and/or working in health care facilities as preparation for health professions programs. Many programs also highly value or expect to see research experience from applicants. In addition to experiences in these two areas, health professions schools eagerly look for applicants who demonstrate a commitment to service, the potential for leadership, and the ability to work effectively with others, just to name a few. While these attributes can be developed through clinical experience and research, there are myriad ways for students to gain these important skills in other contexts as well. This means that students' activities outside of clinical experience and research are important in making com-

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petitive, well-rounded applicants. This chapter will offer the importance of service to others, leadership, extracurricular involvement, and employment in a pre-health student's portfolio of experience. It will guide advisors and administrators in their efforts to effectively advise pre-health students holistically.

Activities outside the classroom are an area where students have considerable latitude in pursuing the experiences that they value and enjoy, yet pre-health students may exhibit hesitation in dedicating time to activities that may appear to be outside the scope of their desired profession. Many pre-health students need to work during their pre-health studies and others decide to make a career change into a health profession from a different profession later in life. Students in these categories may feel that their employment experience will not be valued by health professions programs, even though with some intentional reflection, there is considerable value here. Health professions advisors are uniquely positioned to help students explore the activities they would like to pursue and guide students in identifying how their service to others, leadership, extracurricular endeavors, and employment will positively contribute to their development as a future health care professional.

This chapter will begin by exploring how activities outside of clinical experience and research can align to the core competencies of health professions programs. It will then explore in greater detail the value of extracurricular activities and employment and provide opportunities to explore the transferable skills these activities provide pre-health students. Finally, a number of strategies for pre-health advisors will be discussed that will aid them in their advising caseload and workflow. This chapter will allow pre-health advisors to effectively advise their students in the realm of extracurricular activities and employment.

BACKGROUND

Core competencies, values, or skills have become an important framework in evaluating applicants for admission to health professions programs. The Association of American Medical Colleges (AAMC) has developed 15 core competencies for students entering medical school, and these competencies “have been endorsed by the AAMC Group on Student Affairs (GSA) Committee on Admissions (COA) who represent the MD-granting medical schools in the United States” (AAMC, 2021b). “The competency list was developed after an extensive review of the medical education and employment literatures and with input from several blue-ribbon and advisory panels” (AAMC, 2021b). Advisors should note that many other health professions besides allopathic medicine have sets of competencies, values, or skills for their students that are similar to these from the AAMC. These competencies should serve as a framework for how extracurricular involvement and employment are paramount to a competitive health professions application. This chapter will make use of the AAMC's 15 Core Competencies for Entering Medical Students, listed below with descriptions from the AAMC:

- **Interpersonal Competencies**
 - **Service Orientation:** Demonstrates a desire to help others and sensitivity to others' needs and feelings; demonstrates a desire to alleviate others' distress; recognizes and acts on his/her responsibilities to society; locally, nationally, and globally.
 - **Social Skills:** Demonstrates an awareness of others' needs, goals, feelings, and the ways that social and behavioral cues affect peoples' interactions and behaviors; adjusts behaviors appropriately in response to these cues; treats others with respect.

- Cultural Competence: Demonstrates knowledge of socio-cultural factors that affect interactions and behaviors; shows an appreciation and respect for multiple dimensions of diversity; recognizes and acts on the obligation to inform one's own judgment; engages diverse and competing perspectives as a resource for learning, citizenship, and work; recognizes and appropriately addresses bias in themselves and others; interacts effectively with people from diverse backgrounds.
- Teamwork: Works collaboratively with others to achieve shared goals; shares information and knowledge with others and provides feedback; puts team goals ahead of individual goals.
- Oral Communication: Effectively conveys information to others using spoken words and sentences; listens effectively; recognizes potential communication barriers and adjusts approach or clarifies information as needed.
- Intrapersonal Competencies
 - Ethical Responsibility to Self and Others: Behaves in an honest and ethical manner; cultivates personal and academic integrity; adheres to ethical principles and follows rules and procedures; resists peer pressure to engage in unethical behavior and encourages others to behave in honest and ethical ways; develops and demonstrates ethical and moral reasoning.
 - Reliability and Dependability: Consistently fulfills obligations in a timely and satisfactory manner; takes responsibility for personal actions and performance.
 - Resilience and Adaptability: Demonstrates tolerance of stressful or changing environments or situations and adapts effectively to them; is persistent, even under difficult situations; recovers from setbacks.
 - Capacity for Improvement: Sets goals for continuous improvement and for learning new concepts and skills; engages in reflective practice for improvement; solicits and responds appropriately to feedback.
- Thinking and Reasoning Competencies
 - Critical Thinking: Uses logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
 - Quantitative Reasoning: Applies quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world.
 - Scientific Inquiry: Applies knowledge of the scientific process to integrate and synthesize information, solve problems and formulate research questions and hypotheses; is facile in the language of the sciences and uses it to participate in the discourse of science and explain how scientific knowledge is discovered and validated.
 - Written Communication: Effectively conveys information to others using written words and sentences.
- Science Competencies
 - Living Systems: Applies knowledge and skill in the natural sciences to solve problems related to molecular and macro systems including biomolecules, molecules, cells, and organs.
 - Human Behavior: Applies knowledge of the self, others, and social systems to solve problems related to the psychological, socio-cultural, and biological factors that influence health and well-being.

EXTRACURRICULAR ACTIVITIES AND EMPLOYMENT

Pre-health students have an infinite number of ways to develop these core competencies, both inside and outside of the classroom. As mentioned at the beginning of the chapter, it is important for students to gain exposure to their chosen health profession through clinical experiences, such as shadowing a practitioner, volunteering with patients, or working in health care. Assisting with and conducting research as a pre-health student is also a fantastic way to develop these competencies while understanding the creation of new knowledge. This chapter will emphasize activities that students do outside of these clinical and research experiences, which are supported by the AAMC as the association notes “there are countless opportunities to develop skills in the core competencies outside the clinical setting” on their page regarding non-medically related experiences (AAMC, 2022). This chapter will address those types of non-clinical activities that build mostly on the interpersonal and intrapersonal AAMC competencies, as students’ pursuits outside the classroom can prepare them well in these areas.

Service and Leadership Activities

Service to others and becoming a leader can happen for students in many different ways. Many students narrowly associate leadership skills with officer roles in organizations and service with volunteering at community organizations. Developing leadership skills does not only have to come from being president of a student organization, and service to others does not mean an applicant must volunteer at their local food bank. Students should be encouraged to reflect on what they value most, what they enjoy, and what experiences they would like to have before entering their health professions program. Many successful applicants pursue some service and leadership opportunities that are not directly related to healthcare. These types of extracurricular activities have shown to have a positive relationship with medical school performance, as “participation in extracurricular activities may favor the development of relevant non-academic qualities and skills that will contribute to better clinical performance” during medical education (Urlings-Strop, et al., 2017, p. 295).

It is important to encourage students who are first-time-in-college (FTIC) to take a measured approach with their extracurricular pursuits. In my experience as a pre-health advisor, I have seen that many students find that it easy to get involved with many organizations and activities during the first few weeks of their first semester of courses and then quickly find out that they are not able to balance the demands that these commitments have on their time. Pre-health advisors can suggest students use the very beginning of their first semester to settle into their routine and coursework, and only after feeling comfortable with that, begin to add other activities. Students can then continue to add commitments until they feel that they are comfortably busy but not overwhelmed. This advice can also apply to students who have transferred from a community college to a four-year university, as “transfer shock” can sometimes cause these students to go through similar adjustment challenges as their FTIC counterparts (Cejda, 1997). Cejda’s (1997) article notes that transfer shock can be even more acute for students in math and science disciplines, and with many pre-health students pursuing courses of study in the natural sciences, this information becomes even more important.

Many pre-health students may not immediately consider the number of ways that they can demonstrate service, leadership, and the other interpersonal and intrapersonal core competencies. In my experience, students entering college for the first time sometimes need coaching on how to think broadly about their extracurricular pursuits. They often do not need to stick to the types of activities that they did in

high school in order to be a competitive health professions applicant by the time they conclude their pre-health studies. However, if they continue with these similar activities, it is a great time for them to consider how their role can change and allow them to grow with more experience. Below are example activities from pre-health students with whom I have worked with pseudonyms used. Each example could align with multiple competencies, but I will describe the way the activity aligns with one AAMC core competency in each.

1. Brad participated in an Alternative Spring Break program, which is a program designed to educate students about a social issue and then take them to a location in the United States where they can do community service related to that issue during their Spring Break. Brad's program allowed him to learn about the intersectionality between mental health and homelessness and then travel to New York City to do community service at a homeless shelter. Brad demonstrated service orientation by dedicating a week of his time to engage with a marginalized group of Americans and reflected critically on how he could continue serving this community.
2. Stella was a member of the university's student programming council, which exists to put on various social events for undergraduates throughout the school year. She demonstrated social skills through her work with her teammates, by greeting new students, and ensuring they felt welcome at the programming council events.
3. Colton volunteered for four months with an organization called the Partnership for the Advancement and Immersion of Refugees (PAIR), which allowed him to mentor refugee children who recently arrived in the United States and enrolled in middle school. Colton demonstrated cultural competence through his work to understand his mentees' background and provide appropriate guidance to them.
4. Gavin joined Engineers Without Borders to aid a team in designing a water distribution system which would provide potable water for a rural community in Nicaragua. He demonstrated teamwork by sharing responsibility for the system design and implementation in Nicaragua with his engineering teammates.
5. Charlotte served as a teaching assistant for Biochemistry I, where she was tasked with leading small group discussions and lecture-style review sessions for the students enrolled in the course. She demonstrated effective oral communication when she led these sessions and tailored her approach to ensure her students understood the course topics.
6. Edward served as the editor-in-chief of the campus newspaper. Through this role, he led coverage of various high-profile campus events and oversaw the publication of various investigative stories. Edward demonstrated ethical responsibility to self and others by ensuring that an accurate narrative was constructed in the newspaper's stories and that student accounts of events were published respectfully.
7. Shawn was involved with an organization called Go Baby Go, which provides financially accessible power-wheeled vehicles for children with physical disabilities. He was tasked with meeting with families to understand their children's needs and relaying that information to his team of engineering students. Shawn demonstrated reliability and dependability by ensuring the power-wheeled vehicle was delivered to the family on time.
8. Kelly served as a student director of the Peer Academic Advisor (PAA) program, which trains students with basic academic advising knowledge and skills so they can effectively counsel their peers with their course schedules and academic plans. Kelly demonstrated resilience and adaptability

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when the COVID-19 pandemic hit and required her to shift the PAA training schedule online and rework the training activities to fit a virtual format.

9. Brittany had been involved with Model United Nations since she was in middle school, and she continued her involvement through high school and college. Brittany demonstrated capacity for improvement as she started in the organization being trained on how to participate, and several years later she oversaw multiple committees and trained others for leadership positions within the organization.

Most importantly, successful applicants to health professions programs should not view extracurricular activities as a checklist and simply pursue activities they believe will look the best to admissions committees. Rather, they should be genuine with the time and energy that they devote to activities; an applicant who is enthusiastic about sharing experiences they were excited to do with admissions committees will be in a more advantageous position than an applicant who felt they needed to simply check boxes of what they believe an admissions committee will want to see and who were ultimately not very invested in those experiences. Advisors can encourage students to pursue the activities and opportunities that align with their own values, goals, and interests, while still setting themselves up for success in their application to their health professions program.

Transferable Skills From Extracurricular Activities

In addition to matching activities to core competencies, another way that advisors may help students consider the relevance of their extracurricular activities is to encourage them to identify the transferable skills that they have gained. This mode of thinking focuses more on the ways that the same tangible action may appear in two different contexts. For example, a student who had to figure out a way to communicate math concepts to a child in an after school tutoring program is practicing a skill that they will use as a future physician. The physician is often tasked with explaining complex medical issues in a way that a patient can understand in the clinic.

A great example of a physical transferable skill is manual dexterity for pre-dental students. Some dental schools in the country have employed the use of a manual carving activity during the admissions process, often during the interview. This practice requires applicants to demonstrate their manual dexterity, which is needed to be a successful dentist. Many hobbies can help students with this skill as the American Dental Education Association (ADEA) points out; knitting, woodworking, painting, and even handheld video games can improve hand-eye coordination and provide students with a way to practice manual dexterity (ADEA, 2021). Pre-dental students may be surprised to hear that they actually should spend some time on hobbies like these to prepare them for a career as a dentist.

In my own experience working with hundreds of pre-med students at Rice University, one example stands out as particularly enlightening to me. Rice's on-campus pub employs undergraduate students to work as bartenders. When meeting with one of my advisees to discuss his activities for his medical school application, this student mentioned enjoying his shifts bartending at the pub. He shared that it was an important experience for him because it helped him learn to multitask and aided him in developing a more sociable personality that he said will make it easier for him to interact with all types of patients in any setting in the future. Transferable skills can truly come from just about any activity.

Employment as Valuable Experience

Many students need to work at least part-time throughout their pre-health studies. The Georgetown University Center on Education and the Workforce found that about 70% of all college students today work (Georgetown University Center on Education and the Workforce, 2018). The Georgetown researchers found that “Low-income working learners are disproportionately Black (18%) and Latino (25%), women (58%), and first-generation college-goers (47%)” (Georgetown University Center on Education and the Workforce, 2018, p. 3). These findings can show advisors that many of their advisees from low-income and disadvantaged households would be unable to make ends meet without the income provided by their job. In addition to this, there are also data to indicate that low-income students are underrepresented in health professions programs, which further emphasizes the need for pre-health advisors to support this population of students in their professional goals (AAMC, 2018). While students may be encouraged to pursue employment in a clinical setting where they have direct responsibility with patients, such as becoming a Certified Nursing Aide (CNA), Emergency Medical Technician (EMT), or Patient Care Technician (PCT), those roles require some formal training before a student is licensed to work. For traditional undergraduate students, defined as students who enter full-time undergraduate studies immediately after high school, this may not be immediately possible as an employment option (National Center for Education Statistics [NCES], 2021). This often means that employment for them is through an on-campus job (as part of work-study or otherwise) or off-campus as a cashier, waiter, kitchen staff, Uber driver, Instacart shopper, or office assistant. When comparing themselves to their peers who do not need to work, working pre-health students might feel behind, not competitive, or discouraged from their goals. It is thus very important that pre-health advisors communicate to these students that they are not at a disadvantage with their activities just because they have to dedicate a portion of their time to employment. It is important to note, however, that non-clinical employment experience cannot serve as a substitute for clinical experience. As explained in other literature, students absolutely still need to have direct contact with clinicians and patients as part of their portfolio of experiences needed to be competitive for their health professions programs.

Data suggest that pre-health students are taking more time to get to their health professions program. More than half (59.9%) of 2015 matriculating medical students indicated in the AAMC’s “Matriculating Student Questionnaire” that there was a gap of at least one year between their college graduation and matriculation to medical school” (AAMC, 2021a). This “gap year” or “growth year,” which refers to time not spent in school between the completion of their undergraduate studies and medical school, is common to see in health professions applicants. The rise in popularity of the gap year suggests that entering medical students likely arrive at medical school with more real-world experience outside of being a full-time student. Pre-health students interested in taking a gap year should be encouraged to consider a wide array of options, and pre-health advisors should feel confident in recommending a gap year or additional time off of school for their advisees who could benefit from additional experience before applying to their health professions program. For students who need additional clinical experience, employment as a CNA, EMT, or PCT could be very beneficial, and for students who have not engaged heavily with research, employment in this area could be valuable, especially if their sights are set on health professions schools with high research activity. Still, other students may need additional time to complete more coursework, and other students may lack sufficient community service which they can address during a gap year. Finally, there is another segment of students who complete their pre-health

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studies competitive for their health professions program but who want some time off of school for various personal, financial, or professional reasons.

While a simple, concrete definition of a nontraditional pre-health student can be difficult to ascertain, the National Center for Education Statistics (NCES) provides one helpful definition. “Assuming that traditional enrollment in postsecondary education is defined as enrolling immediately after high school and attending full time, students who diverge from this pattern would be considered nontraditional” (NCES, 2021, para. 3). In alignment with this definition, most pre-health advisors would agree that nontraditional pre-health students are students who change careers, have significant time away from school between their undergraduate studies and their health professions program, are parents, have military experience, or go back to school to finish their pre-health studies after leaving their studies for some period of time. Career-changing, nontraditional pre-health students may have been employed in a different field that is not closely related to healthcare. A hypothetical 29-year-old software engineer might have spent five to seven years working for a technology company and may spend two to four years as a nontraditional pre-health student preparing for a health professions program. Through this example, it is easy to see how employment experience may be the biggest activity this group of students have done outside the classroom as they make a career change. Similar to how pre-health advisors should reassure their traditional students who need to work that they are not at a disadvantage, pre-health advisors should encourage nontraditional students to not disregard their old career as wasted time or irrelevant experience as the next section will describe in more detail.

Transferable Skills From Employment

Students with any kind of employment experience may ask if it is even worth mentioning that they held these types of jobs on their health professions program application, especially when they may have many other activities that seem to be more relevant to their future careers. They may feel that their hours spent working were irrelevant to their pre-health journey, but the opposite is true. The median age of an entering medical student in 2017 was 24 (AAMC, 2017). Health professions programs greatly value the life experience that older matriculates bring to their classes, and time spent working in the “real world” can be a big part of what develops the life skills and perspectives of our future clinicians.

Significant employment experience can be beneficial for students as it provides a valuable way for them to gain professionalism, time management, and maturity in the “real world.” They are also able to significantly build up their interpersonal and intrapersonal competencies and skills. From my own experience as a pre-health advisor, I have worked with multiple pre-med students who had a different type of job during their gap year(s) or chose to become a pre-health student after working full time. One student worked as a management consultant, and her project allowed her to work with the administration of a large hospital system. Another student was a high school physics teacher for two years before deciding to get his EMT certification and take his prerequisite courses for medical school. Yet another student worked for a non-profit organization that addressed food insecurity before matriculating to medical school. All of these example students brought a unique perspective to their medical school class that not all applicants have. The former management consultant understood the challenges that health care facilities face in managing a complex organization. The former teacher knew how to identify adolescents in crisis and effectively communicate with them. The former non-profit worker grasped how integral access to healthy food is to one’s wellbeing. These three students entered medical school uniquely prepared to address factors outside the exam room that could impact their patients’ health.

Also consider an applicant who has worked in low-wage labor. It is possible to imagine how this applicant can understand the difficulties faced by a single parent working a low-wage job to provide for their children. They may have seen how being uninsured or underinsured impacted their co-workers' health or their own health as low-wage employees. With some guided reflection, this in turn could inform their understanding of how social determinants of health play out in the American healthcare system better than an applicant who has never needed to hold paid employment in their life.

ADVISOR STRATEGIES

A great deal of different activities has been mentioned in this chapter thus far, and it is understandable for a pre-health advisor to feel uncertain of where to begin in advising students in this area. A number of strategies and ideas will be presented here to help advisors provide guidance to students as they work to demonstrate competencies to health professions programs. This can help advisors work more efficiently and create a more effective pre-health experience for their advisees.

Providing Opportunities for Reflection

While an experienced pre-health advisor may be able to quickly identify how an activity connects to a student's health professions school application, pre-health students often benefit from some intentional coaching on how to reflect on these connections. They can also feel relief when reassured that all of their activities have some amount of value. Once the student has reflected on the value of their experiences, they can communicate the perspective they will bring to their health professions program and future career much more easily. Reflection and introspection are absolutely critical for students to effectively present themselves to an admissions committee and should not only begin when a student is about to apply to their health professions program. Advisors may encourage students to journal and record a written summary of their activities and experiences from the moment students begin them. Employing this strategy allows students to go back to these written reflections when they are ready to apply and helps ensure they do not forget what they felt and experienced in the moment. When students come in for pre-health advising, advisors can make it a point to ask their advisees to consider how the experiences they have gained will bring value to their future class of health professional students and their chosen profession in general.

Creating a sample reflection template or journal page can be an easy way to get students started with reflecting on their activities. This document can be uploaded to a pre-health advising office website to allow any pre-health student to quickly download it at any time, and it can be created as a fillable Adobe PDF, Microsoft Word document, or Google document. An example of how a document like this could be structured is in Table 1.

Beyond Clinical Experience and Research

Table 1. Example pre-health extracurricular reflection document structure

Item	Instructions for Student	Example
Experience	Name of the activity	Intramural Basketball
Location	Location the activity took place	Indianapolis, IN
Date(s)	Dates you began and ended the activity	August 2018 - May 2019; August 2019 - December 2019
Hours	Record how many hours you spent doing this activity	55 hours
Contact Name and Email	Record the name of someone who can verify you participated in the activity.	Jane Sanchez, janesanchez31@college.edu
Notes from the Experience	Record your experiences and thoughts in detail. Reflect on what you did and how you did it, along with why you chose to partake in this experience.	I initially joined intramural basketball as a way to get to know more students on campus and because I like sports. I quickly found that I enjoyed it and was making friends. I practiced weekly with my team, participated in weekly games, and also played in the campus intramural tournament.
Skills Learned	Reflect on what skills you learned or sharpened in this experience, and consider how they relate to your future career in health care.	My teamwork skills definitely grew more as a member of this team. Occasionally my teammates would feel frustrated if we lost a game. I learned that I had a good ability to keep them motivated, even through the losses. I know that physicians work on teams of health care providers, and I believe this experience will help me keep my fellow health care workers motivated when things get tough in the hospital or clinic.

As shown in Table 1, a document structured with these items can be used by students to track any and all activities that they pursue, including research and clinical experiences as well. There is ample space for them to note what they have done, reflect on the skills they have gained, and tie the experience to their future profession. Also of note is that the template has a space for a contact name and email, date(s), hours, and location for the activity, which will be required by most application services when the student's input information into the activities section of the application. Students should not simply copy and paste their responses here into the actual health professions application. This type of document is meant to get the reflection started, and thoughts recorded here will need to be edited and polished before they are put into the application service. However, by maintaining a record of their involvement as they do it, students are less likely to feel pressure to recall everything they have done over many years when it is time to fill out the application for their health professions programs.

Pre-Health Student Organizations

In addition to encouraging students to pursue the activities they enjoy; many pre-health students will likely be drawn to specific pre-health student organizations on campus. These organizations can allow students to create a community among themselves, to mentor each other, and to provide valuable opportunities and activities in which their pre-health members may engage. Pre-health student organizations can be beneficial for both students and advisors; pre-health advisors might find it particularly effective in their roles to partner with a pre-health student organization (or create one if one does not exist already) and work together on events and initiatives.

Pre-health advisors who are not sure what pre-health student organizations may exist on their campus should reach out to their student activities office to inquire about which organizations may have their target student populations. It is possible that students will form their own organizations, or they may look to some of the various national health-related organizations that may exist and form a college chapter on campus as some of these organizations allow students to form chapters or branches on their campuses. For example, the American Medical Women's Association (AMWA) allows students on college campuses to form branch chapters at their undergraduate institutions (AMWA, 2021). Benefits of having campus chapters of national organizations are tangible. National organizations may host conferences and events and may have funding and scholarship opportunities for which members may apply. However, chapters may be required to pay fees to national organizations in order to keep their chapter in good standing. Students may reach out to their advisors for assistance in determining how to proceed with creating a chapter of a national organization or for guidance on how to proceed with creating an entirely new student organization. Advisors should seek out guidance from the student activities offices on their campuses, as well as utilize the National Association of Advisors for the Health Professions (NAAHP). NAAHP members have access to a national network of experienced pre-health advisors who can share experiences and help advisors who might be uncertain of how to guide their advisees in starting student organizations (NAAHP, 2021).

Many pre-health advisors also serve as the club sponsor or organization advisor for these various pre-health student organizations. This arrangement can allow advisors to more effectively share opportunities and market their advising services to the appropriate student audience. One example of how this can be mutually beneficial is during the application process to health professions programs. Pre-health advisors may ask their student organization officers to organize a personal statement workshop in conjunction with the university writing center or assist with identifying alumni clinicians to invite to conduct mock interviews with applicants. Integrating pre-health student organizations into a pre-health advising office's workflow can help advisors focus on advising while giving students opportunities to practice their teamwork and leadership skills and further develop competencies that health professions programs seek in their matriculates. Pre-health student organizations can also give the pre-health student community more ownership over their pre-health experience at their institution.

Alumni Networks

Alumni clinicians can be a very valuable resource for pre-health advisors and students. At Rice University, the Rice Alumni in Medicine (RAM) group is a robust organization of Rice alumni who are practicing physicians and other healthcare professionals. RAM works in conjunction with the main pre-health student organization on campus, the Rice Pre-Med Society (RPMS), to host mock interviews for students getting ready to apply to medical school, and RAM offers a mentoring program for current undergraduate pre-health students. Developing an alumni organization can be a great way to keep alumni connected to their alma maters and help pre-health students and advisors. Even if a formal alumni organization is not created, pre-health advisors and administrators should be encouraged to keep track of where their advisees ultimately matriculate for data collection and analysis purposes. This can also help advisors keep their alumni engaged after graduation and make it easier for them to reach out to alumni as a resource for their current pre-health students.

Meaning-Making in the Application Materials

One could describe the pinnacle of a student's pre-health journey as the application to their health professions program. This is the place where they will tell admissions committees about their pre-health journey and describe what they have done, why they have done it, and how it will make them a successful health professions student and a quality clinician. Many pre-health students describe the application process as a stressful experience; consistent reflection in the years preceding the application can help decrease the stress of preparing to apply as students will not need to remember all of their experiences all at one time. The months leading up to the launch of the application can be better spent synthesizing experiences and polishing narratives rather than trying to remember the details of an experience that happened years ago. Advisors have a number of options to help students with effectively communicating the value of their activities to admissions committees.

Advisors can provide students with a mock medical or health profession school application before the application opens. Through practice in writing activity descriptions, a personal statement, and secondary application essays for individual schools before the application opens, students have an opportunity to begin to construct their narrative and how they have developed the core competencies through their activities. Students with a good depth and breadth of experiences should have an arsenal of examples to pull from to effectively answer application questions and demonstrate the core competencies of their profession.

Certain events targeted to pre-health students preparing to apply to their health professions program can be helpful strategies. Pre-health advisors may partner with their campus writing center to offer personal statement workshops for students. Writing professionals can provide additional perspective and coaching to students on how their experiences may shape their motivation for pursuing their health professions program. Pre-application workshops are another strategy that can allow students to make meaning of their experiences. Workshops that involve small group discussions can allow students to share their experiences with each other and come away with a new perspective on their journeys to their health professions program. As Cashin (2011) notes, "Discussion can help students acquire better communication skills as they learn to present their ideas clearly and briefly" (p. 1). Intentionally structured workshops, similar to classroom discussions, can help students practice communicating the significance of their activities and how they have developed competencies with each other, helping to pave the way for them to communicate these ideas in their applications.

Finally, as mentioned above, advisors can play a pivotal role in helping students with reflection, and when this is done well, it often results in a good relationship between the advisor and the student. If an advisor is at an institution that has a committee letter of evaluation process in place for pre-med and pre-dental students, then advisors may also capitalize on this opportunity to reinforce the way a student has made meaning of their experiences in the committee letter. If the advisor's institution does not have a committee letter of recommendation process, then the advisor can include these things in an individual letter of recommendation if asked.

CONCLUSION

Health professions programs are actively seeking applicants who have experiences that align with their competencies, and all of the activities that applicants pursue can have value that furthers their goal of

becoming a healthcare professional. Students can work with pre-health advisors to connect their experiences to core competencies and to identify the transferable skills that they gain from the experiences outlined above. Pre-health advisors should work to communicate the importance of being a well-rounded applicant through experiences outside of the clinical realm and research to their pre-health students. This will ensure that students are both enjoying the activities they pursue as well as bringing necessary competencies and skills to their future health professions.

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KEY TERMS AND DEFINITIONS

Extracurricular Activity: An activity that a student participates in that is not tied to an academic course. These include but are not limited to student organizations, intramural sports, community service, and mentorship programs.

Gap Year: A period of a year that takes place after a student graduates from their undergraduate studies but before they enter a health professions program. This is also referred to as a growth year or glide year, and some students may take multiple gap years in between their undergraduate studies and their health professions program.

Leadership: Positively influencing others in a group or community to guide the group toward a shared goal or vision

Reflection: The process of critically thinking about what one has done or achieved and how one's experiences fit into the broader context of one's values and goals.

Service: Providing work, skills, or labor that benefits others without any monetary compensation.

Transferable Skills: A skill learned in one context or environment that can be applied in a similar way in a new context or environment.

Chapter 5

Developing the AAMC Competencies With Pre-Health Professional Students Through the Use of the Intercultural Development Inventory

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ABSTRACT

Educators at colleges and universities have utilized the American Association of Medical Colleges (AAMC) core competencies to advise students who aspire to become health professionals. Cultural competence is included as a core interpersonal competency and has become increasingly important in the wake of the global pandemic and racial uprising in the United States. This chapter builds on prior research related to the efficacy of using an intercultural competence assessment tool with pre-health professional students. The Intercultural Development Inventory (IDI) and accompanying debrief was utilized with 75 high-achieving, pre-health professional students. Findings corroborated prior outcomes and revealed students continued to significantly overestimate their intercultural competence. The results suggest pre-health advisors could use the IDI LLC guided development® model as an evidence-based best practice to encourage students to practice reflection on perspective-taking as a professional trait and thereby supporting them to be competitive applicants.

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INTRODUCTION

More than 40% of the United States population will be comprised of minorities by 2030; and 20% of the United States population does not currently speak English at home (Price, 2019). Health professions education literature has emphasized the need for *cultural competence* training programs to meet the needs of increasingly diverse patient populations (Jernigan et al., 2016). However, there is a dearth of literature related to the specific need for *intercultural competence* training. Intercultural competence is defined as “the capability to shift cultural perspective and appropriately adapt behavior to cultural differences and commonalities (Intercultural Development Inventory [IDI], 2012, para. 1).” In addition, training programs that focus on health equity have been recommended to understand social determinants of health as root causes of structurally embedded healthcare disparities (Tervalon & Murray-Garcia, 1998). Social determinants of health are defined as the “conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (Office of Disease Prevention and Health Promotion, 2019, para. 1). Studies show that 80% of healthcare outcomes involve the influences of social determinants (Heath, 2019). When social determinants are not acknowledged; patients may feel a lack of respect from healthcare providers. Yet the question remains about how to best address these problems because intercultural competence is not simply acquired with experience, as many assume. The long-standing argument is that the science-heavy undergraduate pre-health curriculum is too full to incorporate this material. Wear et al. (2017) purport that the existing medical education curriculum inadequately addresses healthcare disparities. Furthermore, they maintain that a “silent curriculum” exists in which individual bias is invisible--and individual bias can affect health outcomes. The extant health professions education literature does not address these topics as they relate to pre-health professional students (Lin et al., 2013).

It is critical to outline the context for this research and book chapter to be written. This topic is of pressing importance in the wake of the health, racial, and economic crisis in the United States resulting from the COVID-19 global pandemic, the uprising of the Black Lives Matter movement after the murder of unarmed African Americans like Mr. George Floyd and Ms. Breonna Taylor by police officers and a contentious presidential election that led to the insurrection at the Capitol of the United States. These events highlighted the need for cultural self-awareness related to equity around the globe. “This learning can only happen if we can talk with people across all kinds of identities for authentic conversations about how the United States looks very different based on your position in it” (Verschelden, 2021, para. 12). In addition, hundreds of medical students have led the way with calls for more diversity in medical school by participating in White Coats for Black Lives at their institutions (Kirch, 2016). From an advising perspective, pre-health advising offices should not churn out students that lack awareness about how social justice intersects with healthcare. Health professions advisors should invite lasting change with students by pushing them out of their comfort zones (Barnes & Souza, 2019). Encouraging reflection on these topics early on in their college experience is one way to begin a lifelong process of introspection and self-awareness that will aid the enactment of social justice leadership in their future practice (Selzer, 2016).

Jones (2020) refers to the racial uprising and the COVID-19 health crisis as twin pandemics that caused a renewed focus on public and global health, the need for a new definition of medical professionalism that addresses systemic racism and the health inequities that show disproportionately high rates of African Americans dying from COVID-19. Razack (2021) has recently proposed the question about whether current constructs of professionalism prepare pre-health professional students to address

these social justice inequities. The concept of medical professionalism has evolved to include conduct that protects “patient welfare, patient autonomy, and social justice” (DeAngelis, 2015, p. 1837). It is time for health professions education to make a paradigm shift and build upon implicit bias training to foster a social justice focus on systemic inequities.

Medicine is constantly changing, and the 21st-century physician will be different than that of the past. When the MCAT underwent its 5th revision in 2015 to focus on psychological, social, and behavioral foundations of behavior, it became clear that addressing the human side of healthcare is a priority. “If members of the professional school admissions committee truly desire humanists, the hard numbers [GPA and test scores] can be but one aspect of the selection process” (Solomon, 2016, p. 17). Becoming the most compassionate and respectful doctor is more than the Flexner report’s prescription for rote science memorization (Morris, 2016).

In this chapter, the authors seek to address gaps in the literature and issues critical to the current context by introducing the use of the Intercultural Development Inventory, commonly referred to as the IDI, with pre-health professional students as an evidence-based tool for developing intercultural competence. Authors will 1) explain the IDI guided development approach, 2) share research results from two phases of data collection regarding how the IDI has been utilized with pre-health professional students, and 3) make a direct connection to the development of American Association of Medical Colleges (AAMC) competencies for entering medical students. Results of a research study using the IDI corroborated prior outcomes and revealed students continued to significantly overestimate their intercultural competence.

BACKGROUND

Empirical evidence has demonstrated that “what happens to students prior to entering medical school affects their performance during medical school and beyond” (Lin et al., 2013, p. 26). The wide acceptance of holistic admissions policies has been one way that medical education has changed. The term “holistic review” originates from the 2003 Supreme Court case, *Grutter v. Bollinger*. In 2014, the Urban Universities for HEALTH published a revised definition that describes holistic review as “a university admissions strategy that assesses an applicant’s unique experiences alongside traditional measures of academic achievement such as grades and test scores. It is designed to help universities consider a broad range of factors reflecting the applicant’s academic readiness, contribution to the incoming class, and potential for success both in college and later as a professional” (p. 2). By placing an emphasis on the unique experiences of applicants, health professions admissions committees commit to a deeper inspection of an applicant’s interpersonal and intrapersonal competencies during the applicant review. Many institutions deny competitive applicants an interview due to their lack of these competencies in their admissions essays and involvements (Koenig et al., 2013). The AAMC developed 15 core competencies to assess entering medical students that are grouped into four categories: interpersonal, intrapersonal, thinking and reasoning, and science. Cultural competence is identified as an interpersonal competency and is observed as someone who “demonstrates knowledge of socio-cultural factors that affect interactions and behaviors; shows an appreciation and respect for multiple dimensions of diversity; recognizes and acts on the obligation to inform one’s own judgment; engages diverse and competing perspectives as a resource for learning, citizenship, and work; recognizes and appropriately addresses bias in themselves and others; interacts effectively with people from diverse backgrounds” (AAMC, 2021, para. 2).

Developing the AAMC Competencies

By evaluating cultural competence, health professions admissions committees can gain further insight into whether pre-health students are prepared to take on the challenges presented by our new context.

Situational judgment tests (SJT), like the Computer-Based Assessment for Sampling Personal Characteristics (CASPer), have become more prevalent in health professions admissions to assess inter/intrapersonal competencies related to cultural understanding such as communication, empathy, equity, and ethics. According to the AAMC (2021), the SJT is a “standardized test that presents a series of hypothetical scenarios students may encounter in medical school and asks examinees to evaluate the effectiveness of a series of behavioral responses to each scenario” (para. 4). Applicant responses convey their understanding across eight core competencies including service orientation, social skills, cultural competence, teamwork, ethical responsibility to self and others, reliability and dependability, resilience and adaptability, and capacity for improvement (AAMC, 2021).

Though there is a large emphasis on applicants possessing effective skills for cultural competence, there is a severe lack of preparation in this area in undergraduate education. A 2011 study conducted at Johns Hopkins University calls for schools to aid undergraduate students by viewing education not through the lens of required courses to complete, but as required competencies to develop. When students graduate from medical school, their potential careers will be highly clinical in nature, and curriculum requirements should be reflected (Alpern et al., 2011). To date, the literature is non-existent on connecting intercultural competence assessments to the AAMC competencies with pre-health professional students.

Students pursuing healthcare careers need training to listen to cultural differences while understanding our common humanity, particularly in today’s polarized political climate where a lack of civil discourse has been heavily documented. New research demonstrates that healthcare has a compassion crisis and that the primary driver for clinical patient outcomes is dignity and respect (Dubner, 2020). One study documented patients have 11 seconds to explain the reasons for their visit before they are interrupted by their doctors (Singh Ospina, et al., 2019). Culturally responsive patient care requires active listening. “This empathy can be learned, and the structure of medical training programs should include more strategies to traverse these differences” (Mgbako, 2019, p. 158).

Due to the increased emphasis on the human side of healthcare, more healthcare professionals are speaking up and sharing personal reflections about the importance of building trust with patients and connecting across cultural differences. Critical reflection is defined by first identifying gaps in one’s knowledge and then seeking ways to close this gap (Ash & Clayton, 2009). Some healthcare professionals are leading the way by calling into question their own privileges, implicit bias, and behavior. For example, Cohan (2019) writes,

If I truly want to be part of the solution, I need to explore those parts of me that are most unwholesome, embarrassing, unflattering, and generally not discussed in the context of one’s career. My goal is to dismantle the insidious thoughts that reinforce a hierarchy based on race, education, and other markers of privilege that separate me from others. These thoughts, fed by implicit bias, are more common than I find easy to admit. Although I know not to believe everything I think, I also know that thoughts guide attention, and attention guides actions. (p. 806).

Actively engaging with cross-cultural differences is a lifelong process of reflection and self-critique that requires humility (Tervalon & Murray-Garcia, 1998). Cultural humility involves critically reflecting on our limitations as an opportunity to develop rather than trying to become fully competent or an expert in someone else’s culture. In short, pre-health professional training that prioritizes critical reflection

must be created. If future healthcare professionals know themselves well, they can practice better self-care, in turn affecting the disturbing trend of burnout (Ariely & Lanier, 2015). The practice of critical reflection may even make them more resilient (West et al., 2014). Critical reflection is a necessary part of cultivating tough-to-teach 21st century skills like intercultural competence that are highly valued in healthcare providers.

The transformation of health professions education involves more than changing a test or admissions processes. It is the authors' contention that students in pursuit of health professions education should have formal training in intercultural competence as early as possible. This way they can take the first steps towards examining their implicit biases and prepare to treat the patient and not just the disease. Hopefully, this leads to becoming advocates for under-served patient populations (Levinsohn et al., 2017). The concept of implicit bias has gained recent attention in medical education (IHI Multimedia Team, 2017). Implicit bias is something everyone experiences and should therefore be addressed as a concept to be explored without guilt and with responsibility in mind (Sukhera & Watling, 2018). With health professionals paying increased attention to impacts on the human side of healthcare, the art and science of medicine must come together early. Students can then recognize the importance of being both a scientist *and* a humanist. Seeing patients as fully human requires listening, empathy, critical reflection, and perspective-taking across cultural differences. In summary, this topic is important because increasingly diverse patient populations require that healthcare professionals understand social determinants of health, implicit bias, health disparities, and equity to build trust and mutual respect. For healthcare professionals to lead in a culturally diverse and globally interconnected world, they need to commit to a lifelong process of critical reflection on the human side of healthcare; and that should begin as early as possible in their pre-health professions education.

POTENTIAL SOLUTION: IMPLEMENTING THE INTERCULTURAL DEVELOPMENT INVENTORY AS AN INTERCULTURAL COMPETENCE ASSESSMENT TOOL

Bhawuk & Bruslin (1992) said, "To be effective in another culture, people must be interested in other cultures, be sensitive enough to notice cultural differences, and then be willing to modify their behavior" (p. 416). The IDI is the premier psychometric assessment to measure intercultural competence and is used by hundreds of organizations to achieve international and domestic diversity and inclusion goals (IDI LLC, 2012). The American Council of Education's working group on intercultural learning was charged with researching 20 assessment instruments and concluded that the IDI was one of only two assessments that met their standards (IDI LLC, 2019). Moreover, the Society for Education, Training, and Research found that the IDI was the most widely used assessment tool by professionals in the intercultural field (IDI LLC, 2019).

The IDI is developmental. It can provide an opportunity for reflection and establish a baseline for growth. Many advising programs omit these tools, even though employers consistently state they need employees with excellent soft skills like the ability to adapt, communicate, collaborate, and problem-solve across differences. In fact, intercultural awareness is ranked as #4 in the top 10 work skills needed for the future (Institute for the Future, 2011). These skills are now more essential than soft (Blumenstyk, 2019). Students must obtain them during their undergraduate education to sustain the pipeline into health professions programs and then succeed in the workplace afterward. Waiting until students

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have achieved their goal of becoming healthcare professionals is too late. By examining intercultural competency from a developmental perspective, training can be targeted based on where the individual or group is developmentally situated towards a deeper understanding of cultural differences. Utilizing IDI as an intercultural competence assessment along with guidance from pre-health professional advisors can help students prepare for the hyper-competitive application process by encouraging the development of strong interpersonal and intrapersonal competencies.

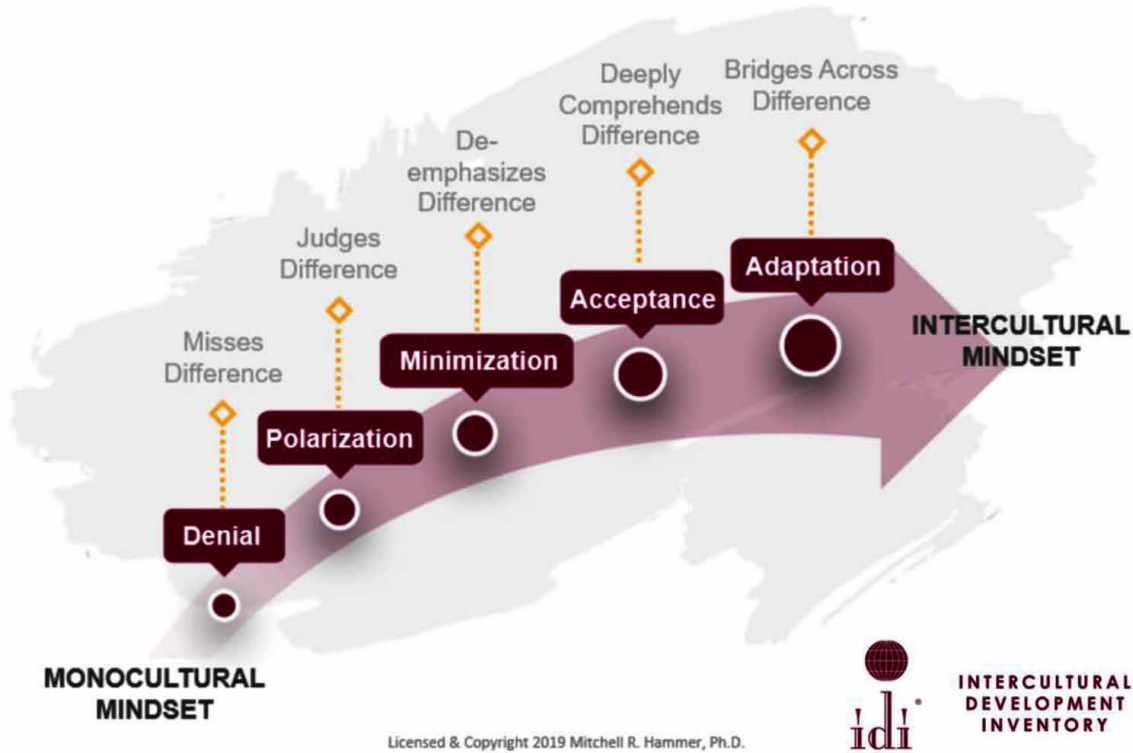
The IDI is online and can be completed in 20 minutes. To be clear, the IDI is not a personality test or opinion survey. It is a scientific assessment that calculates developmental mindsets, not typological traits, or skills. Currently, it costs \$12 each for the student version of the assessment. The IDI centers understanding “culture” as the starting point for all intercultural efforts. Therefore, respondents are asked to think about which culture groups they feel they belong to first. The assessment asks respondents to think of a culture with which you have had personal, direct experience that has shaped how you experience the world. The IDI includes 50 statements that track rigid to complex thinking patterns about cultural difference and are scored on a 5-point Likert agreement scale.

The IDI must be purchased and administered by a Qualified Administrator (QA). Qualified Administrators can add up to six unique multiple-choice questions. One can become a QA by undertaking the Qualifying Seminar which requires taking the IDI assessment, participating in a debrief, and completing other training materials including authorizing a licensing agreement to use the tool ethically and appropriately. Upon completion of the assessment, a customized, graphic IDI profile report and an actionable Intercultural Development Plan® (IDP) with suggestions for growth is generated by the QA and can be distributed by email to the respondents. The QA also provides feedback in an individual or group debrief session. An IDI profile report may not be distributed without feedback. The IDI profile is confidential unless the respondent shares it.

Due to demands on a QA’s time to provide debrief feedback regarding a participant’s IDI profile, the IDI LLC recently created an Online Debrief Program (ODP) exclusively for students. It currently costs \$6 each and takes 20 minutes on average to complete. After the student takes the IDI assessment, they automatically receive their IDI profile by email with access to their ODP account. The ODP consists of a series of video modules customized to the participant’s Developmental Orientation and helps them make meaning of their results. The ODP contains knowledge checks to ensure accountability for understanding.

The IDI statements are categorized into different constructs that are organized into one of five orientation scales on the Intercultural Development Continuum (IDC): 1) Denial, 2) Polarization, 3) Minimization, 4) Acceptance, and 5) Adaptation. These orientations explain how individuals and groups make meaning of and behave in their interaction with cultural differences. Orientations move from monocultural/ethnocentric to intercultural/ethno-relative. Monocultural mindsets are characterized by making sense of cultural differences/commonalities based on one’s own cultural values/practices. Intercultural mindsets are characterized by making sense of differences/commonalities based on one’s own and others’ cultural values and practices. Individual profile results communicate the Perceived Orientation (PO) where they place themselves and the Developmental Orientation (DO) where the IDI placed them on the IDC. Any difference between the DO and PO score is the Orientation Gap. The key factor is that people engage differently from their Developmental Orientation (DO). The IDP gives participants a chance to clarify intercultural goals that are important and leads to positive action plans. Figure 1 illustrates the IDC, provides a brief explanation of each orientation, and distinguishes between monocultural mindsets on the left and intercultural mindsets on the right.

Figure 1. Intercultural Development Continuum® (2020)
 IDI, LLC Used with permission.



Denial is characterized by two parts: disinterest and avoidance. Those in Denial have limited experience with other cultural groups and tend to ignore or avoid cultural differences. Often, they use stereotypes about the cultural other. The next IDI orientation is Polarization. Those placed in Polarization judge differences as “us vs. them.” Polarization can be experienced in two ways: Defense and Reversal. Polarization Defense occurs when individuals view their culture as superior and cultural difference as threatening to their own way. Polarization Reversal is when an individual is overly critical of their own culture and uncritical towards other cultures. A goal for people in Polarization is to encourage recognition of when they may not fully understand difference and may be overemphasizing it. Minimization is the most common orientation and focuses on cultural similarities and universal values while masking differences. This is a transitional orientation and can take on different meaning depending on one’s positioning as part of a dominant or non-dominant group. Dominant groups can hyper-focus on similarities, while non-dominant groups may minimize differences to blend in as a survival strategy. Minimization can feel like “going along to get along.”

Acceptance is the first orientation with an intercultural mindset, meaning the cultural values of others are taken into consideration along with their own. Those in Acceptance see commonality amongst cultures and appreciate cultural differences. Difference feels understood, but not fully engaged. They see other’s perspective as valid but may still lack the ability to appropriately adapt to cultural differences. Adaptation is the final intercultural orientation on the IDC. Those in Adaptation value and fully engage cultural diversity while utilizing strategies to adapt their perspectives and behaviors in a culturally ap-

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appropriate way. As the IDC indicates, Denial and Polarization orientations are monocultural mindsets. Minimization is then a transition into the intercultural mindsets of Acceptance and Adaptation.

In summary, implementing an intercultural competence assessment tool like the IDI during the health professions education journey is recommended as a first step to address the lack of training, create intentional opportunities to critically reflect on diverse patient care, and prepare future healthcare professionals to address the concerns of structural healthcare inequities. The results of this study demonstrate it is an effective way to bring about desired change.

PHASE 1 AND 2: FINDINGS FROM THE USING INTERCULTURAL DEVELOPMENT INVENTORY (IDI)

Phase 1

The primary author of this chapter is a faculty member in Career Education & Experiential Learning for first-year, pre-health students at a large, public urban university. The overarching goal and intent of the study was to embed the IDI in a professional development course entitled, Exploring Health Professions, to foster self-awareness of intercultural competence and encourage development of this competency early on in students' college experience. The primary author is also an IDI QA and administered the IDI and accompanying reflection prompts to 39 pre-health students during phase 1 of the research study in 2018. All students were enrolled in an Exploring Health Professions course as a required part of their major and consented to participate per Institutional Review Board (IRB) approval of the study. The population was considered high achieving as measured by admission criteria to their major including minimum ACT score of 29/SAT score of 1360 and high school GPA of 3.5 or above. A group profile was presented to protect individual anonymity and blinded reflections were used as data. Students were encouraged to discuss their thoughts and feelings about the results and what they plan to do in response. Using the IDI provided a shared language.

Findings revealed students significantly overestimated their intercultural competence by 30.68 points and 45% had monocultural mindsets. Overpredicting one's mindset is common because people generally think of themselves as accepting others. Participants equated being exposed to differences as being interculturally competent, especially if they have life experience, have traveled, or moved a lot. The IDI placed the majority (59%) of students in Minimization. This means they have a less complex perception and experience of cultural difference. Participant 8 shared a thoughtful reflection on Minimization when stating, *"I still believe the common unity all people share through humanity is important, but I now understand that the recognition of the diversity and differences among cultural values are just as vital, if not more."* Anyone who takes the IDI needs to have time and space to process and critically reflect after they have taken the assessment.

The QA added three additional questions regarding influences on intercultural development, why intercultural awareness is important to their future healthcare career, and whether they think they had a monocultural or intercultural mindset coming into college. Fifty percent of students said intercultural awareness is important to their future healthcare career because it will allow them to achieve the best health outcomes for patients, indicating that students see the clear connection to their future healthcare careers. Education was found to have the most noteworthy influence on shaping their intercultural development, with family not far behind. Knowing the influence education has on intercultural growth

is important because integration of the IDI into curriculum could add impact. Seventy-nine percent of students thought they had an intercultural mindset, but only 2.6% did.

Lastly, students' reflection responses and goals were analyzed for repetition of keywords to identify similarities across the experience. Codes were denoted in the transcripts to generate themes. Six themes were identified as salient in demonstrating how the IDI can be used to develop critically reflective future healthcare providers: *Re-framing Reactions*, *Lack of Exposure to Other Cultures*, *Lack of Cultural Self-Awareness*, *Bi-cultural Identity and Fitting In*, *Healthcare Connections*, and *Diversity and University Opportunities*.

Reframing Reactions

Students experienced an initial uncomfortable reaction to their IDI results because it was not what they expected. In fact, 28% of students used the word “*surprised*” as their specific reaction. Other students called it “*a wakeup call*,” “*eye opener*,” and “*metaphorical smack in the face*” (Participants 8, 15, 29). With the opportunity to reflect, students were able to re-frame the results in a more open-minded way and showed flexibility when changing how they viewed their results. Some even began to agree with their results. Overall, the range of emotions involved some skepticism and nervousness before they took the IDI but moved towards a deep interest in the opportunity to grow interculturally. A reframing example is Participant 17 in Minimization represents the common assumption that intercultural awareness just happens without intention:

I felt that I would be higher because I have lived abroad for two years in Turkey, and I have also taken 5 years of Spanish. However, I was only 8 when I lived in Turkey, and most of my life was spent on an Air Force Base surrounded mostly by other Americans. Overall, while I was upset when I originally read the report, I find myself excited for the future, as it means I am not starting off in a bad place, and I can only improve myself from here.

Overall, the fact that first-year pre-health students were able to reframe their reactions to results as a learning opportunity to grow rather than resisting and shutting down was one of the most significant and promising outcomes of the study. They may be a desirable population to work with on this topic because of their strong motivation to achieve. Intercultural growth includes personal discomfort and health professions advisors must ask their students to rise to the occasion.

Lack of Exposure to Other Cultures

Many students cited an absence of surprise at their results due to lack of exposure to cultural differences prior to coming to college. *For instance*, Participant 13 shared, “*because I grew up in a predominantly White, Christian atmosphere without much exposure to other cultures, I can partially understand these results.*” Some students indicated they need additional support on how to navigate communicating across differences. For example, Participant 5 stated, “*A lot of the time a conversation with someone of a different culture is difficult because I don't know the right questions to ask, or I don't want to offend the person.*” Still others realized culture is more than surface-level objective artifacts when saying, “*I want to learn more about other cultures on a deeper level than just how they eat and dress*” (Participant 14). Many students cited their lack of exposure to racial diversity and named being from predominantly

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White backgrounds. In the end, cultural “other” awareness was recognized as important and the desire to see new perspectives suggested the development of empathy.

Lack of Cultural Self-Awareness

“Before now I never really thought about my own culture” (Participant 5). Different than the lack of exposure to other cultures, these quotes were indicative of a lack of cultural self-awareness. Students who fell into this category realized they *“need to be aware of what is important to me and how my culture has influenced my worldviews before I can begin to understand other cultures”* (Participant 17). Participant 18 wanted *“to look further into how my culture treats other cultures”* and provided examples of joining cultural affinity groups on campus like the Muslim Student Association. Participant 25 explored more dimensions of cultural self-awareness when stating,

The most important thing I need to do is feel connected to a culture before I can fully comprehend other cultures. Therefore, to connect to a culture I need to look deeper than my ethnicity. Currently one of the most significant aspects is my sexual orientation. Being bisexual, I feel most connected to the LGBT community. Throughout my time at the university, I want to get more involved in this community, so I can have a group of people like me. Once I have a group that I relate to, I will be able to better comprehend other cultures.

The premise of the IDI is every individual has a culture(s). The debrief process provides an opportunity to discuss how someone defines their own culture. It might also be an opportunity to discuss how we might conflate culture with race or ethnicity. According to AAMC (2018), about half (49.6%) of United States medical school matriculants self-identify as White. It would be interesting to determine if they also self-identify with White culture or acknowledge the homogeneity of their experiences as many have done in this study. Without taking the IDI, students would not have been faced with having to ask themselves these tough questions about their own culture.

Bi-Cultural Identity and Fitting In

Twenty-three percent of participants identified as having a bi-cultural identity. Having a bi-cultural identity also played a role in processing why students may view one culture as superior over another. Participant 21 explains how bi-cultural identity can feel contradicting and makes sense of the Polarization mindset:

I am now more aware that I see my Korean culture and American culture separately which is where the “us versus them” judgment came from. I was immersed in the Korean culture at home and at church while I was immersed in the American culture at school. I spend almost every summer in Korea and have a chance to really feel the culture in its origin. The experiences were separate from each other and did not mix well. The fact that my experiences with each culture were separate contributed to my developmental orientation. I need to challenge myself to bridge the differences between them.

Participants’ ownership of this identity helped process the results, particularly how the Minimization mindset overemphasizes similarities and downplayed differences. For instance, several students cited the

interplay of national identities as Americans and ethnic backgrounds as Indian or Pakistani as leading them to constantly adapt to “fit in.” Participant 1 shared,

These results reflect my own complicated history with integrating the different American culture that I grew up with everywhere and the Indian culture that followed me home whenever I visited India. Minimization occurs to navigate different values and practices created by the dominant culture and this is why I struggled when I was younger. I would accept certain beliefs or ideas in school to ‘get along’ while trying to connect them to what I was told at home and because of that I masked the unique qualities teach culture has.

Minimization is the most common orientation and is meant to be a transitional developmental stage. This approach of minimizing differences to blend in can be a survival strategy.

Healthcare Connections

Several students made an explicit connection between healthcare and intercultural awareness in their reflections. They addressed intercultural awareness as “*vital for providing quality healthcare*” (Participant 16). Participant 10 made the connection between intercultural awareness and building trust with future patients:

My goal as a healthcare professional is to provide care to all individuals in a way that they are comfortable and don’t have to worry about trusting me. I want my patients’ only concern to be about improving their health. I don’t want them to have to worry about any sort of disparity concerning their health on account of any cultural, social, gender age, difference. As a doctor, I will be seeing many different people from different cultures. My number one goal is to make sure every patient is comfortable and well taken care of. Having an intercultural mindset will be imperative in this goal.

This type of mature concern as a first-year student pointed to the promise the IDI has for developing future healthcare providers who identify as patient advocates. It is also worth noting that a few students made healthcare connections to global health. For example, Participant 8 stated, “*The future of health is global health. Mastering a global health mindset is incredibly important to being a health professional today.*”

Diversity and University Opportunities

Students in this study were enrolled in a large, public urban, research university. Therefore, many of them discussed exposure to the university’s *diversity as an opportunity to help them grow in their intercultural awareness. For example, Participant 29 stated, “*It wasn’t until I arrived here at the university that I began to experience what diversity truly meant.*” The word “diversity” is denoted with an asterisk above because of the difference between the perception versus reality of diversity. In terms of race and ethnicity, the demographic data indicates the composition of Associate’s and Baccalaureate degree-seeking students was 75% White; while 19.5% of faculty were considered minorities (University of Cincinnati’s Office of Equity and Inclusion, 2018). Another student declared that “there are so many international students.” The University of Cincinnati’s Office of Institutional Research (2018) cites 7.7% of students

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are international students. Often dominant group cultures perceive that a large amount of diversity exists, but those in a minority culture do not experience the same perception. Sometimes perception can be the reality though. Therefore, what mattered for the purposes of this study was that the students thought that being at a university would allow them to act on their intercultural growth. For instance, Participant 25 compared a lack of past exposure to difference to current opportunities:

I went to a predominantly White high school which caused me to experience practically no cultural diversity. Due to this, I was never able to fully develop intercultural competence while in high school. I can look back on this now and see what was wrong with that, but at the time I thought it was normal to go to school with people that are all the same. Now being at a university with a significant amount of diversity, I will be able to improve my intercultural competence.

In addition, opportunities to study abroad may be enhanced because of being at a large, public, research university as well.

Finally, students were asked what they would do next to grow in their intercultural awareness and to set three actionable goals to increase accountability. This is aligned with the goals of the Intercultural Development Plan (IDP) which helps the participant understand that it is not only about what orientation the IDI placed them in, but what they are committed to doing to develop their intercultural growth. Thus, the agency is on them. The IDP furthers the reflective process and specifies that 30-50 hours of concentrated effort can move people forward into a new orientation. Since many of the students referred to a lack of exposure to other cultures and the IDI placed most of them in Minimization, it made sense that most students' intercultural goal was to “*get out of their comfort zone*” and intentionally gain more interaction and engagement with cultures different than their own in a respectful way (Participant 20). Students wanted to attend programs and events and named LGBTQ, Hispanic, African American, and Indian cultural communities specifically, along with socioeconomically different youth. Traveling or studying abroad ranked second highest with students noting places like Columbia, Africa, and Northern Asia as potential destinations. Participant 29 showed a depth of critical reflection related to this goal when saying,

I plan to research where I am traveling before stepping on the soil. My greatest fear is that I will be viewed as the stereotypical American tourist: someone who expects everyone to speak English, expects a McDonald's on every corner, and who views other cultures as taboo. I am going to do everything in my power to go in with an open mind and heart to every country.

Next many students wanted to deepen their own cultural self-awareness” (Participant 28). Some also cited reading more books, paying more attention to international news, or exploring arts, film, and music to understand cultural differences. Finally, a few students mentioned work on not making assumptions or using stereotypes. The goal-setting reflection paired with the IDP supports the initiation of intercultural development efforts and is an important part of the assessment process.

Phase 2

Urban health grant funding was secured to launch Phase 2 of the research project. The primary author of this chapter administered the IDI to 36 high-achieving pre-health students in 2021. All students

consented to participate per IRB approval of the study. Phase 2 was different than Phase 1. Due to the global pandemic, students attended classes remotely, so the assessment was not administered as part of the Exploring Health professions course and reflections were not collected. The QA facilitated a virtual group debrief to discuss the group profile. Participants were encouraged to discuss their thoughts and feelings about the results and what they plan to do in response.

Findings revealed students continued to significantly overestimate their intercultural competence by 30.96 points and 47.2% had monocultural mindsets. The IDI placed the majority (44.4%) of students in early Minimization and 38.9% of students not far behind in Polarization. This means that as a group, they have a less complex perception and experience of cultural difference and should be aware of judging when engaging differences. Like Phase 1 participants, they are in transition from monocultural to intercultural mindsets.

The QA used the same three additional questions regarding influences on intercultural development, why intercultural awareness is important to their future healthcare career, and whether they think they had a monocultural or intercultural mindset coming into college. Sixty-seven percent of students said intercultural awareness is important to their future healthcare career because it will allow them to achieve the best health outcomes for patients, indicating that they continue to see the clear connection to their future healthcare careers. Education and family were found to have an equally noteworthy influence on shaping their intercultural development. Knowing the influence education has on intercultural growth is important because integration of the IDI into pre-health professional advising could add impact. Seventy-eight percent of students thought they had an intercultural mindset, but only 8.3% did.

In terms of the virtual group debrief results, one student shared that she thinks of her cultural groups as her age, gender, educational status, and religion. Interestingly, another student stated he never actually stopped to think about his culture and that it was challenging to sum it up in a sentence. After learning that their Developmental Orientation (DO) was Minimization, students reflected on how they had their own culture, knew that others did as well and tried to act in tolerant ways. At the same time, they realized that did not equate to being open to exploring the differences. One student noted that Minimization can have a negative connotation due to breaking the word down to minimizing or lessening something. She was able to reframe her reaction to us an optimistic lens to embrace Minimization as a transition from monocultural to intercultural mindsets and focus on growth. Growth was the theme for reflection as students saw how their perspectives have changed over time and experience. One student had already taken the initiative to act by watching films by Black Directors starring African American cast members during Black History month. Students were also curious about the range of orientations.

Figure 2 displays the student's perceived orientations (PO) from Phase 2. Figure 3 presents their developmental (actual) orientations (DO) from Phase 2. The orientation gap between their perceived and developmental orientation of participants from Phase 2 is indicated on a scale of 40-145 in Figure 4. A gap of 7 points on the scale is significant.

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Figure 2. Phase 2 IDI Group Results: Perceived Orientation.

Adapted from Group Profile ©1998-2019, IDI, LLC.



Figure 3. Phase 2 IDI Group Results: Developmental Orientation.

Adapted from Group Profile ©1998-2019, IDI, LLC.

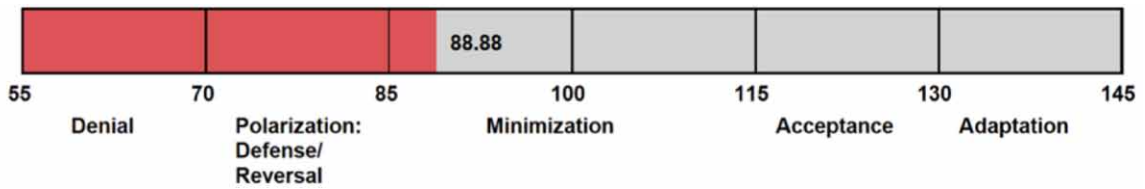


Figure 4. Phase 2 Group Orientation Gap.

Adapted from Group Profile ©1998-2019, IDI, LLC.

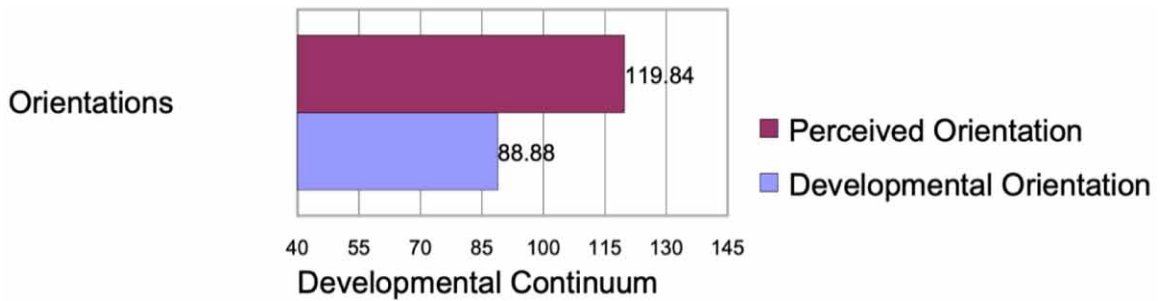


Figure 5. Range of Developmental Orientations.
Adapted from Group Profile ©1998-2019, IDI, LLC.

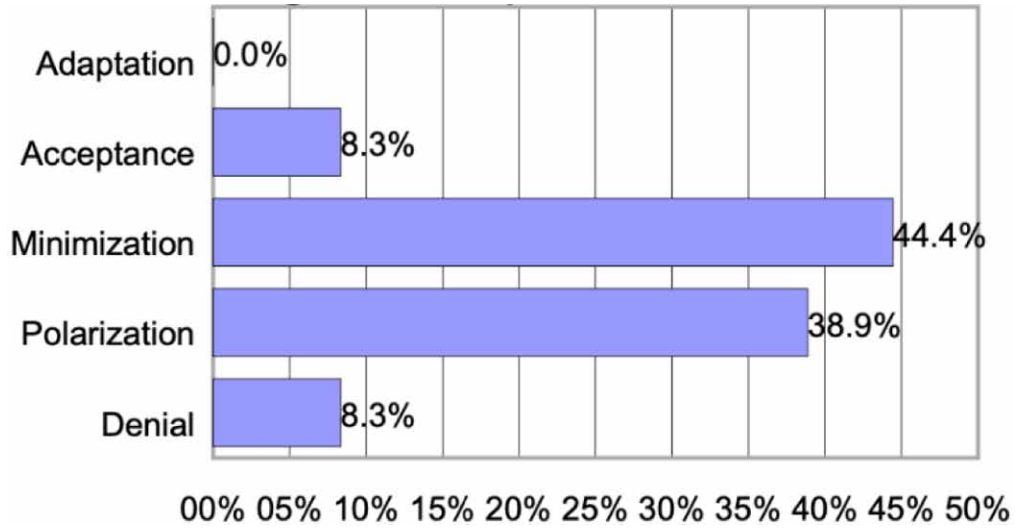
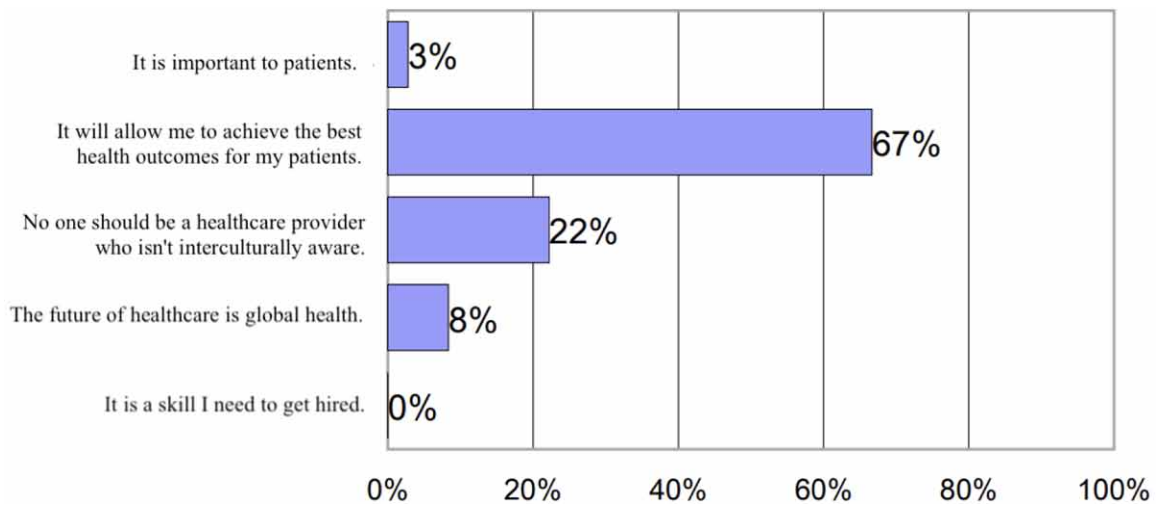


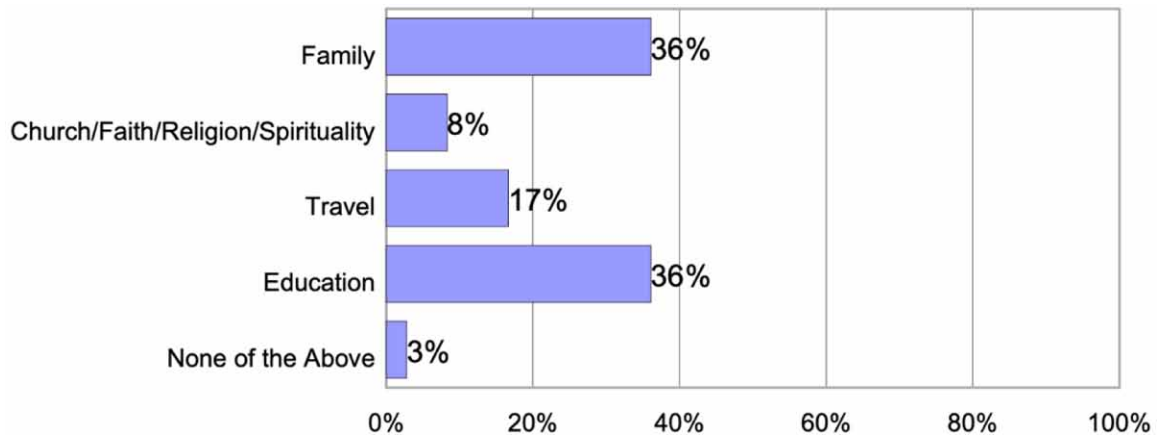
Figure 6. Reasons to Value Intercultural Development.
Adapted from the Group Profile provided by ©1998-2019, IDI, LLC.



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Figure 7. Influences on Intercultural Development.

Adapted from the Group Profile provided by ©1998-2019, IDI, LLC.



LIMITATIONS AND RECOMMENDATIONS

There are limitations in this study. If the IDI was administered to pre-health students at another type of university or from a population not considered ‘high-achieving,’ their reflection on opportunities for intercultural growth might be different. While the participation rate was very high, there were only 75 participants. As a mixed-method study, the intent of this study was not to generalize findings from this pre-health sample, but to use this sample to identify how gaps in undergraduate pre-health professions preparation can be addressed and connected to the AAMC competencies using the IDI. Finally, the IDI must be ordered and administered by a QA. Institutions need to be willing to spend funds to hire a QA or to send a person to train. While this study explored the use of the IDI, it is only one example of the benefits of using a cross-cultural assessment tool to expand curricula. Other tools may be used as well.

These results provide foundational knowledge from which further research can be developed. Given that the AAMC competencies are a central framework from which to advise pre-health professional students to create a competitive application, the authors recommend using the IDI as a baseline data point to meet students where they are and help them grow in their cultural *and* intercultural competence. While the IDI is aligned with cultural competence specifically, it can also be connected to the 14 other competencies. For example, in the AAMC framework, cultural competence is under the Interpersonal Competencies category, along with service orientation, social skills, teamwork, and oral communication. These competencies all involve interacting with people collaboratively. To successfully work with people across differences, students must understand how their cultural identities have shaped their experiences, demonstrate cultural sensitivity, and show respect when listening and speaking. Therefore, the intrapersonal competencies are connected, and the IDI can be used to foster growth in all these categories.

The findings of this study provide evidence that students significantly overestimate their intercultural competence. When individuals possess a less complex perception of cultural difference, this will likely impact their ability to successfully enact other AAMC competencies.

Intercultural competence also connects to the Interpersonal Competencies category which includes traits such as ethical responsibility to self and others, reliability, resilience/adaptability, and capacity for improvement. Developing intercultural competence pushes students to understand their own cultural

morals, values, and perspective while challenging them to understand the complex perspectives of others as not always part of a right or wrong binary. This opportunity to take personal responsibility for actions and learn from mistakes when engaging in difficult dialogue and debates across difference, especially now in the context of living in a hyper-polarized context. The crux of intercultural competence is reflection and continuous growth based on feedback

Lastly, intercultural competence connects to the Thinking, Reasoning, and Science Competencies categories. Critical thinking, or the ability to weigh the strengths and weaknesses of various options, speaks to the need to consider diverse approaches and the underlying complexities related to where the approaches come from. Human behavior is also listed as a Science Competency that aligns with the goal of leveraging intercultural competence to think about the social determinants of health.

In summary, the IDI can connect all of the AAMC competencies because it is a developmental tool that meets student's where they are. It provides a baseline data point for cultural competence, somewhere to create intentional action from which to grow students' future professional skills. Therefore, it is recommended that future research studies using the IDI with pre-health professional students be replicated, and a pre-and-post test of the IDI be conducted so intercultural competency development can be measured over time. For example, it could be administered during undergraduate years to assess AAMC competencies, into medical school, residency, and even practice.

CONCLUSION

Below are key takeaways from this chapter:

- Findings of Phase 2 corroborated prior outcomes in Phase 1 and revealed students continued to significantly overestimate their intercultural competence and engaged differences by over-focusing on commonalities (Minimization).
- In both Phase 1 and Phase 2 of the research project 80% of students thought they had an intercultural mindset, while only 3-8% did. No student in either phase of the study was in the final intercultural mindset of Adaptation.
- The results of this study reveal that pre-health professional students can critically reflect and re-frame their reactions with humility. This directly relates to the AAMC interpersonal competencies (adaptability, resilience, and capacity for self-improvement).
- Students see the direct connection between their intercultural understanding and achieving patient outcomes.
- The concept of humility can be viewed as counter-cultural in health professions education because of the emphasis on training to become fully competent experts who may shy away from acknowledging mistakes or failure. Therefore, it is important to distinguish the terms cultural competence, cultural humility, and intercultural competence.
- This university has been identified as an opportune place to intentionally take accountability for exposure to cultural difference.
- Students with a bi-cultural identity may experience a struggle and overemphasize similarities to fit in with the dominant culture.
- Students in pursuit of health professions need to develop their own cultural self-awareness before they can practice perspective-taking of the cultural "other."

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- Cultural assessment tools can help determine baselines and growth of pre-professional competencies over time.
- This study has shown that pre-health professional students are motivated to intentionally develop their intercultural competence because of their drive for self-improvement.

All these points relate to changes needed in pre-health professions advising and impact the human side of healthcare. If health professions programs aim to improve the quality of diverse patient care, understand social determinants of health as root causes leading to healthcare disparities, and create self-aware leaders able to work across differences in today's polarized climate, they need to evolve. Pre-health professional students need intercultural training early to examine implicit biases, learn to treat the patient not the disease, and become patient advocates before they practice. What better time to explore these issues with students than as early as possible in their pre-health professions journey? Conducting an intercultural assessment, like the IDI, with pre-health professional students can be a first step to encourage deeper reflection on professional traits. The expectation for future healthcare providers can be set forward from the onset of the college experience. This study demonstrates the efficacy of using an intercultural competence assessment tool with pre-health professional students early in their collegiate careers to foster critical reflection related to the AAMC competencies. It elucidates the influence the IDI can have on the personal and professional development of future healthcare providers which significantly impacts their learning about the human side of healthcare.

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KEY TERMS AND DEFINITIONS

Cultural Competence: Having knowledge, understanding, and skills to work effectively with diverse cultural groups.

Cultural Humility: Capacity for critical self-reflection about assumptions, suspending judgement, and understanding one cannot be fully competent in another person's culture.

Diversity: The presence of difference or representation in an organization.

Empathy: Connecting with a feeling inside of yourself to feel with other people.

Health Disparities: Preventable differences in health across many dimensions including race, age, gender, sexual orientation, class, etc.

Implicit Bias: Unconscious prejudice and stereotyping of people.

Inclusion: Making sure diverse people count, feel valued and engaged.

Intercultural Competence: The ability to generate a new perspective, shift perspective, and adapt behavior to bridge differences in culturally appropriate ways.

Self-Reflection: Introspective exploration of thoughts and feelings.

Social Determinants of Health: Conditions where people work, live, play, and pray that affect their health.

Chapter 6

Common Academic Stress Points and Mental Health Concerns Among Pre-Health and Health Science Students

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ABSTRACT

Addressing the mental health and well-being of pre-health students is critically important to ensuring their success through college and entry into advanced training or the workforce. Pre-health students represent some of the most motivated, involved, and engaged students on campus. Retaining these students and ensuring a positive undergraduate experience may help improve the development of a robust and diverse healthcare workforce. This chapter considers academic stress points and common mental health concerns among pre-health and graduate-level clinical students and discusses the implications of poor mental health outcomes among these student populations. This chapter is the first in a two-part series designed to understand the experiences of health science students and potential adverse health outcomes they may experience. The second chapter in this series considers practical approaches for pre-health advisors to foster and encourage well-being among students.

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INTRODUCTION

For pre-health students to make informed decisions regarding their future careers, it is essential for academic advisors to understand common academic stress points and the mental health concerns of both the undergraduate students and the future professions they plan to enter. This chapter is the first in a two-part series considering the unique mental health concerns of pre-health undergraduate students as well as graduate students pursuing clinical training. This chapter refers to subjective well-being (SWB) or an individual's overall psychological well-being accepting mental health as a complete state including positive and negative experiences, self-perceptions, and clinical diagnoses (Wang et al., 2011).

This chapter focuses on the perspectives of both the pre-health student as well as students currently enrolled in health professions programs to contextualize the on-going mental health concerns that may impact students pursuing careers in healthcare. In other words, the mental health concerns of students may persist beyond their undergraduate training, and pre-health advisors should be aware of the long-term trajectory of their students' well-being (Çelik et al., 2019; D'Eon et al., 2021; Fang et al., 2010). Prior to discussing the experiences of pre-health students, this chapter presents an overview of career satisfaction and well-being trends among common health professions to identify the far-reaching implications of poor mental-health care among students and practitioners.

The second chapter in this series presents strategies that advisors can employ to support the emotional well-being of pre-health students. Consequently, this chapter only briefly discusses tools to address academic stress and common mental health syndromes that present in pre-health and clinical students. For additional guidance as to how pre-health advisors can support their students' well-being, and for tools that advisors can provide their students, please see the chapter "Fostering Resilience and Well-Being Among Pre-Health Students."

CAREER SATISFACTION AND WELL-BEING TRENDS IN THE HEALTH PROFESSIONS

The pre-health advisor's relationship with their student is critical to ensuring student persistence through their undergraduate training and into advanced health professions education or the workforce. Pre-health advisors provide critical guidance to students as they navigate complex coursework, consider appropriate careers, engage in extracurricular activities, and complete rigorous application processes for graduate training programs (Arnold & Schneider, 2010; Barr et al., 2008). For pre-health advisors to best support their students and guide them toward a career in healthcare, they should understand the well-being trends among health professionals. Having a broad understanding of career satisfaction and general well-being among clinicians can help pre-health advisors in setting expectations with their undergraduate students (Bridgeman et al., 2018; Hall et al., 2016). This knowledge can help inform students of the types of careers they may want to pursue. As advisors encourage students to explore all the pre-health professions, it is important to understand key characteristics in each profession that will contribute to the individual's overall satisfaction and well-being throughout their career.

While no direct comparisons between health professions can be made, we can rely on key data obtained for several health professions. For the purposes of this chapter, we focus on physicians, physician assistants, physical therapists, dentists, and veterinarians. Within the health professions there are drastic disparities between overall job satisfaction, levels of burnout, and suicidal ideation. Research suggests

that Physician Assistants (83%) and Physical Therapists (78%) report the highest job satisfaction rates throughout their career (Halasy et al., 2021; Smith, 2007). These data are in stark contrast to job satisfaction experienced by physicians (44%), dentists (48%), and veterinarians (65%) (Dyrbye et al., 2013; Merck Animal Health, 2020; Starkel et al., 2015).

Specific demographic characteristics have been identified to contribute to overall job satisfaction rates. Key studies evaluate hours worked per week, salary, work-home conflicts, independence at work, student loan debt, clinical environment, and social capital (Ouedraogo et al., 2017; Smith, 2007; Starkel et al., 2015). For physicians, dentists, and veterinarians, there is a difference in job satisfaction between independent or individual practice owners vs. employed practitioners. This is irrespective of practice or group size but correlated to management being governed by the practitioners or a management/administrative company (Ouedraogo et al., 2017; Smith, 2007; Starkel et al., 2015). Satisfaction is higher among professionals who work in individual practice than those who work in larger systems due to higher levels of professional autonomy that accompanies working in a small privately-owned practice.

Health professionals also experience burnout at different rates and in different ways across specializations. Burnout is “a state of emotional exhaustion, a tendency toward depersonalization, and a feeling of low personal accomplishment that usually occurs among people helping professionals; in short, it is a syndrome of emotional exhaustion, depersonalization, and diminished personal accomplishment” (Lin & Huang, 2014, p.78). Drivers of burnout include workload, work inefficiency, lack of autonomy and meaning in work, and work-home conflict. A 2012 comprehensive study using the Maslach Burnout Inventory revealed 46% of physicians surveyed indicated at least one key symptom of burnout (Shanafelt et al., 2012). A 2016 study of early career dentists found that within the first two years of practice burnout indicators were relatively low, however between two to five years into practice 48% of dentists experienced a high degree of burnout (Kulkarni et al., 2016). Burnout is not limited to those with terminal degrees. A 2011 study reported burnout prevalence of 37% among nurses providing direct patient care in nursing homes, and 33% among hospital nurses (McHugh et al., 2011).

Data from specific health professions also indicates a higher prevalence of suicidal ideation, specifically within the physician, veterinary, and dental professions. A 2019 Centers for Disease Control (CDC) study found that male veterinarians were 2.1% more likely to die by suicide and female veterinarians were 3.5% more likely to die by suicide than the general U.S. population (Tomasi et al., 2019). The suicide rate among male physicians is 1.41 times higher than the general male population. Among female physicians, the suicide rate is 2.27 times greater than the general female population (Schernhammer & Colditz, 2004). A 2011 study indicated that of all the health professions, dentists had the highest suicide rate at 7% of the practicing dental population (Hawton et al., 2011).

GENERAL HEALTH OF PRE-HEALTH UNDERGRADUATE STUDENTS

As described above, there is clear data describing increased levels of burnout, adverse mental health effects, suicidal ideation, and career satisfaction for many health professions. Over the last 20 years, college students have presented with increased adverse mental health issues, suicidal ideation, and reduced executive functioning, and these issues seem to be increasing in severity (Dinis & Braganca, 2019; Hoban, 2019). Combining the professional data and current undergraduate trends with the nature of rigorous academic requirements, competitive application processes, and an expectation for significant extracurricular engagement among pre-health students, one might rightfully suspect that pre-health students are

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more susceptible to adverse mental health issues such as anxiety, depression, and suicidality compared to their non-pre-health peers (Fang et al., 2010; Fang et al., 2012).

Comprehensive data across all pre-health professions is limited, therefore this chapter will highlight research on pre-medical undergraduate students. Two key studies identified that pre-medical students have a higher rate of depression and burnout compared to the general student population (Fang et al., 2012; Grace, 2018). Specifically, female pre-medical students have higher rates of depression than their non-pre-medical counterparts and male pre-medical students. Additionally, Latinx pre-medical students have a greater prevalence of depression and greater intensity of depressive symptoms than other pre-medical students and Latinx non-premedical students (Fang et al., 2010). A 2012 study further found that pre-medical students had a higher rate of burnout and depression than non-premedical students, with both women and Latinx students having higher levels than the pre-medical population (Fang et al., 2012). Research also shows that pre-medical students who experienced depressive symptoms and burnout had a higher likelihood of changing their career aspirations (Grace, 2018).

Recent research has looked at multiple interventions for prevention of the increased adverse mental health issues seen among pre-medical students. Efforts have included evaluating clinical empathy in pre-medical students, mentoring programs, and wellness workshops (Gómez et al., 2021; MacArthur et al., 2021; Maniam et al., 2020). These and other specific interventions for maintaining well-being within the pre-health population will be discussed later in the chapter. As advisors it is important to understand and implement effective strategies for reduction, but also to understand the trends of well-being related to the pre-health student's academic trajectory. Specifically, the studies mentioned above consider only undergraduate students. Many other studies assess the medical student population upon entrance to medical school, at year one and beyond. It is important to consider that the overall stress level of a pre-medical student is high during their undergraduate career, low after admittance to medical school and increases again upon immersion in medical school.

UNDERSTANDING ACADEMIC STRESS POINTS FOR PRE-HEALTH STUDENTS

The experiences of pre-health students are incredibly diverse, and their needs vary depending on their socioeconomic status, educational experiences, and personal characteristics (Barr et al., 2008; Elam et al., 2002; Fang et al., 2010; Grace, 2018). Existing and emerging literature agrees on five overarching sources of stress among broad populations of pre-health students:

- Completing complex prerequisite coursework for admissions to graduate programs,
- Experiencing academic difficulties,
- Prepare for graduate entrance examinations
- Completing a competitive application process to professional programs in health care,
- Managing life transitions

Each of these issues is discussed in detail below. Understanding these widely applicable stress points will provide pre-health advisors and their teams with a roadmap for tracking students and monitoring their well-being as they move through their undergraduate education. These five sources of stress should not be considered exhaustive; many advisors may recognize unique issues that impact their students based on their specific institutional context, the campus climate students live in, and personal circumstances

(e.g., family support, peer networks, socioeconomic backgrounds) of their students. Understanding these common stress points will provide pre-health advisors with a strong foundation in supporting some of the mental health concerns they may identify throughout their work. This is particularly important as research has shown that poor advising, particularly from inaccessible advisors, advisors unprepared to address student concerns, and advisors who compound the stress pre-health students are already experiencing, can lead to attrition among pre-health students (Barr et al., 2008).

Completing Prerequisite Coursework

In guiding pre-health students, advisors consistently hear that pressure to excel in the undergraduate prerequisite coursework required for admission into medical school (MD/DO), dental school (DDS/DMD), physician assistant programs (PA), physical therapy programs (PT), Occupational Therapy (OT), and other graduate clinical programs is a significant source of stress. These anecdotal advising discussions are well supported by research. Many of these studies look at the process of attrition among pre-medical students interested in allopathic medical training in the United States.

All health professions graduate programs require a heavy focus on the basic sciences in undergraduate school. The basic science credit load can range anywhere from 16 credit hours to 48 credit hours. The chemistry sequence presents significant stress for pre-health students and accounts for attrition in pre-medical programs, particularly among women and students of color (Barr et al., 2008; Dumke et al., 2018). The common student perception is that chemistry and organic chemistry courses act as “weeder” which separate “smart” students from those who are unable to make it into graduate clinical programs (Lin et al., 2013; Thurmond & Cregler, 1999).

A recent study from Zhang et al. (2020) analyzed a large dataset of 15,442 pre-medical students across 102 postsecondary institutions between the years 2006 to 2009 and examined rates of attrition across a four-year undergraduate degree program with particular attention to the following curricular milestones: “1) one semester of general chemistry, biology, physics, 2) two semesters of general chemistry, biology, physics, 3) one semester of organic chemistry, and 4) either the second semester of organic chemistry or one semester of biochemistry” (p. 1). The study found that only 16.5% of all pre-medicine majors in the dataset graduated with the prerequisites required to attend medical school, the remaining students elected to change their majors and their professional plans. Importantly, most of the student attrition occurred in the early semesters when students were completing the first course in biology and chemistry. It is critical for advisors to understand the science prerequisites and the support services at their institutions to mitigate academic difficulty (e.g., peer tutoring, test-taking skills, etc.). While attrition can be expected in any major or degree program, students should not have to give up pre-health aspirations for remediable issues related to the complex prerequisite courses and application requirements.

Experiencing Academic Difficulties

It is well established that a student’s course grades and grade point average (GPA), specifically the science GPA, presents a strong indicator for the ability to matriculate into a graduate clinical program (Thurmond & Cregler, 1999). This concern remains salient and presents in several recent studies that seek to understand how students perceive academic success and how failure negatively affects their mental health specifically regarding their sense of intelligence (Dumke et al., 2018). Students who face academic difficulty, particularly recurring difficulty, show greater likelihood of not pursuing graduate

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clinical education (Dumke et al., 2018) but also may pursue dangerous coping mechanisms including higher likelihood of binge drinking, use of illicit drugs, and attrition from school (Birks et al., 2009).

While academic difficulty presents significant risk to attrition for pre-health students, more recent studies are showing that early poor academic performance does not immediately result in a change of career aspirations. Alexander et al. (2009) looked at historically excluded populations in health care, commonly referred to as underrepresented minorities (URM), and their experiences pursuing undergraduate programs in pre-health. This study found that underrepresented students were more likely to persist through prerequisite coursework even when they were struggling academically, especially when they were provided with institutional support. Dumke et al.'s study (2018) agrees with this assessment and notes that most participants in their study of persistence among pre-health students did not allow single challenges or course failures to deter them from pursuing a career in health. Many students in the Dumke study did not cite intelligence as the greatest indicator for success in applying to graduate programs but rather believed that grit and mindset were ultimately critical to academic success.

Preparing for Graduate School Entrance Examinations

In addition to a demanding schedule of prerequisite coursework, pre-health students need to prepare for graduate school entrance examinations, a process which necessitates hours of study and preparation as well as a heavy financial burden. Table 1 presents the Medical College Admissions Test (MCAT), Dental Admissions Test (DAT), and the Graduate Record Examination (GRE) which are the three exams required for admissions to medical schools, dental schools, and PA/PT/OT schools respectively.

Table 1. Comparison of graduate school entrance examinations

	MCAT	DAT	GRE
Exam Cost	\$320	\$360	\$205
Material Covered	Biological and Biochemistry Foundations of Living Systems, Chemical and Physical Foundations of Biological Systems Section, Psychological, Social, and Biological Foundations of Behavior Section, Scientific Inquiry & Reasoning Skills, Critical Analysis and Reasoning Skills Section.	Survey of the Natural Sciences, Perceptual Ability, Reading Comprehension, and Quantitative Reasoning.	Verbal reasoning, quantitative reasoning, analytical writing
Score Range	472 - 528	1 – 30	200 - 990
Length of Exam	Approximately 7.5 hours	4.5 hours	3.75 hours

Note. Data on graduate school entrance examinations are current as of January 2022 and come courtesy of the American Association of Medical Colleges (AAMC), the American Dental Association (ADA), and Educational Testing Services (ETS).

These examinations present several barriers for potential graduate clinical students. The registration cost is expensive, the material covered is comprehensive and includes knowledge gained through four years of prerequisite coursework and requires significant time investment for study and preparation (Dumke et al., 2018; Lin et al., 2013). Students also must learn and employ effective test taking skills and overcome test taking anxiety, particularly prevalent in high stakes exams. Advisors should be prepared to support students preparing for these entrance examinations and, minimally, be able to refer students

to other offices or colleagues who can provide effective study strategies and test taking skills (e.g., peer tutoring, academic support services through a library, or other cognitive skills labs/offices on campus).

Completing Competitive Application Processes to Professional Programs in Health Care

Prerequisite coursework, the stress to be academically successful, and the pressures of admissions examinations are part of a complex and exclusive application process that pre-health students need to complete to enter professional programs in health care. There remains a persistent stereotype that pre-health students are intensely competitive with one another, giving rise to the “cut-throat pre-med” moniker (Conrad, 1986). However, pre-health advisors should recognize that this perception is not based on observable data but an assumption that students must compete against one another to successfully enter health professions training (Lin et al., 2013; Lin et al., 2014). Students often decide to work collaboratively with peers during their undergraduate studies to get ahead and navigate complex coursework.

In addition to prerequisite coursework and entrance examinations, students need to seek letters of recommendation from professors and advisors and typically need to complete on-campus interviews for medical, dental, PA, PT, and OT programs (Dumke, 2018; Elam et al., 2002). Fang et al. (2012) found that pre-health students show higher levels of depression and emotional exhaustion in response to the demanding schedules they need to balance as undergraduates along with the complicated and multifaceted admissions processes for graduate clinical programs. For advisors, these complex demands can be addressed through simple support initiatives. Advisors should invest in training to understand various time management techniques that they can introduce to their practice with pre-health students. Time audits, Eisenhower Matrix, the Pomodoro Technique, and the Pareto Principle are some of the more common and effective methods to help students learn to best manage their time and improve their overall sense of psychological well-being (Aeon et al., 2021; Schewe & Ward-Reichard, 2012).

Managing Life Transitions

Managing changes in life is inherently stressful, and this often presents in our interactions with pre-health students. The specific phenomenon of transitional stress refers to the negative emotions that present in response to changes in their lives (i.e., life transition) that people have no automatic adaptive response (Corr, 2021; Lazarus & Cohen, 1977; Sykes & Eden, 1985). On its own, transitional stress is not necessarily bad, but for individuals with maladaptive coping mechanisms, it can present challenges to well-being (Metzger et al., 2017). We discuss stress at greater length later in this chapter and consider when stress can be positive (eustress) or negative (distress).

The most common transitions that pre-health students face are related to their experiences on campus and are primarily associated with the four stressors discussed at length earlier. When students face academic difficulty, when they experience failure, when they are challenged by complex admissions processes, they risk damaging their psychological well-being. Advisors should be prepared to understand and remediate these sources of stress. Fortunately, there is a large body of work that explains the impact of life transitions on individual well-being and provides examples of how we can provide support to students. Showers and Ryff (1996) have found that levels of self-differentiation are related to lower levels of depression and higher levels of well-being. Self-differentiation is the ability to identify your own thoughts and feelings and distinguish them from others (i.e., I think I’m going to fail vs. my professor

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thinks I'm going to fail). The more a student can identify their own limiting beliefs and refrain from ascribing them to others, the easier it is for them to address them.

Additionally, advisors should engage in conversations discussing fixed vs. growth mindset with their students. If an advisor can start to introduce the idea of a growth mindset to an advisee (i.e., the belief that an individual's most basic abilities can be developed through dedication and hard work), then the student can see their own individual potential for success (Dwecker, 2007). If a student faces challenges with a positive mindset (e.g., seeing challenging prerequisite coursework as an opportunity to set themselves up for success in graduate clinical programs and as an opportunity to improve their odds of acceptance into school), they can maintain a sense of well-being more easily. Conversely, a student with a fixed mindset (e.g., seeing challenging prerequisite coursework as an insurmountable barrier to overcome and poor grades as proof that they are not as smart as their classmates) is more closely associated with attrition among students. Importantly, research suggests that individuals with a fixed, or stressed mindset, are more likely to perceive a challenge as a negative experience and consequently experience adverse outcomes associated with the event (Kilby & Sherman, 2016). In the context of advising pre-health students, this may present as reduced self-efficacy and a higher risk of attrition in response to poor exam results or difficulty in a challenging course that is a prerequisite for graduate clinical training. In addition to individual self-differentiation, social support is important as students attempt to navigate transitions in life (Ryon & Gleason, 2018; Showers & Ryff, 1996; Sykes & Eden, 1985). Existing research finds that a lack of social support from family or peers results in higher rates of depression and an inability to manage transition. This inability to manage transition can take many forms, but for students in pre-health programs, it often presents as attrition (Corr, 2021). For students who do persist through their pre-health training and enter medical school or other graduate health professions training, maladaptive coping mechanisms for addressing life transitions can lead to higher levels of professional burnout and other mental health concerns.

COMMON MENTAL HEALTH CONCERNS

We have now established an understanding of the population of pre-health students and the complex academic stress points they face as they move through their education. This leads to our next question: what are the common mental health syndromes that pre-health students encounter and how do these present within and outside the classroom? Existing literature identified burnout, demoralization, imposter syndrome, depression, substance use, and suicide as significant risks impacting students (Morgenstern & Beck Dallaghan, 2020). Importantly, there is a dearth of research exploring the specific experiences of pre-health or pre-medical students, so the following section pulls research about common mental health syndromes that present among undergraduate and health science students broadly. Each section considers a specific mental health syndrome, and we present illustrative examples of how these may show up during regular advising meetings with students. We also emphasize that it is not within the scope of a pre-health advisor's work to diagnose specific mental health concerns, rather that advisors can benefit from broadly understanding different syndromes and how they may impact the academic, socioemotional, and physical well-being of their students. Pre-health advisors should never expect to mitigate or treat mental health conditions that present in their students but should consider themselves an integral part of a transdisciplinary team providing support to students.

As this chapter primarily considers mental health concerns among pre-health and clinical students, there is little focus on specific initiatives designed for advisors to support their students. For additional guidance on the practical approaches to supporting students' well-being and for the tools that can be provided directly to students, please see the companion chapter "Fostering Resilience and Well-Being Among Pre-Health Students." In this next chapter, we specifically discuss how pre-health advisors can partner with other offices and individuals across their institution to best support the needs of their students (e.g., campus health centers, mental health counseling, peer support networks).

Burnout

Burnout is a common psychological phenomenon that pre-health undergraduates report experiencing, but little research has been done to explore the onset of these feelings and even less exists that considers long-term student outcomes (Fang et al., 2012). In essence, burnout can be defined as "a psychological syndrome characterized by emotional exhaustion, feelings of cynicism, and reduction in personal accomplishment" (Koutsimani et al., 2019, p. 1). Lang (2019) conducted a survey to study burnout among pre-health undergraduate students, compared to the general student population. This study found that early on in their undergraduate education, freshmen and sophomore year, pre-health students reported higher rates of burnout than their peers. For both populations, pre-health and non-pre-health, rates of burnout begin to reverse as students approach college graduation and are more settled into their career paths. A similar trend is seen in burnout among medical students. Santen et al. (2010) found that burnout is highest amongst second- and third-year medical students and drops significantly in the fourth year, when students have a better understanding of their career path (Santen et al., 2010). Taken together, these studies suggest that schools should invest in services to support pre-health and medical students, in the early years of their degree trajectory, especially those who experience multiple defined stress points and present signs of psychological distress.

Given that burnout can often be a predictor of anxiety disorders or major depressive disorder (Koutsimani et al., 2019), it is important for pre-health advisors to recognize the early signs of burnout among their students and to recognize that burnout "falls along a spectrum, [with] no critical threshold values to designate when a person has become 'burnt out'" (Fang et al., 2012, p. 11). Burnout may appear as a new disinterest in things that previously excited students (e.g., clubs and organizations on campus, opportunities for experiential learning, health science coursework), cynicism toward their education (e.g., a sense that no matter how hard they work, they won't ever get into their dream profession), or a reduced sense of personal accomplishment (e.g., believing that a strong grade in chemistry is a result of good luck rather than hard work). Our companion chapter, "Fostering Resilience and Well-Being Among Pre-Health Students," provides several interventions that pre-health advisors can use to support their students if they begin experiencing burnout, including ways to encourage stress reduction, improving self-reflective practices, and engaging in restorative self-care.

Imposter Syndrome

Along with burnout, many students experience demoralization, shame, and a perception that they are less intelligent or capable than their peers - an experience commonly known as imposter syndrome, imposterism, or the imposter phenomenon (Houseknecht et al., 2019; Morgenstern & Beck Dallaghan, 2020). As noted earlier, the literature cited in this study specifically notes the experiences of medical and

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other graduate clinical trainees due to a lack of literature on pre-health students. In any case, the body of research available is applicable to advisors of pre-health students given the environments their students are preparing to enter and the close relationship between academic difficulty and imposter syndrome. Advisors should review the information here and consider how the knowledge available can be used to support their students as they prepare to enter graduate training.

There are several opportunities across health professional education that can illicit shame and the onset of imposter syndrome among students, including experiences of academic or professional mistreatment, academic difficulty including poor test performance, and feelings of isolation that can occur from belonging to an underrepresented or historically excluded identity (Rivera et al., 2021). Some research has found that as many as 90% of medical students experience imposter syndrome at some point during their training (Morgenstern & Beck Dallaghan, 2020).

Typically, imposter syndrome presents early in health professions training and tends to increase in severity throughout training (Houseknecht et al., 2019). Therefore, retention in medical or other professional training programs is not enough to mitigate feelings of imposter syndrome - these feelings can persist through training and into practice unless they are addressed. To help support students as they experience imposter syndrome, institutions can train pre-health advisors and faculty to provide a shame-free response to academic difficulty or failure, they can encourage pre-health advisors and faculty to acknowledge the impact of imposter syndrome on learning and can discuss the prevalence of shame in healthcare (Bynum IV & Goodie, 2014; Morgenstern & Beck Dallaghan, 2020). In the context of an advising appointment, this can occur during frank discussions of the student's academic progress, their concerns about coursework, and their goals upon graduating from secondary school. Pre-health advisors can use the insights gained during these advising conversations to reinforce the unique strengths and values of their students and introduce them to the phenomenon of imposter syndrome. Often, by naming these negative phenomena and providing academic and social support, pre-health advisors can help students recognize and reframe their thinking (Gardner et al., 2019). These approaches can help normalize imposter syndrome and mitigate the more insidious impacts of this condition.

Anxiety

Best defined as feelings of tension, worried thoughts, and physical changes (e.g., increased blood pressure, digestive trouble, insomnia; American Psychological Association, 2019a), anxiety has become one of the most cited mental health concerns among college students. The American College Health Association (2021) notes that approximately 38% of undergraduates reported some level of anxiety that impacted their academic performance in the Spring 2021 semester. Advisors can expect our pre-health students to feel occasional anxiety as they learn to manage their time, adjust to academic life, and prepare for complex coursework and competitive applications into graduate clinical training. To an extent, a certain degree of anxiety is normal, and it is important for students to identify ways to cope effectively with feelings of anxiety (Ganesan et al., 2018; Gibbons, 2015). However, advisors should be prepared to identify when anxiety begins to impact our students' cognitive and physical health and should be aware of certain characteristics that may predispose students to anxiety disorders (Hunt & Eisenberg, 2010; Rector et al., 2016). Hunt and Eisenberg note that students from lower socioeconomic backgrounds are at higher risk for anxiety disorder and symptoms that may impact their academic success. Johnson (2020) agrees with this assessment and additionally notes that students who have disadvantaged social determinants of health (e.g., food insecurity, housing insecurity) are more likely to experience anxiety

and concomitant mental health disorders. Given the prevalence of anxiety among all students, it is critical that pre-health advisors identify initiatives to support student well-being and make meaningful connections across campus.

Major Depressive Disorder (Depression)

Major depressive disorder, more commonly referred to as depression, is a mood disorder that “causes a persistent feeling of sadness and loss of interest... affect[s] how you feel, think, and behave and can lead to a variety of emotional and physical problems” (Mayo Clinic Staff, 2018, p. 1). Depression may result in difficulties carrying out activities of daily living and can be experienced along a spectrum of emotions, from sadness to anger or emptiness. Often, depression requires specific therapeutic care from mental health practitioners. This issue is an increasingly common concern on university campuses (Çelik et al., 2019; Fang et al., 2010; Grace, 2018; Hoban, 2019; Hoying et al., 2020; Hunt & Eisenberg, 2010). The prevalence of depression is particularly high among pre-health students who are experiencing multiple stress points in their academic careers (Çelik et al., 2019; Klink et al., 2008). A recent study (Çelik et al. 2019) surveyed health science undergraduates in Turkey and found a depression prevalence rate of 22.2 percent. Fang et al. (2010) identified similarly concerning findings nearly a decade earlier wherein pre-medical students experienced greater instances of major depressive disorder (prevalence rate = 12.7%) than their peers (prevalence rate = 10.6%) according to results of the 9-item Patient Health Questionnaire (PHQ-9). The long-lasting and persistent nature of these concerns suggests that depression among pre-health students remains a poorly understood and addressed phenomenon.

This trend continues into advanced degree training. Specifically, 28% of medical students experience depression (Puthran et al. 2016), and 17% of health science students (inclusive of other health professions students) experience moderate to severe depression (Hoying et al., 2020). Additionally, Puthran et al (2016) found that help-seeking practices were low, and depression tends to present most during the earliest years of medical training. There is research that highlights mitigation efforts to improve rates of depression among pre-health students, namely access to strong systems of peer and family support and mental well-being initiatives available through institutions of higher education (Grace, 2018; Klink et al., 2008). However, there remains a critical need for advisors and administrators to determine the most effective ways to identify and support depression among all undergraduate students. While it is not the place for pre-health advisors to provide therapeutic care for students experiencing depression, they should be equipped to recognize symptoms and provide appropriate referrals. Our companion chapter, “Fostering Resilience and Well-Being Among Pre-Health Students,” provides information on gatekeeper training and other initiatives designed to train non-clinical university employees in recognizing mental health concerns and in advocating for improved student care. This remains a ripe area for additional research.

Substance Use Disorder

Substance use disorder (SUD) can be defined as a mental disorder that impacts an individual’s behavior and results in an inability to control the use of legal or illegal substances such as alcohol, medications, or illegal drugs (National Institutes on Mental Health, 2021). SUD is most prevalent among students experiencing depression and other psychological disorders (Arria et al., 2009; Skidmore et al., 2016). A systematic review (Skidmore et al. 2016) concluded that 79% of students consume alcohol and 23% of students report using illicit drugs (e.g., marijuana, opioids, etc.). Metzger et al. (2017) found that sig-

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nificant alcohol use is directly correlated to a student's ability to adequately cope with various stressors. For students who have maladaptive responses to stress (academic or otherwise), alcohol use tends to be higher. Ayala et al. (2017) find that 91.3% of medical students consumed alcohol periodically, with 33.8% drinking heavily (i.e., more than five drinks in one sitting), and 26.2% of these same students report using marijuana. There are several adverse outcomes among students who suffer from substance use disorder, including interpersonal relationship issues, cognitive impacts, poor academic performance, and college attrition (Arria et al., 2013; Ayala et al., 2017). As with identifying and supporting students experiencing depression, it is not within the purview of pre-health advisors to treat SUD. Rather, we argue that pre-health advisors should be aware of the academic implications of substance use and how the long-term effects of SUD may negatively impact their students' career trajectories. As with addressing depression, pre-health advisors should be aware of the resources on campus available to students struggling with SUD and should act as a safe referral source for those seeking help for this condition.

Suicidal Ideation

Suicidal ideation is among the most concerning psychological issues that present in students, regardless of their career aspirations. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) defined suicidal ideation as "thoughts about self-harm, with deliberate consideration or planning of possible techniques of causing one's own death" (American Psychiatric Association, 2013). Students who experience the psychopathologies discussed earlier, especially major depressive disorder and substance use disorder, have higher rates of suicidal ideation (Skidmore et al., 2016). Pre-health and health science students are at high risk for experiencing burnout, imposter syndrome, depression, and substance use disorder, therefore there is an increased risk of suicidal ideation as compared to the general undergraduate population among these students (Fang et al., 2010; Fang et al., 2012).

Very little data exists illustrating the prevalence of suicidal ideation and suicide among pre-health students. Data for the medical student population indicate rates of suicidal ideation or suicide attempts as high as 5-7% among medical trainees (Hoying et al., 2020; Laitman & Muller, 2019; Puthran et al., 2016). Considering the increased rate of suicide within both the professional and medical student population, combined with the higher rate of co-occurring mental health issues in pre-health students, one can draw the conclusion that there is also a higher rate of suicidal ideation and suicide in the pre-health population. However, the lack of data presents multiple concerns including poor transparency on suicide rates across college campuses, a poor understanding of the correlates impacting suicide among students, and thus provides little information or evidence to inform sensitive and appropriate support interventions. In short, an understanding of suicidal ideation and attempt is in dire need of additional study.

AN OVERVIEW OF STRESS

Eustress or Distress

The prefix eu- means good or well. The prefix dis- means not or none; it is a negating prefix. Eustress gives people the extra boost to excel, whether taking on a physical challenge like training for a half marathon, or an educational challenge like applying to medical school.

Eustress is the beneficial or positive form of stress. This is the type of stress that elicits an excitement-and-delight or challenge response (Cowell & Millard, 2016). With the challenge response the body is energized in anticipation of an upcoming situation that tests one's abilities. The stress hormones that get released help access mental resources to increase focus and access physical reserves to improve performance (Davis, 2018).

Many in the health professions are aware that the body views stress as a threat and reacts with a fight-flight-or-fright response. Too much stress, lasting for too long becomes chronic stress. This type of ongoing, unrelenting, distress can have a significant, detrimental impact on our health and well-being, affecting the mind, body, and spirit. This negative stress can become distress, which can lead to disease (disease). This continued distress may contribute to a variety of health problems including heart disease, high blood pressure, diabetes, obesity, cancer, mental health disorders, and an increased chance of infections (National Institutes of Health, n.d.; Russell & Lightman, 2019). How a student perceives stress—as a challenge or as a threat—greatly influences how stress affects them and their studies.

Common Terms

It is useful to start with several, preliminary definitions for the main types of stress. The three main types of stress include:

- **Acute Stress** - In medicine, stress is the body's response to physical, mental, or emotional pressure. It can be caused by normal life activities, by an illness, or a challenging event (National Institute of Mental Health, 2019). This stress is short-term, often exciting, lasting a few hours and then recedes.
- **Acute Episodic Stress** - This stress results from frequent, recurring, short-term events. Type A personalities or chronic worriers are the people who typically experience episodic stress. This recurring stress instead of being thrilling or energizing can eventually become burdensome and draining. Treating those experiencing episodic stress often involves modifying the stressful lifestyle behaviors that these people have grown accustomed to experiencing daily (American Psychological Association, 2019a; Harvard TH Chan School of Public Health, n.d.)
- **Chronic Stress** - This stress is persistent, ongoing, and unrelenting stress lasting for months to years and even for generations. This type of stress can lead to long-term physical and mental health issues that destroy bodies, minds, and lives (American Psychological Association, 2019a; Harvard TH Chan School of Public Health, n.d.).
- **Traumatic Event** - Stress due to extreme exposure(s) to a traumatic event falls into its own special diagnostic category. Traumatic events are shocking, frightening, or dangerous experiences that can affect a person both physically and emotionally. These types of experiences can result in serious injury, or the threat of serious injury, or death. (National Institute of Mental Health, 2020) Examples of traumatic events include serious accidents, life-threatening injury, acts of violence (assault, abuse, terrorist attacks, war or combat, mass shootings, sexual violation), natural disasters (earthquakes, fires, floods, hurricanes, tornadoes, or tsunamis) or other shocking, out-of-the-ordinary events. Traumatic events can also result in second-hand or secondary trauma response, e.g., in someone learning about the violent death of a family member or friend or in professionals who are repeatedly exposed to or hear about traumatic events (Centers for Disease Control

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and Prevention, n.d.; American Psychological Association, 2019a; National Institute of Mental Health, 2020).

- **Traumatic Stress** - Traumatic stress is the heightened fight-or-flight response felt after experiencing or witnessing a traumatic event. The body's intensified response is a normal reaction to an abnormal event (American Psychological Association, 2019a).
- **Acute Stress Disorder (ASD)** - For someone to be diagnosed with ASD the symptoms must occur between three days and one month after the event and must cause significant distress and impair their daily lives (American Psychiatric Association, 2020; American Psychiatric Association, 2013).
- **Post-Traumatic Stress Disorder (PTSD)** - For someone to be diagnosed with PTSD, the symptoms must last for more than a month after the event and must cause significant distress and impair their daily lives. (American Psychiatric Association, 2013; American Psychiatric Association, 2020)

Acute Stress Disorder (ASD) and Post-Traumatic Stress Disorder (PTSD) can develop in people who have experienced or witnessed a traumatic event when the stress response continues for an extended period, causing significant distress and interfering with the person's daily life (American Psychological Association, 2019b; National Institute of Mental Health, 2020). The main difference between ASD and PTSD is the length of time the affected person has been experiencing the symptoms. Both can be defined as an extreme stress response that may occur in people who have experienced or witnessed a traumatic event, or who have been threatened with sexual violence, serious injury, or death. People with ASD or PTSD have intense, disturbing, intrusive thoughts related to the experience that last long after the traumatic event. They may feel sad, fear, anger, numb, and detached from themselves and from other people. They may relive the event through flashbacks or nightmares and regularly be in a hypervigilant state of fight-or-flight (American Psychiatric Association, 2013; American Psychiatric Association, 2020). Those who have experienced a traumatic event, who are having difficulties coping with the aftermath, and experiencing traumatic stress that is not getting better over time, need to be referred to a skilled professional familiar with traumatic stress disorders for diagnosis, care, and treatment.

Impact of Stress on the Body

When we see, sense, or experience something that makes us anxious, uneasy, or scared the body reacts in a coordinated systematic fashion, with a surge of energy that enables us to fight or to flee. This coordinated response to being scared starts with perceiving a stressor through sensory input from the eye or other nerve sensors. This input is transmitted to the amygdala, the body's alarm bell, which then signals the hypothalamus. As part of the hypothalamic-pituitary-adrenal (HPA) axis, the hypothalamus in turn stimulates the release of stress hormones through the anterior pituitary and ultimately the adrenal cortex (adrenal gland), which releases the hormone adrenaline (epinephrine) and cortisol (Schupp, 2015). Among other functions, adrenaline increases blood pressure and heart and respiratory rates while cortisol increases available blood sugar and shuts down less time-intensive processes like digestion and the immune system. These stress hormones stimulate the sympathetic system, the fight-or-flight response, providing a rush of energy and priming the body for action (Alshak & Das, 2021; Godoy et al., 2018; Mayo Clinic Staff, 2021).

With persistent stress, the brain and body reach a point where they can no longer distinguish between real fears and threats requiring the full fight-or-flight response rather than just being “stressed.” If the stress/fear signals continue for long enough, the production of cortisol, the stress hormone, continues chronically. As a result, the body stays in a hypervigilant state (Schupp, 2015). Long-term exposure to cortisol, from being continuously stressed, reverses the beneficial part of the acute fight-or-flight response, and contributes to a variety of health problems. Stress impacts all body systems including the cardiovascular, respiratory, musculoskeletal, gastrointestinal, endocrine, nervous, immune, and reproductive systems (American Psychological Association, 2018). Some of these stress-related health issues include heart disease, high blood pressure, diabetes, obesity, cancer, mental health disorders, and an increased risk of infections, due to immune suppression (National Institutes of Health, n.d.; Russell & Lightman, 2019).

One way to turn down and decrease the stress response is by activating the other half of the autonomic nervous system, the parasympathetic system. This has an opposite calming effect promoting rest, digestion, restoration, and rebuilding tissues. Taking a few deep breaths or using other breathing techniques activates the parasympathetic response helping you to calm down when feeling anxious or stressed (Harvard TH Chan School of Public Health, n.d.). In our companion chapter, “Fostering Resilience and Well-Being Among Pre-Health Students,” we provide specific tools advisors can utilize to support these practices with students in advising meetings.

CONCLUSION

This chapter considers the general experiences of pre-health students with a specific focus on sources of stress and the common mental health syndromes that present in both pre-health undergraduate and graduate students studying in clinical programs. Understanding the needs and experiences of both populations of students provides pre-health advisors with a greater understanding of short-term and long-term concerns that may impact their students. In understanding these issues, advisors can be prepared to provide support and interventions to address student needs. In the companion chapter to this text, “Fostering Resilience and Well-Being Among Pre-Health Students,” strategies for fostering positive mental health among students are identified (e.g., encouraging movement, adequate nutrition, providing resources to encourage restorative sleep, and tools for mindfulness training among students, among other approaches) and specific tools (e.g., specific methods and guidance on addressing concerns with students) for pre-health advisors are provided.

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KEY TERMS AND DEFINITIONS

Anxiety: An emotional response that includes feelings of tension, worry, and which may include physical changes in the body such as elevated blood pressure, digestive trouble, difficulty sleeping, shortness of breath, etc. (American Psychological Association, 2019a).

Burnout: A psychological syndrome characterized by emotional exhaustion, feelings of cynicism, and reduction in personal accomplishment (Koutsimani et al., 2019, p. 1).

Distress: The negative form of stress. This is the type of stress that the body views as a threat and reacts with a fight-flight-or-fright response. Too much stress, lasting for too long becomes chronic stress. This type of ongoing, unrelenting, dis-stress can have a significant, detrimental impact on our health and well-being, affecting the mind, body, and spirit (National Institutes of Health, n.d.; Russell & Lightman, 2019).

Eustress: The beneficial or positive form of stress. This is the type of stress that elicits an excitement-and-delight or challenge response (Cowell & Millard, 2016). With the challenge response the body is energized in anticipation of an upcoming situation that tests one's abilities. The stress hormones that get released help access mental resources to increase focus and access physical reserves to improve performance (Davis, 2018).

Imposter Syndrome: Feelings that cause students to experience demoralization, shame, and a perception that they are less intelligent or capable than their peers which is commonly known as imposter syndrome, imposterism, or the imposter phenomenon (Houseknecht et al., 2019; Morgenstern & Beck Dallaghan, 2020).

Life Transition: The specific phenomenon of transitional stress refers to the negative emotions that present in response to changes in their lives (i.e., life transition) that people have no automatic adaptive response (Corr, 2021; Lazarus & Cohen, 1977; Sykes & Eden, 1985).

Major Depressive Disorder: More commonly referred to as depression, major depressive disorder is a mood disorder that “causes a persistent feeling of sadness and loss of interest... it affects how you feel, think, and behave and can lead to a variety of emotional and physical problems” (Mayo Clinic Staff, 2018, pp. 1). Depression may result in difficulties carrying out activities of daily living and can be experienced along a spectrum of emotions, from sadness to anger or emptiness. Often, depression requires specific therapeutic care from mental health practitioners.

Subjective Well-Being: Overall psychological well-being accepting mental health as a complete state considering positive and negative experiences, self-perceptions, and clinical diagnoses (Wang et al., 2011).


Substance Use Disorder: A mental disorder that impacts an individual's behavior and results in an inability to control the use of legal or illegal substances such as alcohol, medications, or illegal drugs (National Institutes on Mental Health, 2021).

Suicidal Ideation: The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) defined suicidal ideation as “thoughts about self-harm, with deliberate consideration or planning of possible techniques of causing one’s own death” (American Psychiatric Association, 2013).

Chapter 7

Fostering Resilience and Well-Being Among Pre-Health Students

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ABSTRACT

The well-being (health and wellness) of the pre-health student directly contributes to their short-term academic success and their long-term professional and personal aspirations. The pre-health advisor has a role to play in fostering an environment in which the pre-health student can thrive, including supporting their well-being. This chapter addresses major contributing factors: stress management and mental clarity can be accomplished in many ways, e.g., mindfulness meditation. Cognition is dependent upon immune function, which is generally supported by a diverse, plant-rich diet. Physical activity (exercise and natural movement) supports mental health and cognition and are often limited in the pre-health student as well as healthcare professionals without intentional incorporation. Restorative sleep allows for healing and repair throughout the body (including the brain) as well as memory integration; simple steps can improve sleep quality and quantity. Ultimately, the pre-health advisor should utilize cross-campus partnerships to promote a culture of well-being.

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INTRODUCTION

This chapter is the second in a two-part series, which supports the health and wellness (well-being) of the pre-health student as part of supporting long-term academic and personal success. In this chapter, we will discuss 1) the major factors that contribute to well-being in the pre-health student, and 2) the role of the pre-health advisor in fostering an environment in which the pre-health student can set themselves up for a long, successful career supported by well-being.

RESILIENCE AND WELL-BEING

One of the most effective tools for managing stress is resilience, or the ability to withstand, adapt, or recover quickly from difficult conditions (Google Docs Dictionary, n.d.; Mayo Clinic Staff, 2020). Simply, resilience is the internal drive that allows us to keep moving during stressful challenging times; it keeps us going, physically and mentally. Resilience is what prevents us from crawling into a deep, dark hole and never going out again when faced with stressful or distressing challenges (Mayo Clinic Staff, 2020). This is crucial for the pre-health student now and throughout their career, as they are at high risk for absenteeism, dissatisfaction, distress, and burnout (Brand et al., 2017; O'Connor et al., 2018; Rodrigues et al., 2018; Woo et al., 2020).

The American Psychological Association (APA) defines resilience as “the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress.” Resilience lets us adapt well to everyday challenges, stressful situations, and difficult circumstances (APA, 2012, para. 4) and protects us from anxiety and depression (Mayo Clinic Staff, 2020). Being resilient allows us to keep functioning in the face of stress and adversity and enables us to bounce back. We have all learned how to become more resilient and adjust to life’s ever-changing circumstances since the COVID-19 pandemic. Resilient factors, like reaching out to others for support and having coping strategies to respond to upsetting events, may reduce the likelihood of someone developing post-traumatic stress disorder (PTSD) in response to a traumatic event (Mayo Clinic Staff, 2020).

Well-being is defined by the Centers for Disease Control and Prevention as, “a positive outcome that is meaningful for people and for many sectors of society, because it tells us that people perceive that their lives are going well” (Centers for Disease Control and Prevention, n.d., para. 1). Well-being integrates mental health (mind) with physical health (body), resulting in a more complete approach to disease prevention and health promotion that also takes into consideration high life satisfaction, a sense of meaning or purpose, and the ability to manage stress.

Panter-Brick and Leckman have offered a different definition linking resilience with well-being, “resilience is a process to harness resources to sustain well-being” (Southwick et al., 2014, p. 4). Their definition underscores that resilience is an active process of coping with stress, challenges, and adversity; it is a skill that can be learned, not an inherent personality trait (APA, 2012). Thus, the pre-health student will need to be taught the skill of resilience; this is where the pre-health advisor comes into play.

If we can get the pre-health student to view stress and hardships as challenges instead of threats, we help them become more resilient. Increasing internal resilience can improve energy, work performance, and life satisfaction while decreasing anxiety and depression—all crucial for the success of the pre-health student (Davis, 2018). Resilience is a skill incorporating various healthy coping strategies that can be learned, practiced, and honed by the pre-health student under the mentorship of the pre-health advisor.

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While many of the factors that contribute to well-being seem like long-term goals, the earlier good habits are set, the more beneficial they will be in the long run. Since lifetime cumulative exposure is the real measure for these factors, prevention begins at birth, and pushing this off only limits our ability to promote well-being for the remainder of our lives. Further, at the heart of well-being is purpose, meaning that supporting well-being supports purpose and meaningful contributions. Thus, the pre-health advisor should foster an environment in which the pre-health student can set themselves up for a long, successful career supported by well-being. Serving as a resilience mentor is a meaningful way to do this. Throughout this chapter we identify several resources (e.g., digital apps, additional reading) that may help the pre-health advisor in serving as a resilience mentor. These resources are not formal recommendations or endorsements of particular products or companies, but rather a guide for advisors to begin their exploration of these resources.

INTRODUCING SELF-CARE EARLY IN PRE-HEALTH EDUCATION

Advisors have a unique and valuable role in providing guidance and support to pre-health students as it relates to their academic and professional lives. Although there are several topics that are often addressed during this professional relationship, one area that is of utmost importance involves advisors promoting a focus on health and wellness (well-being) including self-care as part of a student's daily success plan.

Although it is a common misconception, self-care is not about being self-indulgent or selfish. Self-care, as defined by the World Health Organization (n.d.), is “the ability of individuals, families, and communities to promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider” (para. 1). Within higher education, a focus on well-being and an ongoing practice of self-care is particularly important since students are typically under enormous pressure. Yet, higher education programs often do not include the foundation of self-care in their curricular (or even extra-curricular) instruction; although, there is strong evidence that self-care behaviors promote happier and healthier trainees (Pappas, 2021).

Eight Dimensions of Wellness

In addition to promoting happier and healthier trainees, research has demonstrated that self-care practices help in maintaining professional functioning as well as a decreased risk of burnout and exhaustion (Bamonti et al., 2014). Conceptualizing health and wellness in self-care can prove difficult, as there are so many different elements. One model is the Eight Dimensions of Wellness (Figure 1), popularized by the Substance Abuse and Mental Health Services Administration (SAMHSA), a branch of the United States Department of Health and Human Services. The limitations of this model are that it is all encompassing and often overwhelming. An entire book would need to be devoted to this model; thus, we have focused this chapter on emotional, occupational, and physical well-being.

Figure 1.



Examples of Self-Care

Several examples of self-care practices include obtaining regular sleep, healthy eating, ongoing exercise/movement, relaxation techniques, and journaling. Also imperative is for individuals to have a beneficial way of identifying and managing challenges and feeling supported. In the context of our work, pre-health students may do this by reaching out to their academic advisors for support. Other areas of self-care include identifying and honoring one's values as well as having a strong support system. Importantly, students should be made aware of, as well as encouraged to use, the resources that are available in the university setting as well as within their larger communities.

Pre-health students may experience barriers and stressors when considering or increasing their level of self-care which may include, but are not limited to:

- A lack of motivation for taking time for themselves
- A sense of guilt regarding utilizing time or money to care for themselves
- A lack of awareness for their needs
- A perceived need to put others' needs in front of their own
- A belief that self-care takes too much energy or effort

Supporting Self-Care

Suggestions for introducing and supporting self-care early in pre-health education, as well as addressing potential barriers, include encouraging small steps and gradually building upon them, incorporating self-care practices in classes and other academic settings, modeling self-care, and organizing a wellness

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committee or council consisting of advisors, students, faculty, and other administrators (Pappas, 2021). Pre-health advisors who contribute to a community that promotes self-care can demonstrate a commitment to student wellness. In this way, the advisor is instrumental to affecting institutional culture and investing in student well-being.

Holistic Approach

When individuals think about health and wellness, they often think in terms of physical health (nutrition, exercise, etc.); however, well-being constitutes so much more (Stoewen, 2017). Well-being is a holistic integration of mental, emotional, physical, and spiritual health and wellness. Advisors have an essential role in assisting students to develop a holistic approach to applying aspects of well-being, including self-care, into their lives. We discuss a number of holistic approaches to fostering well-being below and align these with the role of pre-health advisors.

Mindfulness Meditation and Focus

“Mindfulness” was first coined by Jon Kabat-Zinn, a physician known for utilizing mindfulness meditation to help patients with chronic pain and stress related disorders. His work has led research-based programs to help implement mindfulness into mainstream medicine by documenting its benefits in pain reduction, coping mechanisms, resilience, and improved disease outcomes (Kabat-Zinn, 2013).

Mindfulness and meditation are more than obtaining bliss or even reducing stress. Instead, it is about a sense of presence, balance, and connection to what is most important to you within your life—your purpose (Epstein, 2017). Additional research has revealed mindfulness utilized in education and pre-health education programs increases performance, connection, more adaptive coping strategies, and well-being in students (McConville et al., 2017). The pre-health student has many demands including high academic standards for achievement, which have been linked to mental health problems including distress, anxiety, and depression (González-Valero et al., 2019). Mindfulness can reduce the impact and demands of health care training by cultivating a heightened self-awareness around thoughts and increasing the frequency of beneficial self-care activities (Daya & Hearn, 2018; González-Valero et al., 2019). In a study of Swiss university students, mindfulness was negatively associated with depression scores and positively correlated with academic performance (Vorontsova-Wenger et al., 2021). Mindfulness for pre-health students combats fatigue, anxiety, depression, burnout, psychological distress, and imposter syndrome (Polle & Gair, 2021).

When we are more in balance, the benefits are far reaching and help us to manage stress, improve concentration, enhance emotional well-being, increase creativity, improve sleep quality, and foster the patient-provider relationship by strengthening the ability to recognize suffering in others and to be present during patient encounters (Polle & Gair, 2021). Introducing small segments of content on mindfulness practices within pre-existing courses may help students develop adaptive coping strategies (Miller et al., 2018). Further, these benefits also extend beyond their time in university, with studies showing benefits throughout the healthcare career. In fact, the benefits of mindfulness in surgical trainees and surgeons, including reduced risk of burnout, have been well documented and are slowly being adopted broadly (Galaiya et al., 2020; Lebares et al., 2020; Lin et al., 2020).

Expectations and Obstacles

A common misconception is that mindfulness is sitting still for hours with our eyes closed. This misconception limits many from trying and benefiting from these simple practices. Mindfulness is not only a formal meditation practice—it can be accessible in as little as two or three minutes a day through a variety of different modalities. Embodying mindfulness into our already existing lives with flexibility, gentleness, and a kind approach instead of a rigidity transforms discomfort into acceptance and ease. Another common barrier to mindfulness is time, a sense that mindful practice adds to an already busy schedule when in reality such a practice takes little time and can be integrated into our current schedules. Some students state, “but my mind doesn’t calm down;” such feelings of restlessness are common and may be an obstacle at the introduction of a mindfulness practice. With time and practice, restlessness quickly subsides. Finally, some students may feel as if no progress is being made during mindfulness practice; however, the benefits are nurtured over time and practice can be extremely productive. Frustration can lead to quitting the practice, especially in the achievement-based pre-health education environment, so this is important to note and explain at the onset of advising students. The potential barriers must be clearly explained along with strategies to overcome these barriers. Ultimately, the focus of pre-health students must not be on achievement or gain but in the practice itself, which is self-care.

Implementation

When mindfulness strategies are implemented, students often develop a sense of balance and build resilience by learning to accept and welcome stress, pain, frustration, and disappointment (Kabat-Zinn, 2013). Mindfulness practice utilizes not “What works?” but instead “What works for whom and at what moment?” as a guide. This is a flexible and iterative process that each student must fit to their preferences and lifestyle—there is no one right way to incorporate mindfulness into their lives.

Ruminating thoughts and mind racing increases cortisol fluctuations within the body directly contributing to feelings of stress and burnout—all too common in the pre-health student. Mindfulness practices help counter the impact of disturbing thoughts by reducing the reactivity of the sympathetic nervous system (SNS), or the fight or flight response, by focusing the mind repeatedly on a physical sensation or single thought. The following practices can each be done with ease throughout the day reducing frequency and intensity of disconcerting thoughts or rumination.

Mantras

Mantra meditation is a practice originally developed from Ayurvedic and Yogic traditions through eastern medicine and philosophy. Mantras use sound waves, energy, and individual words to help focus attention, often referred to as intentions or positive affirmations. This practice typically involves continually repeating a chosen word, phrase, or set of syllables (silently or aloud) as one disregards their physical surroundings or distractions (moving the focus within) (Lynch et al., 2018). One randomized controlled study (RCT) of a mindfulness intervention reported a reduction in anxiety and burnout in health care professionals and settings (Bormann et al., 2006). Teaching the pre-health student to practice mindfulness, forming the habit now, will contribute to their success immediately and throughout their career.

Single Tasking

Multi-tasking has become normalized in academia, particularly among students who are balancing personal lives, work, and the demands of a competitive course of study. Business and distractibility are common for those who are new to mindfulness practice. Kabat-Zinn (2013) notes that a beginner's mind reflects a hummingbird flying from one flower to the next. This state of business, or distractibility, is a mental habit where we are thinking about the next task as we are working on the current one. Mental distractibility can increase perceived stress and negative emotions in students, making productivity challenging when managing coursework (Kok et al., 2013). A mindfulness practice demonstrates improved focus and an increased sense of positive emotions (Miller et al., 2018), which may help reduce feelings of being overwhelmed, worry about forgetting details, and can help create confidence in students managing multiple responsibilities and roles. Learning to recognize thoughts, noticing urges to distract oneself, and bringing attention to the present moment is a simple practice that can be utilized in just seconds—it can be as simple as a deep breath in and a deep breath out, focusing on the breath. This is an excellent pre-test tool for the pre-health student to have in their toolbox.

Connection and Community

Learning to connect with yourself in a compassionate way through a mindfulness practice can open opportunities to deepen the relationships around us (Thomas et al., 2007). When beginning a mindfulness practice, we are often most concerned about ourselves. *I feel stressed. My mind is chaotic. My body is restless. I need to calm down.* As we explore and honor our personal needs by cultivated awareness, our internal experience expands to a larger space of connection. Having diverse and rewarding social relationships predicts better physical health, resilience, and greater longevity (Kok et al., 2013). When we take the time for deep, mindful listening without judgement, loved ones, friends, students, mentors, patients, etc. feel genuinely cared for. As we expand our circle of care, we create an environment of loving-kindness wherein we are able to expand feelings of compassion to those around us. This not only benefits our personal lives but can enhance a student's sense of empathy and compassion towards others and improve their skills with and in stressful work situations (Halpern, 2003; Thomas et al., 2007). This additional benefit of a mindfulness practice supports a student's purpose and promotes whole health (Purcell et al., 2021).

Suggestions for the Pre-Health Student

1. Enroll in a class that intrigues you. Your classmates will likely already share a common interest making conversation easy while boosting your brain.
2. Join a book club, dining out club, hiking club. Consider contacting the group leader in advance to make the entry into the group easier.
3. Reach out – a lot. If you're new to a situation or environment, keep reaching out and exploring with new people, faculty, classmates, or others who can join your community.

NUTRITION AND IMMUNITY

The benefits of a healthy immune system are wide and varied. In terms of the pre-health student, supporting the immune system may avoid missed days of training, which are often time sensitive and difficult to truly makeup. Further, immune function supports neuronal function and cognition through the microglia, the only immune cells in residence in the brain; in fact, dysfunction of the microglia has been linked to impaired learning, memory, and neurogenesis (Augusto-Oliveira et al., 2019; Tay et al., 2017).

While it is popular to talk about “boosting” your immune system, this is a misnomer. You do not want to nonspecifically “boost” your immune system. Rather, there needs to be a careful balance and support of the symphony that is immune surveillance (homeostasis) and immune response (activation). For instance, autoimmunity (chronic activation) is not a healthy state and would be considered a “boosted” immune state. What you *can* do is *support* your immune system with a healthy diet (and appropriate supplements).

One of the foundations for a healthy immune system is maintaining a healthy weight. Overweight and obesity are typically inflammatory states (chronic activation of the immune system). Despite the immune system being highly activated, it is often ineffective when called on for true need (e.g., to defend against infection). This chronic inflammation is also involved in the development of other non-communicable chronic diseases such as type II diabetes and cardiovascular disease. Diets high in fiber and plants have been shown to reduce the risk of overweight or obesity in numerous settings with strong mechanisms including links to the gut microbiome (Barber et al., 2020; Jovanovski et al., 2020; Makki et al., 2018; Thompson et al., 2017). While the global obesity epidemic is well known, the burden of obesity and being overweight in the pre-health student is less familiar. In fact, many assume that the pre-health student is more educated and thus proactive about their diet and nutrition; however, this has not been shown in the literature (AlJohani et al., 2019). In fact, poor nutrition has been shown to be prevalent in the pre-health student population. In a study of health sciences students in the Middle East, researchers found an escalating rate of pre-obesity and obesity (Asghar et al., 2019) coupled with fast food intake, late night eating, and meal skipping (AlJohani et al., 2019). A study in nursing students found high rates of unhealthy lifestyle behaviors including poor diet and insufficient physical activity, which lead to overweight and obesity (Gormley & Melby, 2020). Moreover, healthcare workers are at increased risk of obesity compared to other occupations (Luckhaupt et al., 2014). Health behavior change in the undergraduate student population shows promise and early intervention and adoption of health habits leads to the best long-term outcomes and lowest financial burden (Olatona et al. 2018; Wright et al. 2020). Beyond the health benefits, weight bias has been documented in the education system and has been shown to hamper the education as well as the health of students (Nutter et al., 2019). Further, most health professionals report feeling unprepared to manage diet and nutrition in general (Frame, 2021). The below recommendations may be useful for the pre-health advisor to support the general health and success of their students.

Getting back to supporting the immune system more broadly in the pre-health student, simple, digestible guidance is crucial for success. The key is eating a diverse diet rich in vegetables (first and foremost – star actors) and fruits (supporting actors) to ensure the body has all the micronutrients (vitamins and minerals) it needs to support immune function. A way to conceptualize this is to “eat the rainbow,” meaning eat as many colors as possible including white such as onions or cabbage. The colors in plants are signals of the micronutrients they contain (e.g., orange plants such as carrots and squash contain beta-carotene, a precursor of vitamin A) as well as chemoprotective phytonutrients. While all

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micronutrients are crucial for health and wellness (well-being), normal immune function is particularly dependent upon vitamins A, B6, B12, C, D, E, selenium, and zinc (Iddir et al., 2020).

Gut Health, Immunity, and Nutrition

The majority of your immune system is in your gut where it interacts with your gut microbiome (the bacteria, fungi, archaea, viruses that make up your gut microbiota). The gut is where microorganisms and the immune system meet (Pickard et al., 2017; Shi et al., 2017)—both “good” (the gut microbiota a.k.a. commensals) and “bad” (pathogens). These all interact with diet and nutrition to promote health (homeostasis) or disease (dysbiosis, inflammation, etc.) (Frame et al., 2020; Pickard et al., 2017; Shi et al., 2017). One of the major components to gut and gut microbiome health is fiber (Frame et al., 2020). The recommended daily fiber intake is 14 g/1000 calories or approximately 25 g for the average woman and 38 g for the average man. However, intake is only 17 g on average with socioeconomically disadvantaged individuals consuming less, contributing to health disparities, especially in Americans of African or Latinx descent. Eating a diverse diet rich in vegetables and fruits ensures enough fiber intake while also supporting micronutrient intake—ultimately supporting immune health, cognition, learning, and memory.

Take Home Messages for the Pre-Health Student

1. Supporting the immune system through a healthy diet will:
 - a. Reduce missed days of training
 - b. Support cognition, learning, and memory
2. Eating a diet rich in plants (plant based) and high in fiber can help you maintain a healthy weight and support your immune system.
3. A diverse diet rich in vegetables (star actors) and fruits (supporting actors) ensures your body has all the vitamins and minerals it needs to support immune function. Eat the rainbow!
4. Strict vegetarians and vegans need to take vitamin B6 and B12 supplements and/or eat nutritional yeast on a regular basis.
5. A daily vitamin C supplement during cold season may shorten the duration of colds and thus reduce the amount of instructional time students miss from illness.
6. Most people need a vitamin D supplement as they do not spend enough time outside with skin exposed to the sun (11 am to 3 pm). Minimum supplementation should be the current RDA (15 ug or 600 IU), which can be adjusted to optimize blood concentration (40-60 ng/mL) during vitamin D winter—January to March.
7. Nuts and seeds are an important source of vitamin E and trace minerals, especially in strict vegetarian and vegan diets. When possible, incorporating these, especially Brazil nuts, into your diet will support immune health.

MOVEMENT AND THE BODY COGNITIVE

Movement is synonymous with life. It infers vitality, represents a state of health, and promotes physical and psychological well-being that persists throughout the lifespan. Indeed, our bodies are designed to

move with regularity and consistency, the benefits of which are vast. However, movement may be limited in the pre-health student with long classes and labs, sedentary study and assignments, and the reduction in movement throughout our society including limited foot transportation.

Movement is crucial for biological, psychological, and cognitive processes (Fernandes et al., 2017). Specifically, exercise is an evidence-based treatment that can improve learning, memory, attention, mood, and several aspects of physical health—all crucial for the success of the pre-health student. According to John Ratey, author of *Spark*, at his 2012 TedTalk, “going for a run is like taking a little bit of Prozac and little bit of Ritalin” (2012). Movement can lift our mood, optimize attention, and improve memory. However, an abundance of research reveals that the opposite is also true; even short-term reductions in physical activity can prove quite deleterious (Bowden Davies et al., 2019). We do not typically associate professions requiring substantial sitting time as hazardous (Straker et al., 2014). Nonetheless, prolonged periods of sitting, even in individuals who meet physical activity guidelines, are a major contributing factor to many chronic disease states and is correlated with obesity, cardiovascular disease, diabetes, cancer (Straker et al., 2014; Chandrasekaran et al., 2021), as well as mental health (Chandrasekaran et al., 2021). Such implications warrant an important distinction at this juncture, that is, an individual can meet physical activity guidelines while *still* having a sedentary lifestyle (Ekblom et al., 2019). As such, professions involving prolonged sitting are now considered hazardous in this regard (Straker et al., 2014). This is likely the case in many pre-health students. What’s more, prolonged sitting is associated with deleterious effects on cognitive processes important to academic and work performance, including poor executive function, memory, attention, and visuospatial skills (Chandrasekaran et al., 2021). Therefore, it is the responsibility of the pre-health advisor to empower their mentees to reduce sedentarism and support their success, now and in the future.

Authorities such as the World Health Organization (WHO) and American College of Sports Medicine (ACSM) generally concur in their recommendations of 150 minutes of moderate-intensity or 60-75 minutes of vigorous intensity exercise per week for healthy adults (Dwyer et al., 2020; Garber et al., 2011). This can seem daunting in the face of student responsibilities and professional practice. Despite the remarkable advances in healthcare, the rigorous academic and professional demands can at times seem to *require* sedentary behavior for success. So how does one realistically navigate the challenges of academia and demands of the healthcare profession while also remaining physically active? Furthermore, real-world strategies will be reviewed to implement regular movement into the often inordinately busy schedules of healthcare students and providers.

Movement and the Body

The body is an ecosystem unto itself, with all parts communicating and working together to maintain homeostasis, or balance, within and between systems. It follows then that the mind, brain, and body are inextricably connected. The nature of these multidirectional relationships is such that a positive or negative effect in one entity will ultimately have an effect in its counterparts to varying degrees. To this regard, the physiological consequences of prolonged sitting affect various bodily systems, including cognition. Fortunately, these adverse effects can be mitigated by physical activity. Evidence demonstrates that both acute (single) and chronic (multiple) bouts of exercise result in increased cognitive performance and prevention of cognitive decline and other neurological disorders (Herold et al., 2018).

Exercise should be considered a polypill, or a treatment that can address multiple issues and provide varied health benefits (Rebelo-Marques et al., 2018). Its positive effects can be seen in just about every

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system in the body, even down to the genome (Rebello-Marques et al., 2018). Moreover, the benefits conveyed to the body, (i.e., the immune system, metabolism, blood flow, blood pressure) are mirrored in the brain (Dwyer et al., 2020).

Conversely, prolonged sitting negatively affects metabolism centrally, in the brain, and peripherally, in the body. Inactivity essentially has the opposite effects of altering metabolism and blood flow, which, aside from obesity, can lead to a plethora of physical and mental disease states. Apropos to learning, physical inactivity is associated with reduced cognitive function and performance (Herold et al., 2018). Herein lies the importance of breaking up long periods of sitting with short bouts of activity, not only for optimal achievement in school and work, but also for overall health.

Movement and the Brain

The physiological mechanisms that underlie the positive effects of physical activity on cognition are multifactorial. As noted previously, physical activity can promote attention, memory, and learning. It does so by fostering a cellular and molecular environment that promotes long-term potentiation (LTP), the neural equivalent of learning, to enhance higher-order systems of attention, learning, and memory (Ratey & Loehr, 2011). One avenue with which physical activity accomplishes this is via enhancement of executive functions. Executive functions entail higher order cognitive processes that play a significant role in everyday function, as well as academic achievement (Baggetta & Alexander, 2016) and work productivity (Chandrasekaran et al., 2021). Executive functions include working memory, inhibitory control, and cognitive flexibility, all of which create the foundation for reasoning, focus, problem solving, and planning (Diamond & Ling, 2016). In general, executive functions are enhanced via the aforementioned exercise-induced neurogenesis, synaptogenesis, angiogenesis, increased brain metabolism, and increased catecholamine neurotransmission (Egger et al., 2019). Physical activity also serves to increase cognitive reserve, one's resistance to neurodegeneration, thereby decreasing the risk for cognitive decline later in life (Herold et al., 2018).

Benefits of physical activity span a large spectrum from very short bouts of gentle Tai chi and yoga, all the way to high intensity exercise. An interesting outlier to note is dancing. Dancing is not only physically engaging, but it demands a higher level of coordinative cognitive-physical abilities, which increase gray matter in the hippocampus and frontal cortex (Herold et al., 2018). In addition to lower risk of neurodegenerative disorders such as dementia and Alzheimer's disease, dancing has been shown to be more efficacious in fall prevention and better improvements in cognitive and physical functions in persons with Parkinson's disease (Herold et al., 2018). This in part underscores the vast array of benefits from many different types of movement, from gentle leisure to vigorous. Plus, the social interaction will also improve the well-being of the pre-health student, further supporting their academic and career goals.

Movement and the Mind

A little bit of stress is an inherent construct of learning. Too much, however, can impair learning and memory. It will come to no surprise to any student that emotional states can influence cognitive performance (Mandolesi et al., 2018) and therefore academic performance. The stress of student life and as a health care provider can sometimes take a toll on one's physical and mental health. For some, the deep devotion of caring for others can come at the expense of taking care of oneself, particularly when it comes to lifestyle factors such as diet and exercise. Moreover, the sedentary lifestyle often associated

with academic life can have a negative impact on mental health (Herold et al., 2018). Finding ways to balance self-care is critical for success. Physical activity is a useful strategy and a “low-hanging fruit” in terms of self-care practice. It can be incorporated in short intervals and is an inexpensive, if not free, strategy to improve mood and overall well-being. Being physically active can enhance learning, memory, and provide resistance against stress-related disorders (Lloyd et al., 2017).

Chronic stress can play a major role in just about any psychological disorder, including attention deficit hyperactivity disorder (ADHD), anxiety disorders, and depression, which can further inhibit learning. Fortunately, regular exercise has been shown to increase psychological well-being, and reduce depressive symptoms, mood disturbances (Tozzi et al., 2016), and anxiety symptoms (Alfini et al., 2019). In fact, exercise is one of the most effective treatments to reduce depression (Fernandes et al., 2017). The literature also provides promising evidence of exercise as a promising adjunct or alternative treatment for the symptoms of ADHD, which make learning even more difficult for some students (Den Heijer et al., 2015; Tozzi et al., 2016). Therefore, pre-health students suffering from depression, anxiety, and/or ADHD are even more in need of support from their advisor to increase physical activity.

Movement Strategies for Success

Now that we’ve seen how we can utilize our bodies to improve our cognitive faculties, how can we implement this into our busy day-to-day lives? This question is particularly important with the COVID-19 pandemic, which has created even more sedentary behavior for many. The short answer—in *any* and *every* way you can! Research supports the notion that small changes add up. Studies show that even 10 minutes of light physical activity can improve memory and cognitive performance (Suwabe et al., 2018). While traditional fitness centers and gyms may be an option, home-based exercise and associated platforms are also readily available. These include YouTube, exercise apps, and even live conference fitness classes (Dwyer et al., 2020).

Workplace interventions that increase physical activity can promote physical, cognitive, and mental health (Ratey & Loehr, 2011). But this does not need to be confined to the classroom. This can be at home, waiting in line at the grocery store, looking through the stacks at the library, even sitting at a desk. Prolonged sitting has been identified as a public health risk (Muallem et al., 2018). Interventions to break up prolonged sitting, such as frequent standing and low to moderate intensity exercises have been shown to improve cognitive and work performance (Chandrasekaran et al., 2021).

With a little bit of creativity, finding opportunities to move our bodies can be easily implemented, and even fun. The following are but a few examples to provide to the pre-health student.

- Take frequent breaks from the computer to stand
- When writing a paper, stand after each page you complete
- Have mini play sessions with a pet, friend, or child;
- Use the restroom on a different floor (to which you take the stairs, if possible, even if only for a floor or two)
- Dance while brushing your teeth, getting dressed, and/or cooking
- Walk during lunchtime (let’s be honest – most of us eat during class and between patients anyway)
- Stretch while you wait for the microwave to finish heating your food
- Make a pact to stand every time you write a text or finish a chart note
- Pump your calves when stuck at a desk during lectures

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All these activities stimulate blood flow to your body and your brain to enhance your learning and cognition. Finally, as future health care providers, it is important to remember exercise as a prescription. The enormous benefits of physical activity must be conveyed to patients of all ages and ailments. Physical activity can be tailored and adapted to individual needs and preferences. For ourselves and our patients, it is imperative to “stand up, sit less, move more, move often” (Dunstan et al., 2011, p. 418).

SLEEP FOR WELL-BEING AND RESILIENCY

Restorative sleep is sleep that allows the body and mind to rest and repair. This prepares the individual for growth, even beyond childhood, and promotes health and wellness (well-being). Insufficient or poor-quality sleep has wide ranging effects on the physiology of the human body including disruption of hormonal regulation (Cauter et al., 2007; Hanson & Huecker, 2021; Lateef & Akintubosun, 2020; Leproult & Cauter, 2010) and poor mental and physical performance (Brownlow et al., 2020; Charest & Grandner, 2020; Telzer et al., 2013). Quality sleep is crucial for several cognitive areas (e.g., the transfer of memories from short to long-term storage and attention span) (Mander et al., 2017) and has been shown to affect undergraduate academic performance (Prichard, 2020). Interestingly, many do not recognize the cognitive impairment from sleep deprivation in themselves (van Dongen et al., 2003); therefore, an advisor or other member of their support system may be required for such recognition. The pre-health advisor may recognize poor cognition due to acute sleep deprivation and intervene, or they can tout the importance of sleep and sleep hygiene as prevention.

Getting seven to nine hours (seven to 10 hours in teenagers) of restorative sleep each night promotes resiliency and well-being (Hirshkowitz et al., 2015; Prakash et al., 2020). Despite the multitude of benefits from restorative sleep, the average night’s sleep has decreased in length and quality over recent decades (Institute of Medicine, 2006; LeBourgeois et al., 2017;; Meurling et al., 2019; Pot, 2018; Scullin & Bliwise, 2015). Sleep is something we can control to support our health and wellness—a modifiable risk factor. Moreover, sleep quality has been linked to social capital in undergraduate students (Prichard, 2020). Therefore, promotion of restorative sleep in this population is an act of social and health equity and may mitigate some effects of disparities.

Designing a Sleep Routine

1. **Enjoy the daylight to reset your circadian clock.** Ideally before 10 am (and without sunglasses). Maybe this is too early for some students, so the pre-health advisor will need to explain its importance: “This will reset your clock for the day and stop you from slowly getting off time. Your circadian clock needs periodic maintenance just like an old clock that needs regular winding.” You can also suggest the use of a light designed to mimic bright daytime sunlight, which has been shown to assist with Seasonal Affective Disorder (Sanassi, 2014; Tuunainen et al., 2004). Opening the curtains and getting as much natural light inside as possible is also helpful (Altena et al., 2020).
2. **Avoid bright light, especially blue light like that from the screens of phones and computers, at night.** Here is a major risk factor for the pre-health student. While blue light blocking glasses are being marketed due to this understanding, we are only beginning to have the evidence to support their use in general (Esaki et al., 2020; Janků et al., 2019; Lawrenson et al., 2017; Shechter et al.,

- 2018) and for improving cognitive ability through restorative sleep in specific (Zimmerman et al., 2019).
3. **Avoid stimulating activities, especially with screen time, before bed.** This is most important one hour before bed, so suggesting a last check-in with their phone or laptop far enough away from bedtime can be an important part of good sleep hygiene. Exercising, a stimulating activity, should be avoided 1.5-2 hours prior to bed with some benefits on sleep from exercise in general and potentially as close to bedtime as 90 minutes according to one small study in young healthy males (Vincent et al., 2020).
 4. **Set a regular sleep schedule.** Regular wake and sleep times support the circadian clock and rhythms, promoting restorative sleep (Dijk & Czeisler, 1995; Dijk & Lockley, 2002). There are now apps to support this including setting sleep goals for bedtime, wake time, total sleep, etc. It is important to also include time to fall asleep, which many apps actively include (Werner-Seidler et al., 2019). Having an app handy to recommend to the pre-health student is advisable.
 5. **Have a winddown routine.** This routine could include listening to relaxing music, reading a book (not a thriller), taking a bath, meditation and breathing practices (Brand et al., 2012; Means et al., 2000). Mindful or meditative movement has been shown to improve self-reported sleep quality in college students (Caldwell et al., 2011). The winddown routine allows you to stop working, studying, and stressing, which should be avoided at least one hour before bedtime (Hall et al., 2004). To relieve the mind of such worries, pre-health advisors can suggest that their students make lists or journal, which could be incorporated into a winddown routine.
 6. **Limit caffeine to the morning.** The half-life of caffeine is about 6 hours on average (Balogh et al., 1992; Somani & Gupta, 1988; Statland & Demas, 1980). One study found that 400 mg of caffeine (roughly 4 8-oz servings of coffee) within 6 hours of bedtime deteriorated sleep quality in 12 healthy sleepers (Drake et al., 2013).

PARTNERING ACROSS CAMPUS TO SUPPORT PRE-HEALTH STUDENT WELL-BEING

There are many effective strategies that universities can employ to meet the complex mental health needs of undergraduate students broadly. In this section, we highlight three approaches that have shown positive impacts on student well-being: partnering with campus health centers, providing gatekeeper training to all members of the community, and utilizing digital mental health apps to meet students' needs virtually. We also consider barriers and facilitators to each of these strategies.

Partnering With Campus Health Centers

Advisors can work with campus health centers (CHC) and their clinicians to promote services available to students on-campus and to advocate for the importance of seeking support for mental health concerns (Canel & Anderson, 2001; Fletcher et al., 2007; Fullerton, 2008). Given the specific interests of pre-health students, CHCs can work with pre-health advisors to explain their services and benefits in a way that speaks to the priorities of these students. For example, they may discuss the importance of mental health management on academic outcomes. Advisors should also recognize that existing information about CHCs and their services are not always particularly clear to students. Perrault (2018) reviewed

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the websites of CHCs and found they place significant emphasis on the medical expertise and academic background of clinicians, but do not share information on the positive outcomes associated with their work. Pre-health advisors, and all campus faculty and staff, have an obligation to explain the relationship that exists between student well-being and successful academic outcomes (Corr, 2021).

One barrier to CHC utilization seems to be correlated to awareness of resources and their affordability for students (Fletcher et al., 2007). Researchers suggest that CHC staff should be aware of external elements that impact student well-being and help seeking tendencies, including the impact of the campus climate (e.g., stigma related to help-seeking) and work with other campus leaders to support students (Canal & Anderson, 2001; Fullerton, 2008; Mowbray et al., 2006; Nash et al., 2017). Ricks et al. (2010) posit a four-step model of holistic health care that can support the well-being of students in universities:

1. address the external and internal campus environment
2. assess the individual needs of students
3. develop a plan of care and ensure proper maintenance of this plan
4. follow-up with students to ensure proper resolution of their health concerns.

Ultimately, incorporating these changes will directly improve student outcomes. Partnering with CHCs may positively impact the perceptions surrounding mental health care and normalize seeking help for emotional needs (Corr, 2021).

Providing Therapeutic Mental Health Care On-Campus

Providing access to therapeutic care on-campus, specifically through mental health counseling, is critical to ensuring long-term student well-being. Of those students who access CHC's, the data shows overwhelmingly positive results. Specifically, 90% of students who had received mental health counseling would pursue additional future counseling (Oswalt et al. 2019), and Vescovelli et al. (2017) found that all students in their study expressed improved feelings of well-being and desire for continued treatment. Essentially, undergraduate students were more likely to seek professional mental health care if they were already introduced to these services on-campus.

Unfortunately, not all universities are able to provide robust mental health counseling to students presenting with complex mental health conditions. In fact, Prince (2015) found that some counseling centers require students to manually set appointments each week rather than schedule on-going counseling, students are unable to see clinics unless they are experiencing acute crisis, and others have clinicians regularly taking on patient overloads. Other research supports this concern and suggests that counseling centers are not as well-resourced as they should be to ensure student health (Cohen et al., 2020). Importantly, research also shows that white students and students who identify as female are more likely to seek mental health counseling than students of color (Nash et al., 2017; Oswalt et al., 2019; Yorgason et al., 2008), which suggests the importance of destigmatizing help-seeking practices and identifying ways to provide sensitive care to students of all identities and with varying mental health concerns (Mowbray et al. 2006; Vescovelli et al., 2017).

Provide Gatekeeper Training to Campus Community

While providing clear information about CHCs and the importance of seeking care, it is similarly important to foster a culture of support among all members of the campus community. Campuses should strive to embrace holistic student care and consider alternative methods for supporting mental health on campus. Lipson et al. (2014) discuss the effectiveness of gatekeeper training (GKT) at universities. GKT is a process in which individuals who have frequent interaction with students are trained to recognize mental health crises in students, intervene where appropriate, and connect students in distress to health care providers, including campus counseling. GKT specifically trains individuals who do not have specific clinical training and is designed to train the lay person (i.e., staff, faculty, and student leaders) to support well-being across campus (Lipson et al., 2014; Sander, 2013). Studies find that GKT can be effective at identifying and supporting students in emotional distress or crisis. Pre-health advisors should consider identifying and pursuing GKT programs to help them in identifying when students may need supportive conversations or possibly additional referrals to specific care teams.

One barrier to GKT seems to be its impact on effecting change in terms of help-seeking behaviors. GKT is effective in teaching people on campus how to identify emotional distress, but it does not necessarily impact the likelihood by which at-risk students pursue counselling. Many researchers argue that institutions should teach all people on campus about available mental health resources, discuss the importance of self-care, and clearly explain the benefits of seeking formal support. These researchers argue that community-based interventions can be invaluable in ensuring student safety on campus (Field, 2016; Turnage, 2017).

The Role of Digital Apps

There are many emerging opportunities to provide therapeutic mental health support to students outside the physical bounds of the campus with digital apps. Montagni et al. (2018) found over 51% of the students surveyed reported using the internet to seek information on stress, anxiety, or depression and approximately 35% of students reported using a digital app to track their health, primarily nutrition and physical activity. Ponzo et al. (2020) explored the impact that a mobile app along with a wearable device through BioBase, technology which takes advantage of biofeedback, had on student stress and well-being. They found the intervention group, wearing the biofeedback device, reported significantly reduced anxiety and an improved perception of well-being. Similar research found positive feedback from students using other mental health and well-being apps (Ahuvia et al., 2021; Moffitt-Carney & Duncan, 2021; Yunusova et al., 2021) and interest in using nontraditional therapeutic methods of getting care (Johnson & Kalkbrenner, 2017).

One barrier for the use of digital health apps is related to digital overload, or the “information burden from technological devices,” that may cause students in distress to ignore their phones and disengage from using services that do not meet in person (Smith et al., 2021, p. 1). For digital apps to be truly effective, they should be developed in partnership with clinicians, user experience specialists, and potential end-users to ensure that they are truly therapeutic in nature, user friendly (Cohen et al., 2020; Hill et al., 2017), and, ideally, subjected to rigorous randomized controlled trials to validate their efficacy (Bakker et al., 2016).

CONCLUSION

In the accompanying chapter we discuss why it is imperative for administrators and advisors to understand the unique well-being challenges of pre-health students. In this chapter, we dive into the details of how to do that and what factors are crucial. We highlight the benefits of movement, nutrition, sleep, and mindfulness on well-being, specifically with respect to cognition and academic performance. All pre-health students have the similar goal of moving on to an advanced degree and/or credential. If advisors, administrators, and faculty help students make the connection between well-being, academic success, and their future careers, then we can all help them advance towards their career goals and help them maintain their well-being in the process. That is a recipe for a meaningful career and well-lived life.

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APPENDIX: ADDITIONAL READING AND RESOURCES

Mindfulness and Meditation

1. DailyOm – Mantras - Sliding scale cost from \$15-\$50.
 - a. Healing Mantras for Anxiety and Depression - <https://www.dailyom.com/cgi-bin/display/articledisplay.cgi?aid=65531>
 - b. Attract Happiness and Success with Mantras - <https://www.dailyom.com/cgi-bin/courses/courseoverview.cgi?cid=503>
2. ThinkUp App – Positive Affirmations – Free
3. Shine App – Mantras, inspirational quotes, and daily texts – Free

Single Tasking

1. Don't Have Time to Meditate? Try Micro-Dosing Mindfulness (Here's How) - <https://www.natekl-emp.com/blog/Don't-Have-Time-to-Meditate%3F-Try-Micro-Dosing-Mindfulness>
2. How to Notice, Shift, and Rewire Your Brain - <https://www.mindful.org/notice-shift-rewire-brain/>
3. Getting Things Done (GTD): Systematize the clutter in your brain and get things done. - <https://todoist.com/productivity-methods/getting-things-done>

Apps to Track and Limit Phone Time

1. Social Fever App – FREE
2. OffTime App – FREE
3. QualityTime App - FREE

Mental Health Management

1. Mental Health America - <https://www.mhanational.org/connect-others>
2. Chopra - <https://chopra.com/articles/10-ways-to-deepen-your-connections-with-others>
3. HeadSpace - <https://headspace.org.au/young-people/connecting-with-others-for-a-healthy-headspace/>

Nutrition

Linus Pauling Institute's Micronutrient Information Center: <https://lpi.oregonstate.edu/mic/>

Restorative Sleep

Trouble sleeping often arises during periods of stress and unease. The COVID-19 Pandemic brought the global population into just such a time. In response, the European Cognitive Behavioral Therapy Insomnia (CBT-I) Academy released the following tips, which encompass the tips above with a slightly different approach that may help to guide the pre-health student during difficult times (Altena et al., 2020):

1. Try to keep a regular night-time and wake-up time schedule: always get up at more or less the same time, bring some structure to the day, in particular for children.
2. Schedule brief (e.g., 15 min) times during the day to stress and reflect upon the situation: write thoughts down, talk about stress, etc. Try to restrict your thinking about these things to specific times to reduce the chance that this stress interferes with night-time sleep.
3. If possible, use your bed only for sleep and sex, and for no other activity; this is best achieved by only going to bed when you normally feel sleepy.
4. Use social media to share feelings of stress and anxiety with family and friends, but also to share distracting positive information, e.g., with humorous content, possibly unrelated to the virus outbreak. However, do not take devices and tablets into the bedroom; switch them off before going to bed to reduce sleep disruption due to light exposure, notifications, and the need to respond to requests and posts.
5. Find helpful distractions, keep busy with those activities you are familiar with and enjoy doing.
6. If more time is available and means allow it: make your home and in particular your bedroom a more comfortable, quiet, dark and cool environment.
7. Exercise regularly, preferably in daylight.
8. Try to get natural daylight during the day, particularly in the morning, and if not possible, have your home brightly lit in the daytime by opening curtains and blinds, or having lights on; try to have dim light during the evening, with it even darker at night.
9. Choose familiar and relaxing activities before bedtime: e.g., reading a book, yoga, etc.
10. If you are less active during the day than normal, also eat less at set times, and at the latest 2 hr before desired sleep onset, to prevent sleep disruption.

See also the Sleep Foundation page, A Study Guide To Getting Sleep During Final Exams: <https://www.sleepfoundation.org/school-and-sleep/final-exams-and-sleep>.

Section 2

Supporting Professional Development of Pre-Health Advisors

Chapter 8

Mentorship of Pre-Health Professional Students

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ABSTRACT

Mentoring is essential to professional development and socialization in many fields, but this relationship is critical to health professions practitioners. These professionals come to their respective disciplines with the requisite learning from their educational programs, but they will also benefit from the guidance of a mentor. Mentoring relationships allow mentees to move their practice along the continuum from novice to expert. This translates to safer, more coordinated care at the bedside and a more holistically developed practitioner. This chapter examines types of mentoring relationships and how professionals can decide which best meets their needs and goals. Review of the characteristics of effective mentors and mentees is an important element of this chapter, as it is crucial for those seeking these roles to know their responsibilities. Discussion of how mentoring diverse groups of health professions students will help to reduce disparities in healthcare is an important focus of this chapter.

INTRODUCTION

For some students who want to work in the health professions, the path to college or their future career is easy- they arrive to their post high school education knowing exactly what it is they want to do and they forge their path forward to achieve their certificate or degree. For others though, the path is not quite that simple and they consider many different options before they find the one that is the right fit for them. Both of these types of students need the mentoring and guidance of their academic advisor. For the first group, it may be enough to go over study strategies, prerequisites, and course alignment. These students know what they want and just need someone to explain to them how to sequence things to get to graduation in the quickest and most efficient way. For the students who are not quite sure of their path,

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the advisor will need to connect them to the specific resources to help them to make the decision that is best suited for their strengths and abilities. Shadowing, volunteering, and research internships are all things that someone considering a health profession can do in order to see if the profession that they are considering is the right one for them. Networking or connecting to opportunities within their educational setting are important. The advisor will be this student's first professional mentor.

There are certain skills, traits, and competencies that will aid a pre-health or health professions student in being successful in completing their program of study. While it is not the job of the advisor to instill or impart these things to the students they advise, they should be asking questions to ensure the student possesses these key traits to ensure their success. Mentorship in pre-health professional education and undergraduate/graduate level education offers an opportunity for mentors to foster enhanced academic performance among mentees, promote collaboration, and encourage learner engagement in activities of interest related to their selected healthcare field.

The Association of American Medical Colleges (AAMC) notes 15 core competencies that make a successful applicant to medical school and it has been noted that these competencies are also important to success in those considering other health professions. If students are considering enrolling in a health professions program, and are lacking in any of these areas, the advisor can help the student develop these things if the student desires. As with other types of mentoring, the advisor should not be dictating to the student what to do or how to do it. The student should take the lead, with guidance from the advisor. These competencies, as well as the domains that they fall under, are detailed in Table 1.

Table 1. Core competencies of health professions students

Interpersonal	Intrapersonal	Thinking and Reasoning	Science
Service orientation	Ethical responsibility to self and others	Critical thinking	Living systems
Social skills	Reliability and dependability	Quantitative reasoning	Human behavior
Cultural competence	Resilience and adaptability	Scientific inquiry	
Teamwork	Capacity for improvement	Written communication	
Oral communication			

(Adapted from AAMC, 2021a)

Health professionals, by their nature, are those devoted to promoting the wellness and optimal functioning of those in their care. While this generally applies to the patients and families that they serve, and the wellness of their communities, this relationship should also include newer and prospective members of their professions. It should be the responsibility of every health professional, regardless of their specialty, to take a genuine interest in the professional socialization, skill level, mental wellness, and optimal functioning of its newest, as well as aspiring members, for that is how professions sustain themselves and evolve their practice over time. Mentoring relationships are a great way to accomplish this. Mentorship is the process by which two people engage in a relationship designed to support the growth and development of the less experienced party (Walters, 2017). In the health professions, this is important for many reasons. It allows for socialization to the profession for the less experienced person. It reinforces expected professional behaviors, as well as allowing for learning regarding expectations

of their contribution to the care team. Mentoring gives the mentee the feeling that they matter and that someone is invested in their development in the profession, which can prevent the turnover that is so costly to our organizations and impacts patient safety (Mitchell et al., 2018). It gives the mentee a guidepost for progression and keeps the mentor up to date on the newest advances within the profession- both from the mentee, as well as through their own professional development to provide the best experience possible.

Mentoring is a collaborative type of relationship that requires good communication and a strong commitment by both the mentor and the mentee. In order to achieve its purpose, certain attributes are needed by each participant, but clear and concise communication is required by both. Goals need to be set, a plan for how to achieve those goals needs to be discussed, and regular check ins to determine if the plan is working or revision needs to be completed. Perhaps certain goals need to be abandoned altogether and new ones set- this is the evolution of the mentee's journey to becoming their best professional self and it is the mentor's responsibility to help the mentee ask the questions in order to proceed effectively on that journey. Relationships between mentors and mentees can generate organically or can be part of a preassigned situation that is set up during orientation to the clinical or work environment. Often times, these relationships are more effective when the mentor and the mentee have similar values and interests (Burgess et al., 2018). This can occur when the mentee searches out the mentor based on admiration of traits or position. This can also occur when mentoring relationships are assigned, as one could posit that a coupling such as this could have that commonality of traits, as both parties are working toward contributing to the same organizational outcomes. Having an assigned mentor is more beneficial than not having a mentor at all, and as this relationship evolves, two things can happen. The pairing of mentor/mentee will discover that they are a good fit for each other and continue the relationship, or the mentee will meet others while in the organization that they might feel are a better fit and terminate the original relationship in favor of a new one that they feel is more suited to their needs. No matter the genesis of the relationship, trust is also an element that is required by both the mentor and the mentee. The mentor needs to be able to trust the mentee to respect the boundaries of the mentoring relationship, as well as trust that the mentee will be a good steward of the time and resources that the mentor is investing in the relationship. Conversely, the mentee needs to be able to trust that the mentor has their clinical and professional development at the forefront of all interactions in the relationship and will help them to make the needed advances in these domains. The mentor becomes a trusted advocate (Burgess et al., 2018). Formalized training for both the mentor and mentee may be beneficial to lay the groundwork for what each party's responsibility is in creating an effective relationship (Ballweg, 2017; Green & Jackson, 2014).

Effective mentors are good listeners and will take the time to help the less experienced members of their professions determine exactly what they want to achieve from the mentor/mentee relationship. While mentees are trying to reap the benefits of the mentor's experiences, the mentoring relationship should not involve the mentor trying to make the mentee into another version of themselves-it should not involve the mentor dictating to the mentee how their time together is spent. Rather, they should ask clarifying questions of their mentees to determine best how to develop the clinical skills or professional traits that the mentee is seeking to strengthen. Mentors need to be emotionally intelligent. It is a fair assumption that newer members of a profession will make mistakes or have behaviors that will need correcting. The mentor should be able to provide constructive feedback that make errors a learning experience, rather than a punitive one (Aiken et al., 2018).

A successful mentee is self-directed. They come to the relationship with goals in mind and clearly articulate those to the mentor. Another trait that allows the mentee to achieve the goals that they have set

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for themselves is the ability to be teachable. Successful mentees do not get offended or defensive when receiving feedback from their mentors. They use the feedback to improve their practice and streamline their efforts. As the result of such feedback from the mentor, the mentee develops more innovative and efficient ways of doing things.

Pre-health and health professionals can expect to have more than one mentor over the course of their careers. Every time a new role or experience is contemplated, the health professional should seek to identify a mentor in this new role. Whether it is choosing a definitive career path, advancing their education, taking on a leadership role, or changing their area of clinical specialty, having the guidance of a mentor can help in identifying areas of needed development for success, and how to best approach those. Burgess et al. (2018) discuss four different phases of the mentoring relationship—initiation, cultivation, separation, and redefinition. During initiation, the mentorship relationship formally begins, commitment is gained, and objectives and expectations are set. Goal setting and planning should occur in this first phase of the relationship. After the initiation of this relationship, time is spent in the cultivation phase. During this time, frequent and structured exchanges should occur between the mentor and mentee. It is during this time that the maximum benefit is achieved for both members of the dyad. The mentor gains fulfillment from watching the mentee's development and the mentee is able to grow and work to achieve professional and clinical goals under the mentor's guidance. The separation phase begins when the mentee becomes more confident and independent and goals are in the process of being realized or have been achieved. If the separation phase occurs prematurely, negative feelings can result, and this can break down the mentoring relationship. Redefinition is an ongoing process. The relationship between the mentee and mentor may end or change in nature and the mentee's place on the novice to expert continuum advances. The mentee may become more of an equal, or at some point, after the formal mentor/mentee dynamic has ended, may even surpass the mentor in terms of knowledge and experience. This is an achievement that should be celebrated as a success by both parties.

Mentorship expert, Dr. Michael Gisondi, stated that mentorship for students in healthcare education programs and for healthcare professionals is critically important (Zansler, 2020). Medical program trainees can encounter challenges in their transition from a structured, classroom-based learning setting to an unstructured, clinical learning environment (Zansler, 2020). The notion of 'transfer to practice,' often used in discussion on healthcare training, is applicable to how a learner adjusts to educational approaches utilized in healthcare education. Mentors within healthcare professions programs possess the well-suited healthcare acumen to support mentees in their acclimation to the regimen of health professions education while influencing the formation of their future professional identities while modeling healthy patient-provider relationships (Zansler, 2020). Burgess et al. (2018, p.198) asserted that mentoring is "an essential step in professional and personal development," especially for those learners interested in seeking potential roles as future healthcare professionals. In this chapter, authors provide a definition for mentorship with an emphasis on the characteristics of a successful mentee-mentor relationship, describe various types of mentorship models and approaches for mentoring pre-health professional students, list examples of professional organizations and programs with mentorship resources, and discuss the importance of diversity, equity, and inclusion in mentorship of diverse pre-health professional students.

BACKGROUND

Theoretical Framework to Support Mentoring of Pre-Health and Health Professions Students

Patricia Benner's Novice to Expert Theory (1984) provides a framework through which mentors can aid their mentees in development of the clinical reasoning, skills, and abilities needed to allow them to progress through these stages of learning and clinical competence. While this is a nursing theory, it can be applicable to other healthcare professions, as well as to those considering a career in the health professions. In the science of caring for and helping others, all new health professionals experience a predictable learning curve. All healthcare professionals must progress through these stages in order to be able to successfully master their practice and acculturate to their professions. These stages include novice, advanced beginner, competent, proficient, and expert (Benner, 1984).

In the first stage of practice, as a *novice*, the clinician, and those considering clinically based careers, have no previous base of knowledge on which to guide their thoughts and actions. They have a difficult time identifying which information is relevant to the clinical situation and which is not (Benner, 1984). This stage is generally where health professions students begin as they learn the foundational information for their work with patients. Learners at this stage can be mentored by peers, faculty, or other professionals to help them begin the process of clinical reasoning and development of needed skills. The AAMC competencies should be considered and reinforced here.

The next stage of practice finds the learner at the *advanced beginner* level. This is where new graduates may find themselves after completion of their educational programs. These professionals are a little bit more self-directed in providing care and are able to take what they learned in school and apply it to care of the patient. The advanced beginner may have some difficulty looking at the bigger picture of their clinical setting, and instead, focus on their small piece (Benner, 1984). Direction is an important part of the mentoring role at this stage. Mentors can help their mentees learn to look at the patient care setting in a more holistic way. Mentors at this stage can take the form of preceptors, interdisciplinary team members, or clinical educators.

As the practitioner gains experience, they move on to the level of *competent*. At this stage, they are able to incorporate multiple elements of the patient experience into their care. The ability to prioritize and pick out important parts of the clinical picture, and act on those develops further (Benner, 1984). Mentoring strategies at this level will include talking through situations with the mentee and having them reason out why they have put a particular plan in place. This allows the mentee some independence in practice. In this way, the mentor acknowledges the mentee's critical thinking skill and provide correction if an error is to occur. Mentors at this level of practice can include coworkers and managers. The mentee may choose to maintain relationships with past clinical mentors in order to validate their progress.

As healthcare practitioners progress to being *proficient* in their abilities, they gain the ability to look at the whole of a patient care situation and set priorities (Benner, 1984). They are able to execute the plan in order to address those priorities and allow for high quality patient care. Proficient practitioners are highly functional members of interdisciplinary teams, as they are able to articulate vision about the patient's plan of care. Mentors at this level of practice can help to develop leadership behaviors in their mentees, as the mentee is now able to synthesize many elements of patient care into the bigger overall clinical picture. At this stage, mentors may include managers and other organizational leaders.

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Finally, when practitioners are practicing at their maximum capability, when they practice more intuitively than based off guidelines or rules, they are considered *expert* in their area of practice (Benner, 1984). Expert practitioners, based on their previous knowledge and experience, know the right thing to do in the different patient care scenarios that they are presented with in their day-to-day practice and drawing on those previous experiences and their outcomes, will provide the care that they believe will meet the patient care goals. While there is always much to learn in healthcare, and the process of learning is considered a lifelong endeavor, at this point, the expert should be looking to mentor others to share the benefits of their experiences. They may choose mentors for themselves to strengthen an area of practice that they desire to develop further.

MODELS OF MENTORING

In approaching and developing mentoring relationships for both the pre-health as well as the health professional student, it is important for all parties involved to remember that there is not a 'one size fits all' approach to mentoring. The relationship that is cultivated and the model used to do so needs to consider the goals of the relationship and the needs of each participant. After careful thought and discussion, the most effective model to accomplish these goals is chosen, so that the relationship has the best chance of success. Dyadic, group, peer, and electronic, or e-mentoring are all models that can be considered when deciding how best to structure a mentoring relationship. A summary of these models is found in Table 2.

Dyadic Mentoring

Dyadic or one on one mentoring, is generally what comes to mind when people think of a mentoring relationship. It is the most common type of mentoring relationship, as well as the most traditional, giving rise to other types of mentoring relationships (Henry-Noel et al., 2018). This type of mentoring allows the relationship to be tailored to the specific needs of the mentee and individual attention can be given to ensure goals are being met, or perhaps, reevaluated to ensure that they are still relevant to professional development and socialization. A dyadic mentoring relationship furthers a sense of belonging in the mentee, allows for development of leadership skills, and positively influences job performance (Roberts et al., 2021). Some examples of dyadic mentoring relationships may include advisor relationships with pre-health and health professions students, succession planning for new leadership, a new healthcare professional assigned a preceptor in their work setting, or someone taking on a new academic role and being assigned a mentor to learn that role.

Group Mentoring

Mentoring students and new healthcare professionals in a group setting has great benefits if the goal is socialization to the profession. One benefit of group mentoring is the ability for the mentees to learn to engage in reflective discourse (Lutz et al., 2017). Healthcare teams consist of professionals from diverse personal and professional backgrounds. They will not always view clinical and ethical situations through the same lens, and it is important to learn to have respectful discussions about treatment and plan of care. As emotions can run high in these types of situations, it is important to patient safety and quality care for them to learn to respect the opinions of others on the team. Working together in groups can help

students and entry-level practitioners learn to develop these skills. Some examples of group mentoring include groups of pre professional students considering the same career path, a clinical instructor with their clinical group, an orientation leader with a group of newly licensed professionals, or a faculty member working with a group of students.

This group setting for mentoring has been an especially helpful model since the COVID-19 pandemic began. The norm for educating healthcare professionals has always been in person didactic and clinical experiences. COVID-19 has driven much of this education online, and students do not have those in person opportunities to meet each other and form peer groups for support, nor to interact with their professors and seek guidance and support on important professional and clinical issues. This model can be combined with the e-mentoring option that will be discussed later in this section. This provides students with a feeling of connection and cohesion and allows them to build teamwork skills and foster a sense of collegiality that are essential to their functioning in the clinical setting (Kostovich & Thurn, 2012). Group mentoring is also an effective strategy when there are limited numbers of available mentors and many new professionals or pre professionals in need of the guidance and wisdom of a mentor.

Peer Mentoring

Peer mentoring occurs between individuals who are essentially equal in age, experience, and rank (Bussey-Jones et al., 2006). As there is more of an equal experience level among those who participate in the peer mentoring process, the dynamic is less hierarchical and more flexible. The group sets its own rules and goals and determines how they will be achieved. It is expected that each person has something of value to contribute to and gain from the relationship. Benefits to those who participate in this type of mentoring relationship include increased levels of comfort in asking questions and giving and receiving feedback that helps to achieve goals, friendships that last beyond the need for the mentoring, and the ability to network.

A slight variation on the peer mentoring model is the near-peer mentoring relationship. This type of relationship describes one between students in a program where the mentor is slightly further ahead in the program of study than the mentee (Akinla et al., 2018). This allows the mentor to share their experiences and provides the mentee with strategies and guidance to navigate any academic, clinical, and/or social situations that may arise. The mentor has an enhanced level of credibility, as they have the shared experience of curriculum, faculty, clinical facilities, and licensing challenges. There is a certain level of empathy, which can be reassuring for the mentee. Similar to other models of mentoring, the mentor should not use their experience in the academic program to dictate what the mentee should do, as every student's experience is unique and not influenced by entirely the same factors. Rather, sharing experiences and outcomes gives the mentee a frame of reference to make the decision that is best for them. This model can be beneficial not only to students enrolled in a particular program of study, but to those considering a particular profession as well.

Electronic Mentoring

Electronic, or e-mentoring, is a mentoring relationship carried out via technology. This opens up so many new possibilities to search out mentors and mentees and build, develop, and sustain those relationships in the absence of the ability to connect in person. Mentoring in this fashion allows relationships to exist that never could have before the advent of the technologies that make this possible. The necessary

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meetings can be scheduled via whichever platform is accessible to both parties - Google Meet, Zoom, and WebEx are just a few of the more common ones. These platforms include a video element and are much more engaging than just using text or email to communicate. Tone of voice, inflection, and facial expressions add to the dynamic of a successful mentoring experience. These cues can be appreciated by both parties and give some clue as to important nonverbal messages that are being communicated. Admiration, satisfaction, surprise, shock, disappointment, and frustration are all emotions seen in facial expressions and recognition of these things by both the mentor and the mentee may spur additional needed discussions. In addition to keeping the camera on during mentoring sessions, other things will maximize the meeting times that mentor and mentee have together. Keeping the meeting space free of distractions and noise will help both parties to focus on the task and discourage multi-tasking while the meetings are taking place. It is also important to ensure that the technology is working, and its use understood by both the mentor and mentee. Technology that does not work or is poorly understood cuts into the meeting time and takes away from the work at hand.

E-mentoring combined with some of the other models of mentoring has been a huge benefit during the COVID-19 pandemic. The ability to meet in the virtual space allowed for continuation of mentoring relationships that had begun in person, with minimal interruption. It also allowed for people in positions of leadership to be able to mentor others through the constant changes encountered in the healthcare system. A great example of this would be an academic dean who conducts frequent town hall meetings with faculty, students, and staff. As recommendations and guidelines changed frequently in the early days of the pandemic, virtual meetings such as these gave the leader a forum to set expectations for practice, as well as address concerns from the team to ensure standards were being met and appropriate messaging was going to employees, as well as students. When the leader shows calmness and resilience, it helps others in less senior positions to emulate these attributes.

Table 2. Types of mentoring relationships

Type of Mentoring	Key Elements
Dyadic	<ul style="list-style-type: none"> ● One-on-one attention ● Allows for focus on the individual needs of the mentee ● Allows for specific and tailored feedback from both mentor and mentee
Group	<ul style="list-style-type: none"> ● Provides for socialization to the profession ● Development of a professional network for the mentee that includes peers and mentors ● Allows the mentor to work with more than one mentee at a time when there is a shortage of mentors ● Development of the ability for pre health and health professions students to gain interprofessional perspectives
Peer	<ul style="list-style-type: none"> ● Shared experiences ● Enhanced level of credibility of the mentor ● Increased levels of empathy from the mentor
Electronic	<ul style="list-style-type: none"> ● Allows for flexibility of scheduling ● Allows for flexibility in choosing a mentor-not bound by geography ● Works well in combination with other mentoring models ● Provides for safety during pandemic times

The Relationship of Mentoring to Patient Safety

Across professions in healthcare, the goal of all practitioners should be to provide safe and quality care to their patients. Health professions students do not come to their respective professions with the knowledge on how to do this. They know they want to improve the health of their patients and communities and demonstrate ethical behavior in their provision of care. The principles of beneficence, nonmaleficence, justice, fidelity, veracity, privacy, and confidentiality are all important concepts for practitioners to incorporate into their care (Murray, 2017). This will ensure that we are doing what is beneficial to the patient, that our actions do no harm, that all patients receive equal treatment, that we are providing informed care to our patients, and ensuring that we maintain our patients' privacy related to their healthcare. Knowing exactly how to do that, however, comes with their socialization to the profession. Mentors are in an ideal position to make certain that these behaviors are applied to practice, taken from the theory that students are taught in their educational programs.

There are several significant ways that mentors can play a role in making sure that safe practice, and by extension, patient safety is incorporated into the routine of novice level practitioners (McSherry & Snowden, 2019). These are based on the development of a mutually respectful and open relationship where bidirectional communication is at the forefront of the development of the novice practitioner. To begin, the mentor provides the foundation for the relationship through the sharing of their knowledge, skills, experience, expertise, and wisdom. It is hoped that the mentee can see the benefits of these things and begin to observe how to incorporate these things into their own practice and interactions with others. At the next level, the encouragement that the mentee receives from the mentor relationship can promote confidence, assertiveness, and improve negotiation skills and the desire to encourage excellence. It is here that independence is encouraged and the mentee can test the waters of movement to the next level of practice. They are incorporating the things being learned and putting their own individualistic mark on them, at this point, but still have someone to turn to for questions, feedback, and evaluation of safety and efficiency. At the next level, as the mentee grows in skill and knowledge, there is able to be a sharing of information between the mentor-mentee dyad and reflective discussion can take place about what is going well and where there are opportunities for improvement. These types of conversations that involve reflective debriefing in real time are prime learning opportunities for a new practitioner that provide feedback while the experience is still fresh in the minds of both parties.

When members of a healthcare team do not feel that they can speak up and ask clarifying questions, this increases the risk of error and decreases the quality of care received by the patient, with potential harm ensuing (Mayo & Woolley, 2016). In working with novice healthcare practitioners, mentors have the ability to direct practice and offer helpful feedback that will allow the less experienced team member to feel comfortable asking questions and as such, minimize the opportunity for error. Good mentors have many important traits, but when relating them to the construct of the mentee being able to ask a question to avoid errors, approachability is, without a doubt, of paramount importance (McSherry & Snowden, 2019). If novice team members are not comfortable approaching others with questions to clarify their understanding of patient situations, then this relationship will not produce the desired benefits and allow the mentee to be able to progress from novice to expert practitioner.

As previously discussed, the relationship between manager and employee can be considered a dyadic mentoring relationship. In order to align this content to the pre-health or health professions student, the advisor, professor, or clinical instructor can be viewed as a managerial role and the student can be considered to be in the staff role. Managers, by virtue of their positions, generally, have higher levels

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of experience and expertise and are in a position to allow their team to benefit from those experiences. As approachability has been noted as an important characteristic of a mentor, a manager who is not approachable loses an opportunity to guide his or her staff and teach them safer and more efficient ways of caring for their patients. When members of a healthcare team feel like mistakes are held against them, opportunities to learn from those mistakes are lost, and quality of care and perception of work environment decline (Aiken et al., 2018). Lack of approachability is also reflected in team members who report feelings of not being able to question the authority and judgement of their leaders. This also lowers the safety of the environment and lowers the quality of care provided- team members would rather guess than ask the question of the leaders, and this leads to mistakes being made (Aiken et al., 2018). An opportunity for reverse mentoring here can also be lost. When managers create an environment where their team can question decisions and suggest alternatives, managers may learn better, more efficient, and evidence-based ways of accomplishing patient care activities and promoting an effective team dynamic.

MENTORING STRATEGIES FOR DIFFERENT HEALTHCARE PROFESSIONS

The interactions within a mentor-mentee relationship are very important to the academic success of pre-health professional students. Key components of health professions education and clinical training programs includes a focus on professional development, such as professional or profession-specific competencies, necessary for each healthcare profession to be effective in providing quality patient care. Some of the challenges encountered by emerging healthcare professionals may vary based on the chosen profession. Profession-specific guidance from a mentor is beneficial for mentees to receive ideas and recommendations that may aid in their own path towards a career as a healthcare professional.

Mentorship provides a great opportunity for pre-health professional students to learn more about specific healthcare professions and to gain knowledge directly from those who have worked in the healthcare field. Sharing those experiences can provide a different perspective on the healthcare profession being considered and will provide a space for discussing academic or career goals. For this reason, it is crucial to identify mentorship strategies that are effective and meaningful for the mentors and mentees involved. In a review of publications discussing mentorship in health professions, there have been documented pitfalls and challenges as it pertains to the implementation of an effective mentorship program (Tillman, 2015). To mitigate potential pitfalls or challenges in mentorship, educators can refer to profession-specific resources and guidance on mentorship across healthcare professions. Many healthcare professions (e.g., dentistry, medicine, medical laboratory science, nursing, pharmacy) have their own profession-specific mentorship strategies to help promote student recruitment and awareness of the profession to prospective students. As a mentor of a pre-health professional student, these resources from profession-specific programs will be helpful in providing mentorship strategies and access to guided content to supplement mentoring of students in the various healthcare disciplines, especially for students who have expressed interest in a specific healthcare field.

Additionally, these profession-specific mentorship tools provide mentees insight into the essential functions of the healthcare profession of interest, as well as unique nuances (or needs) pertaining to these diverse healthcare roles. Each healthcare profession has its own established guidelines for admittance including learner expectations and clinical competencies in which should be accurately described to mentees. Various healthcare professions organizations (Table 3) support and advocate mentorship activities for pre-health professional students, health professions students, and those currently working in

healthcare fields. Mentorship is valuable at the pre-health professional student stage and its importance continues forward through each stage of progression from student to working healthcare professional. In the following subsections, this chapter explores mentorship resources within various healthcare disciplines including the areas of dentistry, medical laboratory science, medicine, nursing, and pharmacy.

Table 3. Examples of healthcare professions organizations

Discipline	Professional Organizations	Website
Dentistry	American Dental Association (ADA) American Student Dental Association (ASDA)	www.ada.org
Medical Laboratory Science	American Society for Clinical Pathology (ASCP) American Society for Clinical Laboratory Science (ASCLS)	www.ascp.org www.ascls.org
Medicine	Association of American Medical Colleges (AAMC)	www.aamc.org
Nursing	American Association of Colleges of Nursing (AACN) American Nurses Association (ANA)	www.aacnnursing.org www.nursingworld.org
Pharmacy	American Pharmacists Association (APhA)	www.pharmacist.com

Mentorship in Dentistry

The American Dental Association (ADA) suggests mentoring as a means of understanding the field of dentistry “from the other side of the chair” (ADA, 2021). Through career mentoring, pre-health professional students should be provided guidance in their pursuit of a career in dentistry and the ADA website offers a list of resources for career mentoring in dentistry: <https://www.ada.org/en/education-careers/careers-in-dentistry/be-a-dentist/career-mentoring>. To further support the mentoring initiative set forth by the ADA, the American Student Dental Association (ASDA) promotes the value of mentorship for dental school students as a means of developing leadership skills (ASDA, 2021). In looking over their recommendations to students seeking a mentor, it may be insightful for mentor-educators to read through the proposed ideas from the ASDA below:

- The mentor should be someone who has your best interest at heart. Often, mentor relationships grow organically from already established relationships. Maybe it’s your childhood dentist, a faculty member from school or someone you met along the way. Keep in mind this person doesn’t have to be an employer or someone you potentially buy out. So long as they are more experienced than you and care about you, the basis for this relationship is already set.
- Make sure to follow up with your mentor — in person, by phone or via email all work well. Basically, don’t expect a mentor to randomly reach out to you to offer advice.
- Make sure this is someone that you get along with. Your relationship will grow with your mentor. Think of your mentor as a colleague. You need to be able to bounce ideas off them and ask questions that might feel silly.
- Mentors may come and go depending on where you are in life. The person who mentors you throughout dental school may not be the person that mentors you after graduation. Keep an open mind and always be looking for mentors. More than one mentor is fine. (ASDA, 2021)

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This excerpt from their website reinforces a couple of key points related to the mentor-mentee relationship in that (i) mentorship leads to positive outcomes for educational and professional purposes; and (ii) both the mentor and mentee are accountable for the success of the mentor-mentee relationship. Students should be encouraged to build their network of mentors and not feel limited to having only one mentor. This may lead to a diverse network of mentors from established relationships, as noted above, as well as the fostering of additional mentor-mentee relationships throughout the duration of their academic program and clinical training. In providing guidance to students interested in dentistry as a potential career, mentors can access profession-specific online resources such as the comprehensive guidebook from the ASDA resource guide for pre dental students. There are many resources to support the effective mentoring of students in the field of dentistry.

Mentorship in Medical Laboratory Science

In her book titled *Some Leaders Wear Lab Coats*, renowned laboratory leader and author, Tywana Wilson, emphasized the importance of mentorship in that mentors are critical to the success of others and those professionals who have achieved certain levels in their career are able to do so through the support of a mentor (Wilson, 2020). Specifically, mentorship in medical laboratory science, also referred to as clinical laboratory science, has been deemed as crucial to the developing laboratory science professionals. Kridelbaugh (2017) discussed the positive impact of effective mentorship in laboratory sciences including notable benefits. Some of the benefits listed by Kridelbaugh (2017) included increased productivity and science career satisfaction among mentees. In the article, *The Value of Mentorship in the Scientific Field*, Kridelbaugh (2017) stated that mentorship is important in laboratory-based sciences due to the “tedious nature of bench work and an isolating lab environment can quickly burn out a new scientist (para. 4).” The author further purports that a mentor in medical laboratory science education can serve as a role model for mentees in showing them the ropes as far as what may be expected of them as they enter the laboratory science profession.

In the field of laboratory medicine, which encompasses the medical laboratory science profession, there are a list of profession-specific organizations who offer mentorship programs and associated resources. Those organizations include the American Society for Clinical Pathology (ASCP), the American Society for Clinical Laboratory Science (ASCLS), and the Association for the Advancement of Blood and Biotherapies (AABB). Whether it is an early professional mentorship program or a professional engagement program, all the above are focused on connecting mentors with mentees seeking early career advice and guidance. As described in their clinical laboratory science mentorship study, Thomas and Hadley (2015), the mentor-mentee relationship plays a crucial part in helping learners make the connection between educational theories and application of the content to tasks performed by laboratory professionals. Thomas and Hadley (2015) shared the following mentorship traits and characteristics: “leading, motivating, training, supporting, supervising, modeling, and assessing individuals within a chosen discipline” (p. 71). In other words, the role of a mentor in medical laboratory science does not only rely on skill but also the profession-specific knowledge as it pertains to the assessment of learners in laboratory science education.

Mentorship in Medicine

For pre-health professional students, groups or societies geared towards introducing health professions to prospective students creates a space for engaging like-minded individuals and increased opportunities for learning about various careers in healthcare. Awareness of groups available on academic campuses or through medical associations will be beneficial for both the mentor and the mentee. These groups may include pre-dental, pre-health professions, pre-health science, or pre-medical clubs. For example, AAMC developed a pre-med club program to increase awareness about medical careers and to inspire students from under-resourced communities to pursue potential careers in medicine (AAMC, 2021b). Early exposure to groups, such as pre-medical clubs, can serve as a starting point for pre-health professional students to learn more about the medical field. Additionally, mentee engagement in a pre-medical (also referred to as pre-med) club can lead to further development of students upon acceptance into medical school programs with clinical mentorship integrated into the respective program. Nimmons et al. (2019) asserted that clinical mentoring programs help to develop the clinical skills of medical students. The introduction of medical students to the potential challenges, rigor of medical curriculum components as they pertain to the development of professional competencies, and the delivery of quality patient care, provides a positive influence on their attitudes and experiences (Lutz et al., 2017). Lesson plans in the AAMC Pre-Med Club includes discussion about some of the benefits and potential challenges encountered in the delivery of quality patient care (AAMC, 2021). As a pre-health professional student, there are opportunities to learn more about these elements related to medical school and the medical profession prior to pursuing a career in medicine. Communication of professional challenges through mentorship models can lead to the improvement of professional development among medical students. Enhanced professional development is a crucial element for their future roles as healthcare physicians to provide effective, high quality patient care (Lutz et al., 2017). Notably, mentorship can continue from the pre-health professional stage through medical school.

In the area of academic medical education, entities such as AAMC recognize the importance of healthy mentoring relationships. In terms of mentor benefits, the AAMC (2021) described a healthy mentor-mentee relationship as one that positively influences the next generation of medical providers, obtain new insights and perspectives, and the opportunity to grow as a mentor. For mentees, the use of evidence-based mentorship approaches yields the benefits of strategic career planning, skill development, improved self-confidence, professional growth, and career success (AAMC, 2021). It is recommended for educators to engage in “an organized approach to mentoring” within their schools or departments to ensure a structured mentorship process. Ultimately, the mentorship approach should be mutually rewarding for both mentors and mentees while achieving goals pursuant of career success. Faculty training and academic medicine mentoring resources are imperative for the development of a successful mentorship program. To access medical education-specific resources for faculty, visit the AAMC website at <https://www.aamc.org> and search using the key term ‘*mentoring*.’

Mentorship in Nursing

The value of mentoring in nursing education has been documented in the literature as a means of adapting novice or early profession nurses into the clinical work environment. In the mentoring program toolkit, the American Association of Colleges of Nursing (AACN, 2017) defines mentoring as “a formalized process whereby a more knowledgeable and experienced person actuates a supportive role of oversee-

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ing and encouraging reflection and learning within a less experienced and knowledgeable person, so as to facilitate that person's career and personal development (p. 5).” In nursing education, mentorship has been strongly encouraged in helping pre-certification/pre-licensure students navigate their careers while receiving guidance on how to handle profession-specific challenges related to the role of a nurse professional. Jean (2021) stated that having a great nurse mentor can promote professional growth and development, improve career satisfaction, and improve retention. To address the need of nursing mentorship, many programs have established new nurse mentorship programs at their institutions.

Effective mentorship provides support and guidance to pre-health or nursing students. Nonetheless, ineffective mentorship has encountered some of the following barriers: lack of preparedness, unable to maintain the mentor-mentee relationship, cultural differences, and changes in career (Jean, 2021). As stated earlier in the chapter, the mentor and mentee relationship is a two-way relationship and the success of the relationship is contingent upon both parties upholding their part. Meaningful nurse mentor-mentee relationships can have a positive influence on the academic and professional development of a nursing student. Additional resources about nursing mentorship and tips for a successful mentor relationship in nursing can be found through nursing associations (e.g., American Nurses Association).

Mentorship in Pharmacy

In a survey conducted by Juan-Juan Yue and Gang Chen (2020), the mentorship of pre-licensure pharmacy students was noted as having a significant impact in the areas of professional development, career orientation, career selection, and research productivity. The article went on to describe how beneficial mentorship was to the designated mentors. Mentors experienced increased job satisfaction and enhanced self-esteem through sharing their knowledge with younger students (Yue & Chen, 2020). As noted with other health professions, shadowing a pharmacy professional is recommended for career exposure and better understanding of the ‘day in the life of’ a pharmacist. Mentors may have contacts or connections in the pharmacy profession that can support the professional development of a budding pharmacist.

Dr. Latonia Luu, PharmD, wrote about mentorship experiences in the pharmacy profession. Luu (2020) discussed how building a network can lead to shadowing and potential career opportunities. In one example, Luu (2020) described how a mentor served as a job reference and provided assistance in reviewing letters of intent for clinical residencies. In terms of resources, there are local, state, and national pharmacy organizations which can create engagement opportunities for pre-health professional students considering a career in pharmacy. Faculty members have been noted as the best people to seek out given their passion for teaching and their sincere investment into the overall success of their students (Luu, 2020). With every healthcare profession, mentors have the ability to motivate students in their chosen path. Mentorship is an important element of the pharmacy profession as noted by organizational websites, such as the American Pharmacists Association (APhA). By sharing professional experiences and wisdom with mentees, educators are poised to serve as early role models of their respective healthcare professions.

DIVERSITY, EQUITY, AND INCLUSION + MENTORSHIP

Amid the growing discussion and efforts in the healthcare community to target the improvement of health equity while addressing health disparities, we cannot explore the topic of mentorship of pre-health

professional students without the incorporation of diversity, equity, and inclusion. The Ford Foundation (2020) describes diversity, equity, and inclusion (DEI) as follows:

Diversity is the representation of all our varied identities and differences (race, ethnicity, gender, disability, sexual orientation, gender identity, national origin, tribe, caste, socio-economic status, thinking and communication styles, etc.), collectively and as individuals. We seek to proactively engage, understand, and draw on a variety of perspectives. We believe that the solution to the problems we hope to address through our grant making can be found by affirming our similarities, as well as by finding value in our differences.

Equity seeks to ensure fair treatment, equality of opportunity, and fairness in access to information and resources for all. We believe this is only possible in an environment built on respect and dignity.

Inclusion builds a culture of belonging by actively inviting the contribution and participation of all people. We believe every person's voice adds value, and we strive to create balance in the face of power differences. We believe that no one person can or should be called upon to represent an entire community. (Ford Foundation, 2020, para. 2)

The need for diversity in the healthcare education is two-fold: during clinical training to enhance diversity awareness among pre-health professional students and understanding the implications on clinical practice. Across healthcare professions, there is increased advocacy for the development of cultural competency in the pre-certification, pre-licensure curriculum of academic healthcare programs. As noted by the American Dental Education Association (ADEA, 2021), the healthcare disparities gap continues to persist by impacted the quality of care and treatment that patients receive (or lack thereof) from their healthcare providers. This issue speaks to the need for cultural competency among some healthcare professionals in both their academic programs and within their professional roles on the healthcare team. The ADEA defines cultural competency as "a person's ability to understand and interact with people from cultures and backgrounds other than their own" (ADEA, 2021, para. 7). Diverse learner perspectives are important given the diverse needs of patients. The 2021 National Healthcare Quality and Disparities Report indicated a "lack of racial and ethnic diversity persists within the healthcare workforce" (Agency for Healthcare Research and Quality [AHRQ], 2021, p. 1). There is a call to action to recruit and retain learners from underrepresented communities to promote a diverse healthcare workforce reflective of the patient population being served.

To provide more context, the Healthy People 2030 framework (2021) includes the elimination of health disparities while achieving health equity as a part of its foundational principles (Healthy People, 2021). The overarching goals of the Healthy People 2030 framework aims to improve the health and wellbeing of all populations through the achievement of health equity (Healthy People, 2021). The effectiveness of the healthcare team becomes more crucial as we discuss the impact of health disparities on disadvantaged or underrepresented patient populations. An example of health disparities published in the 2021 National Healthcare Quality and Disparities Report listed diabetes as the leading cause of kidney disease in the United States and found that 1 out of 3 adults diagnosed with diabetes go on to develop kidney disease (AHRQ, 2021; National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK], 2017). Of those patients diagnosed with diabetic kidney disease, it has been revealed that kidney disease impacts ethnic minority patient populations (e.g., Black/African American, Alaskan/American Indian, Hispanic/Latino) at a higher proportion than Caucasian individuals (NIDDK, 2017). According to the NIDDK (2017), these minority populations have an increased probability of developing diabetic kidney disease due to limiting factors (e.g., accessible healthcare, health literacy) which is indicative of the racial/ethnic disparities that exist in the U.S. patient population. In reviewing the

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alarming statistics about the pervasiveness of healthcare disparities in society, it becomes increasingly important to adequately prepare and mentor pre-health professional students on using their future roles to bridge the gap in health equity, health literacy, and health disparities (Healthy People, 2021).

Although there is a focus on improving the cultural awareness of healthcare providers, it is just as important to be prepared to address diversity-related concerns or issues in mentoring students from underrepresented groups. Under-represented groups may include students from all types of backgrounds such as racial, ethnic, cultural, gender (including gender identity), or socioeconomic status. As academic health professions programs seek to attract and recruit learners from diverse backgrounds, it is important for mentors to be aware of resources offered on campus to aid learners in their building of a network. Healthcare professions, such as dentistry, have organizations dedicated to providing information and resources specifically for underrepresented students pursuing opportunities in this healthcare field. Some learners from underrepresented populations have captured their experiences navigating academe via online blogs or authored books such as *Hooded, A Black Girl's Guide to the Ph.D.* In this book, Dr. Malika Grayson (2020) shared that she sought out support from the diversity offices located on her campus. In her book, she provides encouragement to other underrepresented students to seek out support and to 'find your tribe' to develop connectedness to the campus community (Grayson, 2020).

There has been some development of mentorship programs developed to target prospective underrepresented students in healthcare professions academic programs including fields such as medicine and allied health professions. In doing so, it addresses the issue of lack of diversity in healthcare-related academic programs and the lack of diversity across various roles in the healthcare field. As the population becomes more diverse, academic programs recognize the importance of recruiting students from diverse backgrounds to build up a healthcare workforce reflective of the diverse patient population served (Cohen et al., 2002). It has become increasingly important to ensure the quality and inclusiveness of clinical learning environments as it relates to diversity-related topics in healthcare such as the improvement of health equity and the narrowing of the healthcare disparities gap observed among underserved, underrepresented communities. In preparing pre-health professional students, mentors should identify opportunities to increase awareness about patient safety and patient care, such as healthcare disparities, and how their future healthcare roles can improve care for potentially vulnerable populations (Kirkwood, 2016).

Creating a Sense of Belonging

In a diversity nursing blog, Bettencourt (2020) indicated that a sense of belonging is just as, or equally, as important as increasing diversity of the healthcare workforce. As the patient population becomes increasingly diverse, so does the need for increased diversity of healthcare professionals. In a study on minority nursing students, Sedgwick et al. (2014) stated that every interaction experienced by this population of students with instructors or peers had the potential to impact their sense of belonging. The findings showed that "positive experiences enhanced the students' sense of belonging whereas negative experiences severely impacted their sense of belonging" (Sedgwick et al., 2014, p. 93). Future implications of the study suggested that recruitment and retention of diverse learners into the undergraduate program can be impacted if discrimination issues continue at the individual and institutional levels.

In terms of mentorship for pre-health professional students, it is important to create a sense of belonging in academic spaces as it lends to the fostering of an inclusive learning environment and increased cultural awareness among peers. Meaningful relationships with mentors can create a supportive environment

for pre-health professional students while fostering a sense of belonging within the academic program. According to the Sedgewick et al. (2014) study, lack of faculty mentorship contributed to the sense of belonging. Strategies to address belongingness of underrepresented students includes the provision of faculty mentors and peer mentors. To establish this sense of belonging, mentors are also encouraged to share resources with students, such as affinity groups or dedicated campus communities, as an additional space of support for learners of diverse backgrounds.

Affinity Groups

Bell (2015) described affinity groups as safe spaces that allow learners of a shared identity to come together and talk about issues related to their identity. Furthermore, Bell (2015) noted that “gathering in safe spaces around shared identity allows students to engage in conversations about how they can subvert the structures that push them to the margins (para. 7).” Abdullah et al. (2016) explained how affinity groups may hold several purposes aimed “to develop participants voices by gaining support and practice in talking about difficult issues, build relationships and trust, explore multiple ways to work with others, help participants obtain new insights into their own and others’ beliefs, and ‘unpack our own baggage’ before joining dialogues with mixed groups (p. 20).” Affinity groups can provide the following benefits to students:

- build supportive relationships through fellowship and comradery with their peers;
- engage in conversations pertinent to their shared experiences and identities;
- encourage and amplify the voices of students in their own academic success; and,
- create a safe space for fostering collaboration and connectedness among students.

Examples of affinity groups open to pre-health professional students may include (but not limited to) the following: first generation college student, American Indian/Alaska Native, Asian/Pacific Islander, Black/African American, Hispanic/Latinx, Faith-based, international students, LGBTQIA+, and Persons with Disabilities. Some academic medicine organizations (e.g., AAMC) have implemented affinity groups to promote professional growth, networking, and collaboration among its members (Ward et. al, n.d.). Through active engagement and encouragement, mentors can support mentees in creating a positive interpersonal community among students with similar or shared identities. Participants in affinity groups have attested to the power of affinity groups at their respective academic institutions as these groups have helped to establish a safer learning environment. As we discuss the role of mentorship which may include providing resources for students, awareness of student affinity groups can be useful in guiding mentees towards participation in these groups at school. Affinity groups serve as an internal support system for students as well as another source for engaging with their peers. Positive interactions (and belongingness) have shown to enhance retention and recruitment efforts of diverse students in health professions programs (Bell, 2015).

CONCLUSION

As stated by Henry-Noel et al. (2019), mentoring skills are valuable assets for health professions faculty to possess in their efforts to positively influence and impact the future careers of pre-health professional

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students. Effective mentorship is important to the professional development and academic success of students. The background and professional experiences of health professions faculty enriches the overall mentorship experience in that it enables the mentor to impart knowledge and advice to mentees. Additional preparation in evidence-based mentoring approaches better prepares educators to serve as mentors for learners on their academic continuum from 'novice to expert' in their health professions path. Although one mentorship approach may not be superior to another, it is critical for mentors to identify a structured approach to support the professional goals and academic performance of students.

In the discussion on recruitment and promotion of healthcare professions, diversity and cultural competency have become key topics in mentorship. Additional considerations include fostering collaborative environments and inclusive spaces for all learners. The optimization of mentoring relationships in healthcare professions can be further supported with resources provided by professional associations in addition to academic resources. Understanding the importance of the mentor-mentee relationship accompanied with pertinent resources can lead to meaningful, positive learner outcomes.

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KEY TERMS AND DEFINITIONS

Affinity Groups: Consists of individuals who share a common characteristic, trait, or interest, discuss issues of shared identity (Segal, 2013).

Diversity: The myriad ways in which people differ, including the psychological, physical, and social differences that occur among all individuals, such as race, ethnicity, nationality, socioeconomic status, religion, economic class, education, age, gender, sexual orientation, marital status, mental and physical ability, and learning styles (The University of Washington Equity, Diversity, and Inclusion Glossary of Terms, 2019).

Equity: Ensures that individuals are provided the resources they need to have access to the same opportunities, as the general population. While equity represents impartiality, i.e., the distribution is made in such a way to even opportunities for all the people. Conversely equality indicates uniformity, where everything is evenly distributed among people (The University of Washington Equity, Diversity, and Inclusion Glossary of Terms, 2019).

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Health Equity: The attainment of the highest level of health for all people including equal access to healthcare and improvement of health for all populations (The University of Washington Equity, Diversity, and Inclusion Glossary of Terms, 2019; Healthy People, 2020).

Healthcare Disparities: May occur due to varying factors such inadequate access to healthcare and social determinants of health including race, ethnicity, or socioeconomic status (Healthy People 2020, 2021).

Inclusion: Authentically bringing traditionally excluded individuals and/or groups into processes, activities, and decision/policy making in a way that shares power (The University of Washington Equity, Diversity, and Inclusion Glossary of Terms, 2019).

Mentee: One who is being mentored (Merriam-Webster Dictionary, 2021a).

Mentor: Someone who teaches or gives help and advice to a less experienced and often younger person (Merriam-Webster Dictionary, 2021b).

Mentorship: The process by which two people engage in a relationship designed to support the growth and development of the less experienced party (Walters, 2017).

Chapter 9

Understanding Backwards: Counseling Approaches for Advising Pre-Health Students

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ABSTRACT

In this chapter, the author explores the application of counseling approaches in advising pre-health professional students. After identifying and reviewing three counseling models, the chapter offers theory-to-practice strategies for developing psychological flexibility and perspective taking with pre-health students. The author discusses common challenges for all pre-health students and structural inequalities that disadvantage students from underrepresented groups and how counseling approaches help advisors and students build a trusting alliance to address challenges inherent on the path to becoming a health professional. The chapter includes practical tips and suggestions to empower educators and advisors to apply counseling-inspired approaches to enhance advising practice and creatively support this student population.

INTRODUCTION

Pre-health students face numerous challenges when pursuing careers in health care (Zhang et al., 2020). Some students are unaware of the demands of daily medical practice (Lin et al., 2013). Some students may be unprepared for the academic rigor of college-level science courses due to social, racial, or structural inequalities in our broader society (Verrier et al., 2015; Zhang et al., 2020). On the other hand, high-achieving students from underrepresented groups may experience stereotype threat due to inaccurate perceptions they are “unprepared” for college-level science courses (Inzlicht & Schmader, 2012; Murphy & Taylor, 2012; Murphy et al. 2007). Stereotype threat happens in academic environments when students perceive they are being judged by negative stereotypes of their group rather than by individual achievement (Inzlicht & Schmader, 2012). Research studies have shown stereotype threat leads to low academic performance among members of underrepresented groups (Murphy & Taylor, 2012). Finally, pre-health advisors may spend a significant amount of time helping students cope with

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disappointment when not making adequate progress in a pre-health program (Nelson, 2015; Verrier et al., 2015). Counseling approaches provide a framework to address these and other concerns.

This chapter focuses on the value of counseling approaches in pre-health advising practice. Professional counselors assist and guide people in facing personal challenges. Counselors use their professional skills to help people move toward meaningful goals and make significant life changes based on evidence-based practices (Cormier et al., 2016; Hayes et al., 2012). Counseling theories and models serve as the basis of counselor education, yet one need not earn a degree in counseling to apply counseling approaches to advising practice. On the contrary, as has been noted by Musser and Yoder (2013), theories from outside the field of academic advising may suggest ways advisers can guide students.

This chapter reviews three counseling approaches that are effective in advising pre-health students: Acceptance and Commitment Therapy (ACT), Motivational Interviewing (MI), and Multicultural Counseling (MC). These counseling theories were chosen for discussion because they effectively address three distinct challenges which often emerge in pre-health advising.

The first challenge is that the outcome—i.e., being admitted to a medical school or other professional health graduate program—remains open-ended and unknown throughout students' undergraduate experience. Pre-health programs are not degree-granting; instead, pre-health is a process, or future intention, to be planned for but may or may not lead to admission to professional school. Nevertheless, students invest a significant amount of time as undergraduates working toward an uncertain goal while volunteering in hospitals, taking challenging advanced science courses, working in science labs, and doing community service without knowing the outcome of their efforts. Uncertainty about the eventual outcome is an ever-present theme of pre-health advising.

The second challenge inherent in pre-health advising is motivation. Some students feel discouraged by advanced university science courses that demand a significant commitment of time and effort. Students may have enjoyed science in high school because they liked the teacher or succeeded in high school science courses with minimal work. Advisors need a strategy to help pre-health students awaken the internal motivation necessary to develop practical study skills, utilize academic resources, resolve feelings of ambiguity about changing unproductive behaviors, and remain persistent in a pre-health program.

The third challenge of pre-health advising comes from the structural inequalities present in the educational system before students even begin college. Students have varying degrees of college preparedness and knowledge about health careers. Some students attended high schools with state-of-the-art science facilities or were associated with professional doctors in their neighborhoods or families. Therefore, they had better pre-college preparation or exposure to careers in medicine or other health fields. Not all students have had these same advantages. In addition to achieving academic success, students from underrepresented backgrounds must develop social networks and mentoring relationships in college to thrive in a pre-health program (Tucker & Winsor, 2013). Students from underrepresented groups have a higher attrition rate in pre-health programs (Lin et al., 2013). Pre-health students quit a pre-health program due to structural factors contributing to under-preparedness for college-level science courses rather than lack of personal motivation or curiosity to learn science (Lin et al., 2013). Two predictors of persistence in a pre-medicine program are academic preparedness before college and college performance in science courses once a student matriculates (Zhang et al., 2020). Therefore, social inequalities in the wider society have an influence on pre-health advising dynamics.

This chapter reviews counseling theories that may offer pre-health advisors practical approaches for addressing the uncertainty, motivation, and social equity issues inherent in pre-health advising practice. It explores how counseling approaches may help advisors build a trusting alliance with pre-health students

to work through academic and systemic difficulties. The chapter also includes limitations to counseling approaches in advising pre-health students and offers suggestions on theory-to-practice applications for use by pre-health advisors.

BACKGROUND

Why do some undergraduate students make successful progress pursuing pre-health programs of study while many other students fail? How can academic advisors encourage and inspire advisees on the pre-health path such that students develop outstanding competencies in science courses and learn how to cope with feelings of uncertainty about a goal for which there is no guarantee of success? Also, how can advisors support students from groups traditionally underrepresented in medical fields who may be less prepared for advanced university science courses or, conversely, may be very well prepared for college coursework but who experience stereotype threat in academic environments which hinders well-being and academic success?

It is not easy. Pre-health advising is fraught with difficult conversations, disappointment, uncertainty, grief, social and racial inequities, and varying levels of college preparation in high school. Furthermore, students risk academic probation or even dismissal from college due to their performance in college-level chemistry, biology, and other advanced science or math courses for which they are underprepared and often fail.

Despite the inequities and challenges, pre-health advising is vital to students' overall personal and professional development in college regardless of whether students apply to medical or professional schools (Verrier et al., 2015). Advisors support students in various ways by providing information, exploring values, addressing challenges, facilitating growth, completing training workshops, advocating on behalf of students, and modeling professional, empathic behaviors (Verrier et al., 2015).

Advisors also join students in an uncertain process with no guarantee of admission to medical or other health professional schools. Furthermore, there has been growing awareness about the importance of encouraging students from underrepresented groups to take advantage of academic support and mentoring relationships to persist in pre-health programs (Tucker & Winsor, 2013). Pre-health students from underrepresented groups quit pre-health programs at a higher rate, which remains a critical area of concern (Verrier et al., 2015). Tucker and Winsor (2013) noted that it is essential to increase the number of physicians and other health professionals from underrepresented groups because minority groups wish to receive health care from providers from the same cultural and racial background. Therefore, understanding how students from minority groups persist in a pre-health program is vitally important to the goal of full representation in health care fields (Tucker & Winsor, 2013).

COUNSELING THEORIES

Counseling theories offer practical strategies for advising pre-health students (Nelson, 2015). This section focuses on three counseling approaches that are effective in advising pre-health students: Acceptance and Commitment Therapy (ACT), Motivational Interviewing (MI), and Multicultural Counseling (MC). Each of these three theories is a distinct theoretical counseling model, and the three approaches are compatible and quickly integrated into advising practice by counselors and non-counselors alike. Also, these models

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encourage perspective-taking with pre-health students and help students develop psychological flexibility while managing feelings of uncertainty in a pre-professional program of study. This section focuses on the foundations of the three counseling theories and applications of each theory in advising practice.

Acceptance and Commitment Therapy (ACT)

ACT Theory

ACT (pronounced as one word) is a mindfulness-based counseling theory aimed at helping people create “a rich, full, and meaningful life while accepting the pain that inevitably goes with it” (Harris, 2011). ACT is not about eliminating psychological pain or relieving symptoms; instead, ACT helps people accept unwanted or uncomfortable thoughts and feelings as part of what happens as they move toward what they most desire and value (Harris, 2011). For example, falling in love also involves feelings of vulnerability, emotional pain, or even loss. ACT uses a contextual approach to accept negative private thoughts and feelings as part of committing to actions that give life meaning—going after valued living may involve difficult emotions and pain. Being willing to accept pain as part of moving toward what matters is a core concept of ACT (Harris, 2009).

It is natural for students to avoid unpleasant and unwanted internal private experiences. In ACT, private experiences encompass internal thoughts and feelings that are not controlled but arise spontaneously in daily living. While it is natural to avoid pain and seek pleasure, such avoidance becomes problematic when painful internal thoughts and feelings keep students from moving toward what they value (Boone, 2013; Harris, 2009). ACT refers to this phenomenon as *experiential avoidance* (Boone, 2013; Harris, 2009).

Experiential avoidance works like this: people are motivated to move toward positive and affirming experiences and away from painful or uncomfortable experiences. Avoidance may be an effective strategy when operating in the external world to escape dangerous situations (Harris, 2009); for example, it would be natural and wise to avoid confrontations with bears on a camping trip.

However, the same strategies for moving toward positive experiences and away from negative experiences in the external world lead to suffering when applied to internal thoughts and feelings. Thoughts are symbolic and created through private, internal language that labels thoughts as positive or negative (Harris, 2009). The same strategy of moving toward positive experiences and away from negative experiences backfires because private events, generated by language, which may be true or untrue, influence behavior. For example, having the thought, “I cannot learn chemistry” or “My teacher does not like me,” leads to unproductive behaviors of not going to class, not attending a review session before an exam, or dropping a course. When people move away from uncomfortable thoughts or feelings, there is temporary relief; avoiding negative thoughts is pleasant in the short run because it lessens the intensity of discomfort about a painful thought. Over time, however, avoiding pain develops into a way of life, and individuals stop going toward what has meaning for them because they do not want to encounter a painful thought or feeling. Instead, they may construct a life around what they are not willing to experience instead of going after the life they want to live (Harris, 2009; Harris, 2011; Harris, 2020). ACT encourages people to embrace—to accept—the notion that having a meaningful life means developing the will to move toward cherished experiences or goals even when the process includes psychological challenges, difficult feelings, or unwanted internal thoughts.

As Hayes et al. (2012, p. 21) noted, experiential avoidance “is an immediate consequence of fusing with mental instructions that encourage the suppression, control, or elimination of experiences expected

to be distressing.” It is understandable to move away from distressing internal thoughts and feelings by avoiding action associated with those mental experiences. Suffering happens when thoughts are taken literally to the extent a person becomes fused with mental cognitions (Hayes et al., 2012). Such fusion hinders a direct experience of living (Hayes et al., 2012).

ACT is rooted in Relational Frame Theory (RFT) and fosters mindfulness and acceptance to encourage psychological flexibility and an open approach to meaningful living based on values (Hayes et al., 2011; Hayes et al., 2013). Essentially, RFT examines the positive and negative effects of human language. The ability to engage in symbolic activities like language distinguishes humans from other animals. Symbolic language leads to psychological pain when thoughts seem “right, correct, and true” (Hayes et al., 2012). Instead, the real question regarding internal thoughts is, “How effectual are they?” (Hayes et al., 2012). In ACT, the question is, are thoughts workable or unworkable? (Harris, 2009). Do they serve to help move toward desired, valued living?

By remaining receptive to all pleasant or unpleasant experiences, ACT helps students increase *psychological flexibility* (Boone, 2013). Psychological flexibility is the primary goal of ACT. It describes an ability to engage in the present moment more fully and mindfully change or continue a behavior when doing so serves valued outcomes (Boone, 2013; Harris, 2009). In ACT, psychological flexibility comes about through six ACT processes: acceptance, cognitive defusion, being present, embracing self as context, clarifying values, and taking committed action.

Acceptance means staying open to all experiences, whether pleasant or unpleasant, to cultivate a life in service of what matters most (Harris, 2009; Harris, 2011). Acceptance of feelings and other private experiences leads to psychological flexibility and is a core concept in ACT (Harris, 2009). Acceptance does not mean quitting or tolerating an intolerable circumstance. In ACT, acceptance is an alternative to experiential avoidance. Acceptance helps develop a willingness to experience complicated feelings without uncomfortable feelings preventing one from taking committed action based on core values. Accepting feelings and developing a willingness to experience difficult emotions in service to what matters is a central tenet of ACT (Harris, 2009). Acceptance is the preferred alternative to cognitive defusion (Hayes et al., 2012).

Cognitive defusion refers to the way cognition influences behavior. Russ Harris (2009, p. 6) noted defusion means, “learning to ‘step back’ and separate or detach from our thoughts, images, and memories... We see our thoughts for what they are—nothing more or less than words or pictures.” Defusion techniques in ACT help people learn new strategies for responding to internal thoughts. These techniques do not eliminate negative mental experiences but rather help work through complicated feelings and separate the self from thoughts about the self (Harris, 2009). Hayes noted that disentangling people from their minds is central to an ACT approach. In ACT, advisors ask students what their minds tell them about a problem or concern to put distance between a thought and an action. Defusion helps students develop an ability to see thoughts as thoughts, not as literal truth dictating behavior (Harris, 2009; Hayes et al., 2012).

Being present in ACT describes being attuned to the here and now and seeing what happens as it is in the present moment. Being open to direct experience increases psychological flexibility and focuses on behaving consistently with cherished values (Harris, 2009).

Embracing self as context involves a process similar to defusion. Students learn to observe their minds at work by equating thoughts or feelings as temporary. In ACT, a helpful metaphor for understanding this concept is comparing thoughts to the weather (Harris, 2009). Just as a storm passes through, but the town remains after the storm is over, thoughts pass through the mind, and students have choices about

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how long they allow the “storm” to stay or observe that when the thought goes, they remain a self apart from the thought (Harris, 2009).

Clarifying values is an essential concept in ACT. ACT asks *people to consider what they want their life to stand for*. (Harris, 2020). In pre-health advising, values clarification helps students identify how they want to be in a pre-health program and what kind of person they hope to become by pursuing a college degree. Standing for something expresses the kind of life they hope to live, and it is not the goal of getting into medical school. Instead, values ask students to think more broadly about where they are going in life and the kind of difference they hope to make regardless of medical school, which is an external goal they have no control over.

Taking committed action is based on one’s core values. In ACT, committed action challenges students to do what it takes to live according to values and pursue what matters most in creating a fulfilling life (Harris, 2009).

Relevance to Pre-Health Advising

ACT offers a flexible and creative approach to pre-health advising. Advisors using an ACT approach help students develop psychological flexibility on an uncertain path. Guiding students to accept difficult emotions about uncertainty, academic ability, failure, and other challenging emotions helps them defuse thoughts and develop an awareness of when their thoughts are “workable” and when thoughts derail their progress or become “unworkable” and destructive. The level of uncertainty about successful progress in a pre-health program creates anxiety, and acknowledging thoughts and feelings as part of the process allows students to notice how their thoughts affect behavior and identify habits or behaviors that impede progress.

The phrase, *moving toward what matters*, does not mean getting into medical school. Using ACT in pre-health advising does not guarantee admission to a professional school! The aim of ACT is not attached to one specific outcome, but to a broader conception of the difference one wants to make or what one wishes to stand for. The main goal is to increase psychological flexibility so that students accept feelings of uncertainty about being in a pre-health program while continuing to pursue their education. Uncertainty about the pre-health process remains regardless of the advising approaches. However, ACT helps students develop psychological flexibility by accepting uncomfortable feelings associated with not knowing an outcome while staying committed to academic success in college.

Motivational Interviewing (MI)

MI Theory

Motivational Interviewing (MI) is a person-centered counseling approach that addresses feelings of ambivalence that arise when making behavior changes. MI affirms that motivation to change lies within individuals (Miller & Rollnick, 2013). Research articles abound about using MI approaches in academic advising. For an excellent overview and comprehensive discussion on the use of MI in academic advising practice, see Hughey and Pettay (2013).

MI theory was developed in the 1980s by William R. Miller and Stephen Rollnick (Iarussi, 2013). Miller and Rollnick created the MI model to help people recovering from substance abuse (Iarussi, 2013; Miller & Rollnick, 2013). Since the 1980s, MI approaches have flourished in many contexts, including

academic advising (Hughey & Pettay, 2013; Iarussi, 2013). MI approaches encourage people to identify challenges they have and changes they wish to make in their lives. Overall, MI is a person-centered, directive approach for evoking the intrinsic motivation for change by exploring and resolving natural ambivalence about changing behaviors (Hughey and Pettay, 2013).

MI is beneficial for pre-health academic advising because it offers a collaborative model to enhance the advising relationship. Practitioners using an MI approach ask **O**pen questions, give **A**ffirmations, use **R**eflective listening, and provide **S**ummary reflections—four skills referred to collectively as **OARS**. OARS skills help advisors explore students' feelings of ambiguity about making behavioral changes (Miller & Rollnick, 2013). OARS skills help pre-health advising by creating a safe space for students, developing a trusting advising relationship, understanding students' perspectives, and identifying students' future goals. Importantly, OARS helps advisors to build rapport with students and to assess their openness to change.

Here are definitions for the four OARS skills:

Open Questions

Asking open-ended questions inspires students to talk about experiences in their own words. Hearing students' perspectives helps the advisor on many levels. The advisor hears insights, perceptions, and concerns, which leads to the exploration of themes or issues students share. It allows the advisor to observe how students solve problems or develop insights about their experience, sparking what Miller and Rollnick (2013) call "change talk." Encouraging change talk is an essential component of MI: open questions allow students to focus on what matters most to them, leading to a discussion about what they would like to be different. Advisors intentionally try to encourage change talk to help students identify what behaviors they most want to change. An example of an open question would be, "What would you most like to talk about?" Also, "How do you think making this change will help you?"

Affirmations

Affirmations are an essential tool in MI (Miller & Rollnick, 2013). Affirmations are statements of acknowledgment or understanding that enhance the advising relationship and help advisors create a strong bond with pre-health advisees. When advisors offer sincere and authentic affirmations in response to what students share, it helps build a trusting advising relationship (Miller & Rollnick, 2013). By focusing on behaviors, advisors praise students' strengths or acknowledge students' struggles in trying to make behavior changes. Examples of affirmations would be, "You are good at communicating your needs." Also, "You are trying hard to learn calculus this semester."

Reflective Listening

Reflective listening means listening for a deeper understanding of a student's experiences. With reflective listening, advisors listen with intention, notice non-verbal cues, and reflect back on what the advisor heard the student say. Reflective listening can focus on words and phrases shared by students as well as non-verbal body language. Students benefit from having their experience reflected back to them, and the advisor has an opportunity to ask for clarification. Students feel listened to and understood when advisors share perceptions, and they appreciate a chance to correct what the advisor reflects back to them if the advisor missed the main point. Examples of reflective listening can be, "You say you want

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to hire a tutor this semester.” Also, reflection listening means acknowledging non-verbal behaviors: “I notice you are quiet today.”

Summary Reflections

Summary reflections flow from reflective listening with students. Advisors use summary reflections throughout advising meetings to ensure advisors understand students’ goals and challenges. Summaries are “check-ins.” When students seem ambivalent about addressing challenges or changing behaviors, a summary reflection would be, “Sounds like you want to stay registered for this course, but you also worry you may fail the class and therefore wish to drop it.” Advisors also use summary reflections to clarify what was said and ask students to repeat what they heard during an advising meeting.

OARS skills and techniques help advisors clarify and understand students’ points of view. Students are ultimately responsible for making choices, and the desire to change must come from the student and not the academic advisor. Advisors use OARS skills to elicit *change talk* in students when students share concerns during an advising meeting.

Encouraging change talk is a crucial aspect of MI and is defined as “any self-expressed language that is an argument for change” (Miller and Rollnick, 2013). Change talk comes from the pre-health student, not the advisor, as the student “tells their story” in an advising meeting. Advisors hear, assess, and address change talk when it arises during an advising appointment.

There are various methods to elicit change talk in advising. OARS tools provide a scaffold to encourage change talk, and asking open questions is often the first step. When students volunteer they feel unhappy or have been struggling with coursework or other issues, they open a door for the advisor to ask, “How would you like things to be different right now?” This question may lead to surprising responses and opportunities to discuss and further explore changes the students wish to make. The student may have been thinking about making changes for some time.

Another useful MI tool is the ruler strategy (Resnicow et al., 2015). The advisor asks the student to rate on a scale of one to ten the following three factors, one being the lowest score and ten being the highest score:

1. How important is it for you to make this change?
2. How motivated do you feel to make this change?
3. How confident are you about making this change?

Once the student gives a rating for each factor, the advisor and student discuss why the student gave a lower or higher number for each factor and what actions would be needed to change the ratings (Resnicow et al., 2015). Also, the advisor can explore the relationship between the three factors. For example, suppose a student rated ten on the importance of making a change, eight on feeling motivated to change, but only three on confidence about making a change. In that case, the advisor can focus on strategies and recommend campus resources to help the student gain confidence.

Advisors can also ask the student to write down the pros and cons of continuing current behaviors against making behavior changes. When a student expresses change talk, advisors can ask for further elaboration or engage the student in visualizing what change would look like if it happened. Sometimes, it helps students think back to a time when they were successful and encourage them to identify the behaviors that led to past successes.

Like ACT, values exploration inspires students to focus on important goals, dreams, and aspirations that give meaning to life. This exploration can help students gain insight into present behaviors that prevent reaching valued outcomes (Hughey & Pettay, 2013). Discrepancies between stated values and behaviors that do not serve values heighten students' awareness of where to refocus attention or contemplate ways to remedy behaviors to meet goals. The concept of discrepancy is a crucial feature of MI. Developing discrepancy also encourages change talk, allowing students to explore the status-quo and compare to how they wish things could be if they made desired changes (Hughey & Pettay, 2013).

In addition to the four OARS tools, MI encompasses five principles that distinguish it from other counseling theories. These principles strengthen and stimulate motivation to change (Hughey & Pettay, 2013). The five principles are: expressing empathy, supporting and developing discrepancy, rolling with resistance, supporting self-efficacy, and developing autonomy (Hughey & Pattey, 2013; Miller & Rollnick, 2013).

Empathy helps advisors create rapport with students by asking open questions, using affirmations, engaging in reflective listening, and making summary reflections, the four tools of OARS. Empathy lays a foundation of trust for the student to open up and share complex or mixed feelings. By responding to students' stories with empathy, advisors join with students and accept their progress without judgment. This nonjudgmental approach goes a long way in creating a safe environment to talk about challenges.

As discussed previously, advisors develop discrepancies with students by helping students explore gaps between a stated goal (i.e., attending faculty office hours) and student behavior (i.e., not following through to attend office hours). The concept of discrepancy is compatible with the ACT concept of moving toward or away from desired or valued living. Students identify changes they wish to make rather than what the advisor tells them to do; if students behave in ways that move away from a stated goal, the advisor acknowledges the discrepancy between the stated goals and behaviors contrary to achieving that goal.

MI accepts resistance as a regular part of change (Miller & Rollnick, 2013). Rather than confronting students, advisors express curiosity about what is underneath the behavior. The advisor's goal is to understand what is happening from the student's point of view and help the students accept resistance as a normal response to change. Examples of using resistance in advising would include asking the student to write down the pros and cons for both making a change and not making a change creates space to explore the ambiguous feelings about whether changing behaviors will be better or might be worse. The change/not-change tool signals that students choose whether to make behavior changes or maintain the status quo.

Self-efficacy supports students' belief that they can change. By focusing on strengths and skills students have demonstrated, students acknowledge their agency in making intentional choices to achieve goals. Self-efficacy is a crucial factor in developing autonomy because a belief in achieving goals inspires students to realize that change comes from inside themselves and not from the advisor. When students develop autonomy, they also understand that they are ultimately responsible for changing their behavior and creating the life they want to live. Such insight empowers students to be proactive and move in new directions.

Relevance to Pre-health Advising

MI gives advisors evidence-based techniques and strategies to get to the heart of why students stay stuck with ineffective patterns of behavior while yearning to change. MI offers a comprehensive way

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of thinking about the advising relationship. Advisors using motivational interviewing develop a non-judgmental mindset, open to students' stories about their experiences, and build collaborative advising relationships. Advisors utilize OARS to elicit change talk. By exploring pre-health students' motivation to change behaviors and eliciting change talk from students using OARS, advisors give students space to take responsibility for making changes based on their values. The freedom to choose gives students agency and empowers them to establish new behaviors that serve their values and goals.

Multicultural Counseling (MC)

MC Theory

Of the three theories discussed in this chapter, MC differs from ACT and MI in three ways. First, unlike ACT and MI, MC asks practitioners (a.k.a. advisors) to examine their identities, prejudices, biases, limitations, values, and cultural heritage—especially the impact of cultural heritage and bias on helping relationships (Sue et al., 2019). Second, unlike ACT and MI, MC strives to achieve social justice, not merely personal fulfillment. MC values individual growth; however, the primary goal of multiculturalism is to change institutions and remove structural barriers (Sue, 1996; Sue & Sue, 2013). Third, unlike ACT and MI, MC relies less heavily on technique. Where ACT applies techniques and skills of acceptance, defusion, self as context, here-and-now presence, values, and committed action—and MI uses techniques such as OARS, developing discrepancy, leaning into resistance, and resolving ambiguity—MC competency means advisors—not just students—explore individual, group, and cultural identities as an essential aspect of ethical advising practice. Advisors' self-exploration includes appreciation of how one's biases affect the advising relationship with students and commitment to action when “noticing the possibility for direct action against bias and discrimination” occurs in everyday life (Sue and Sue, 2013).

Multicultural counseling theory began in the 1980s (Sue et al., 1982) and has evolved over the past forty years (Englert-Copeland, 2019; Pope et al., 2019; Sue et al., 1996). Many factors contribute to the evolution of MC. Continually changing student demographics call for new advising approaches to respond to the professional development needs of college students from diverse communities and cultural backgrounds (Englert-Copeland, 2019; Pope et al., 2019). Advising professionals recognize that developing multicultural competency is essential to ethical advising practice and professional competence in the 21st century (Pope et al., 2019; Selzer, 2016). Professional competence means advisors understand how their privileges and biases inform their advising practice (Englert-Copeland, 2019; Pope et al., 2019). Research shows black students on predominantly white campuses feel underrepresented and experience challenges with social isolation, academic progress, and racism (New, 2016). Multicultural competence requires academic advisors join with students from underrepresented groups to confront institutional barriers that block academic progress or personal wellbeing in addition to providing academic support to individual students.

Embracing a multicultural counseling approach to academic advising also involves advisors developing cultural humility to strengthen and build a trusting advising relationship with their students (Anders et al., 2021; Hook et al., 2013; Selzer, 2016). Academic advisors play an essential role in—and own responsibility for—developing supportive and effective mentoring relationships with students who come from a broad spectrum of cultural backgrounds (Robinson & Williams, 2020).

Multicultural counseling theory evolved from the Tripartite Development of Personal Identity model first developed by Sue and Sue (2013) in the 1980s. The model includes three levels: the individual level, group level, and universal level (Sue et al., 1982).

- At the individual level, people have unique personal qualities unlike any other individual (Sue & Sue, 2013).
- At the group level, people possess similar characteristics with others and are like some other individuals (Sue & Sue, 2013).
- At the universal level, people share the same genetics and are like all other individuals (Sue & Sue, 2013; Sue et al., 1982). This third level encompasses universal experiences of love, birth, death, work, language acquisition, and emotions (Sue and Sue, 2013).

In the Tripartite model, advisors become culturally competent by gaining awareness, knowledge, and skills to work effectively with people from diverse cultural backgrounds by developing awareness about one's own cultural values and biases; learning to value the culture and worldviews of others; and honing a set of culturally appropriate interpersonal skills (Sue et al., 1982).

Sue and colleagues (1982) developed MC theory to address the reality that traditional counseling theories ignored race, culture, and ethnicity as essential factors shaping counseling relationships and dynamics (Sue, 1996; Sue et al., 1982). Traditional counseling theories of the 20th century drew upon White, Eurocentric, middle-class perspectives, ignoring worldviews and values of people from other cultural groups (Sue, 1996).

Over time, the Tripartite Development of Personal Identity model (Sue et al., 1982) led to the development of new theories, including theories of intersectionality and social justice as essential aspects of multicultural competence (Ali & Courtland, 2019; Anders et al., 2021). Intersectionality theory illuminates the multi-layered and overlapping identity development in individuals (Ali & Courtland, 2019; Anders, 2021; Crenshaw, 1989). Intersectionality theory helps advisors see the multiple and varied cultural identities students bring to advising, including overlapping layers of oppression due to class, gender identity, race, sexual orientation, age, religion, physical ability and other identities (Anders et al., 2021; Crenshaw, 1989).

In social justice advising, advisors accept that racism, sexism, homophobia, and other forms of stereotyping and oppression harm students (Selzer & Rouse, 2013). A social justice approach means the advisor develops and moves beyond exploring cultural biases and toward advocacy for change within institutional structures and policies (Selzer & Rouse, 2013). Another goal of advising from a social justice perspective means speaking out and confronting racism and other forms of oppression. Advisors become advocates for social change by working to change institutional barriers, addressing societal inequities with pre-health advisees, confronting those who stereotype others, and acknowledging when prejudice undermines students' wellbeing and academic success (Selzer & Rouse, 2013).

Relevance to Pre-Health Advising

People see and experience the world differently from each other based on cultural factors. It is crucial for advisors of any racial or cultural background to understand challenges pre-health students experience with intersectionality, racism, homophobia, and other forms of prejudice based on personal identities or cultural factors. Unlike ACT and MI, with distinct interventions, MC is a broader approach and mindset

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in advising pre-health students. There is no one intervention or skill associated with MC. Instead, advisors consider how pre-health students' cultural background and experiences influence their perceptions of the world and of themselves. Advisors work to celebrate, acknowledge, and integrate the students' worldview and perspectives as part of the academic plan. Advisors incorporate cultural values as an integral part of the advising relationship and acknowledge students' identities by honoring the advisee's individual experience, group identity, and universal belonging (Sue et al., 2019; Sue et al., 1982). Also, advisors develop cultural competence by exploring their own cultural identity, biases, prejudices, privileges, blind spots, and assumptions about students from cultures and backgrounds different from their cultural background, especially how intersectionality affects the advising relationship (Anders et al., 2021; Sue et al., 2019).

Culturally competent advisors develop and express genuine caring by getting involved in community events, speaking out about injustice, and engaging in difficult conversations with students to share the struggle for equity and inclusion on campus and in the broader society. It is paramount for advisors to play an active role in removing structural barriers that prevent students from thriving or harm their physical or psychological wellbeing.

Social inequities inherent on the pre-health path have resulted in higher attrition rates for students who are black or come from other underrepresented groups (Lin et al., 2013). As mentioned earlier in the chapter, pre-health students leave pre-health programs due to structural factors contributing to under-preparedness for college-level science courses rather than lack of personal motivation or curiosity to learn science (Lin et al., 2013). Factors such as academic preparedness before college and college performance in science courses once a student matriculates predict eventual success in gaining admission to medical school (Zhang et al., 2020). Therefore, advisors must address these concerns from the beginning of students' college experience. Multicultural approaches offer advisors a means for acknowledging, addressing, and advocating on behalf of pre-health students who have been historically, and are now, underrepresented in professional health graduate programs.

THEORY-TO-PRACTICE APPLICATIONS

Applying ACT Theory

Pre-health advisors may decide to apply ACT counseling approaches with pre-health students when they feel challenged by uncertainty or experience unwanted internal thoughts or feelings which lead to experiential avoidance. For example, a student may share he or she feels like an imposter as a pre-medicine student or may express a wish to avoid a particular pre-medicine course because the course has a reputation for being difficult or demanding.

The main goal of ACT is to increase psychological flexibility. ACT helps advisors work with pre-health students so they can accept uncomfortable feelings associated with the uncertainty of medical school admittance while continuing to move toward a cherished goal which matters to them.

How? By interrogating thoughts and feelings, an ACT approach helps students explore how internal psychological, or mental, experiences hinder or support them in moving toward the life they want to live.

Advisors help students defuse unwanted thoughts and feelings by acknowledging the power these unwanted internal experiences have on students' behaviors—especially whether students are moving

toward cherished goals regardless of difficulty level or are using experiential avoidance to move away from uncomfortable feelings associated with the challenge of being a pre-health student.

Here is a fictional example of what it might sound like if an advisor used defusion when talking with a student during a typical advising appointment:

Student: *I seem to be getting nowhere. I feel worried I will bomb the organic chemistry midterm, and if I fail the test, I will not become a doctor.*

Advisor: *So, you are having the thought that you will bomb the test. What other messages is your mind telling you? (Defusion)*

The phrase, *you are having the thought that*, helps defuse the student's thought he or she will bomb the organic chemistry test by helping the student see it is only a thought, not a fact, and that the thought does not have the power to stop the student from continuing to study for organic chemistry regardless of the uncomfortable thought he or she may fail the test.

The student may go on to say, in the same fictional appointment:

Student: *I feel scared. Also, I feel discouraged. I feel angry because things stack up against me, and it is not fair because my high school did not have AP classes. I feel stressed that I will not make it and sad to let my parents down. (Values) They often do not understand because they did not go to college. They keep telling everyone I am going to be a doctor. I did not go home yet this semester because I did not want them to know I was failing. (Experiential Avoidance)*

The student values his or her family and cares about their esteem; yet, the student decided not to travel home this semester in order to avoid the painful experience of sharing how challenging courses are this semester. An advisor might respond to experiential avoidance by saying something such as:

Advisor: *So, one way your thoughts and feelings operate right now is to avoid going home to see family, which is something that matters to you. (Acknowledging Experiential Avoidance; also, Acknowledging Values) Another way you may avoid the unpleasant thoughts and feelings about failing your exams is that you are not studying. Is that what you were saying a few minutes ago? (Exploring Experiential Avoidance)*

Exploring experiential avoidance with pre-health students may take many forms, depending on the advisors' philosophy and orientation. The advisor could simply make an observation, as follows:

Advisor: *My hunch is you have unwanted thoughts about your progress and take those thoughts literally. When you do that, you stop doing the things that matter to you or that will actually help you do well on the exam, even if it is hard. Organic chemistry exams are going to be hard. However, you can take action today to do well on the next exam, which may increase the likelihood of success. Does that make sense?*

Pre-health advisors also may use ACT experiential exercises during advising meetings, if time allows. Here is a fictional example of how an ACT defusion exercise might be used in pre-health advising:

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Advisor: Place this notebook against your forehead, covering your face so that all you can see is the notebook. This notebook represents a thought or a feeling that takes up a lot of your energy. What thought do you want the notebook to represent? (Defusion Exercise)

Student: That I will not get into medical school.

Advisor: With the notebook pressed to your forehead, what do you see?

Student: Just the notebook. I cannot see anything else.

Advisor: Okay, move the notebook out as far from your face as the length of your arms. What happens?

Student: I see more of the room.

Advisor: What happens if you put the notebook on the desk?

Student: Now I can see you and the room.

Advisor: Can you see the notebook?

Student: Yes.

Advisor: As you moved it away and then put it down, did it go away?

Student: No, the notebook is still here.

Advisor: Is it different from when you had it up against your nose?

Student: It's still there, but I can see other things, too.

Advisor: So, if the notebook represents your mind offering the thought you will not make it into medical school, does it have to be the only thing you see?

Student: I guess not. (Smiles). It's just a thought I'm having.

Applying MI Theory

What if the advising concern has more to do with motivation? Advisors apply MI approaches in advising when students express ambivalence about making behavior changes which would help them achieve goals. For example, a pre-health student says they plan to apply to medical school next summer, and yet they tell you in the advising meeting they have not yet reviewed any application or MCAT materials.

MI addresses feelings of ambiguity that most people feel when changing behaviors. An MI approach uses open-ended questions, affirmations, reflective listening, and summary statements to help students explore and resolve feelings of ambiguity as it relates to change.

The following fictional dialogue is an example of how advisors may use the MI model in advising pre-health students who struggle with motivation:

Advisor: Last time, you identified some study strategies you were willing to try. How did that work out? (Open Question)

Student: Honestly, I did not use the study resources we talked about last meeting. I thought about it, but I put it off and did not go.

Advisor: You thought of going, though: that is great! (Affirmation) You are laying a foundation to try new study habits. (Affirmation)

Student: The thing is, I believe I will fail no matter how hard I try. I play video games with my roommate instead of studying to relieve stress.

Advisor: Let me see if I understand. (Reflective Listening) On the one hand you would like to develop better study habits to succeed in organic chemistry. However, playing video games instead of studying helps you feel less stressed. (Developing Discrepancy; also, Reflective Listening) Is that accurate?

Student: Yes! I know I could do better. (Change Talk)

Advisor: *You are determined to make changes.* (Affirmation)

Student: (no response)

Advisor: *What would you like to be different?* (Open Question)

Student: *I keep thinking about a new routine. I would like to have a regular study time, something I do every day.*

Advisor: *Is this a strategy that has worked before?* (Evoking Change Talk)

Student: *I used to have a regular study time in high school, right before track practice.*

Advisor: *You are good at recognizing what worked for you.* (Affirmation)

If time allows during an advising meeting, the following MI activity to elicit change talk and address ambivalence can be useful:

Advisor: *In the upper-left hand corner put “Pros”; in the upper-right hand corner write, “Cons.” Then, on the bottom half, on the left-hand side put, “Change” and “Not Change.” I want you to write down the pros and cons of changing or not changing in these quadrants. Take as much time as you need.*

(Student writes down the pros and cons of changing or not changing).

Advisor: *What do your responses mean to you?* (Open Question)

Student: *The pros of not changing are I know what to expect. However, not changing means I continue to feel miserable.*

Advisor: *How is that for you?* (Open Question)

Student: *I hate it! The pros of changing are, maybe I will feel better but the con is that maybe I will not feel better and maybe it gets worse.*

Advisor: *Earlier you said you wanted to change by creating a regular study routine, is that right?* (Summary Reflection)

Student: *Yes, it bothers me having so much free time to burn without doing my work.*

Advisor: *On a scale of one to ten, with one meaning this change is not important to you and ten being this change is very important to you, where would you put yourself today?* (Scaling or Ruler Exercise)

Student: *I would say a nine or ten. I want to make this change.*

Advisor: *You desire to change. (Reflective Listening) Okay, on the same scale, how confident do you feel you will be making this change? One means not likely, ten means very likely, to make this change.* (Scaling or Ruler Exercise)

Student: *I would say about a three or four.*

Advisor: *You say making this change is important to you and rate it at nine or ten, and you say your confidence for making this change is about a three or four. (Reflective Listening) Could you say more about the relationship between these two factors?* (Open Question, Developing Discrepancy)

Student: *That’s easy: I have not been successful making this change. I care about school and at the same time I am failing.*

Advisor: *I am more curious what you think will work best for you right now. Any ideas?*

Student: *What we talked about before: going to class, being on time, working with a tutor, doing extra problem sets, reading chapters more than one time, starting assignments early.*

Advisor: *Pick one.*

Student: *Starting assignments early.* (Student identifies goal)

Advisor: *Just because you have lower confidence today does not mean you will not be able to feel more confident tomorrow. For the next two weeks, would you be willing to practice starting assignments*

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early? (Student nods). You identified a meaningful goal. (Autonomy) How will you know you met the goal?

Student: *I will start assignments early.*

Advisor: *Today, you did a great job identifying pros and cons of changing and not changing for a goal you say is meaningful to you. I wonder how you will get started with the goal of beginning early on assignments? (Responsibility rests with Student)*

Student: *I plan to begin my organic chemistry homework after this meeting. I have a block of time to begin my next homework assignment, and I can bring that to tutoring hours tomorrow afternoon before I go to class. (Responsibility)*

Applying MC Theory

Advisors may use Multicultural Counseling theories in a universal and holistic way, adopting a worldview that values and celebrates diversity. Advisors examine and explore their own cultural identity as part of professional growth and development, and advisors advocate for social justice in the wider society. From this approach, advisors recognize their part in a broader social system that has historically disadvantaged some groups. At the same time, advisors appreciate the role of stereotype threat in academic advising dynamics which may cause students to feel an advisor perceives them as underprepared which in turn creates negative outcomes for students in terms of their academic performance and overall well-being.

Open-ended questions play a role in MC, just as they do in ACT and MI. In the following fictional example, the advisor signals s/he believes in the student and supports the student as an individual, as a member of a cultural community, and as a person who is a valued member of the wider university community. This fictional example provides elements of multicultural counseling approaches and also addresses stereotype threat experienced by a pre-health student:

Advisor: *Hey, good to see you! What brings you in today?*

Student: *I am worried I'm going to fail organic chemistry.*

Advisor: *Tell me what is going on; why do you think so?*

Student: *I try to study but all I can think is that I'll fail.*

Advisor: *Okay. Tell me more. Is anything else going on with this class?*

Student: *I notice I never get called on to answer or share my work, and that kind of bothers me.*

Advisor: *Could it be you feel anxious you might fail and therefore be seen as a failure?*

Student: *I think if I fail, I will be confirming what people think: dudes like me cannot be scientists.*

Advisor: *Are you worried you will confirm negative, stereo-typed expectations about you because of your race?*

Student: *Maybe.*

Advisor: *Then maybe this worry makes you avoid being seen as weak and avoid doing the homework because you feel worried which then becomes a self-fulfilling prophecy? Is it like that?*

Student: *Actually, yes, that happens.*

Advisor: *It sounds like you are experiencing stereotype threat in this class, which is not about you or your ability to learn chemistry.*

Student: *What is that?*

Advisor: *Like it sounds: you perceive you are being stereotyped and so you feel anxiety that if you fail this class, you will be living up to the stereotype that black students will not be successful in college*

science classes. It is an important thing for us to talk about because it could lead to you giving up on yourself due to no fault of your own. Does that make sense?

Student: *Yes.*

Advisor: *I wonder what would happen if next time you noticed you felt you were being stereotyped you chose to see this trigger as a catalyst for academic success instead of a barrier.*

Student: *How do I do that?*

Advisor: *Try to say to yourself, in the moment, I am not a stereotype, I can learn this material the same as anyone else.*

Student: *I like that!*

Advisor: *I believe in you and I believe you can be successful in this and any course.*

Student: *Sometimes I feel like I don't belong in that class.*

Advisor: *You belong in that class, and you belong at this university, and we are lucky to have you here. Remember, learning chemistry is not a fixed state: you have to practice, and if you are doing the work, you have the ability to learn this material.*

LIMITATIONS

Counseling approaches are not always appropriate or effective in pre-health advising for a variety of reasons. Large universities with decentralized advising support services may offer pre-health academic support services from several academic advisors in a variety of departments across campus. Counseling approaches may not be practical or feasible with a decentralized advising model.

Pre-health students may not attend regular advising meetings each semester. The appointment may be only 30 minutes in a semester with little communication between advising appointments or from one semester to the next. Advising loses momentum, and gaps in communication mean students miss opportunities to work through difficulties in the present moment with a pre-health advisor. Infrequent advising meetings and a pattern of cancellations also may mean students are aware they are not making progress or are not ready to explore other majors or career options. When students do schedule advising appointments, the focus of the meeting may be more transactional. However, if time allows, there may be an opportunity to invite deeper discussion about students' progress and concerns. Such a meeting may be a great opportunity for the advisor to apply ACT, MI, and MC approaches.

Sporadic advising is a major challenge to using counseling approaches in pre-health advising because advisors may lose track of an individual student, thereby missing opportunities to problem-solve with that student in the present moment or provide resources or encouragement that might have helped that student develop new coping skills by working through a difficulty together during an advising appointment. It may help the advising relationship simply to acknowledge gaps between now and the last appointment. ACT approaches would listen for fused thinking and attempt to use sporadic advising to explore values and increase psychological flexibility. MI approaches would develop discrepancy, lean into resistance, and resolve ambiguity a student may feel about using resources like advising. MC approaches would open a discussion on what it feels like to be a member of the campus community and try to identify institutional and structural barriers harming a student's progress. Behavior provides an opportunity to be curious about what may be happening and to invite students to open up about their experiences, challenges, and concerns.

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Counseling approaches may not work for all students. Sometimes pre-health students persist and succeed academically with little engagement with their pre-health advisor; for this group, using counseling approaches may be heavy-handed or unnecessary because the students are coping well with uncertainty, demonstrate motivation, behave proactively, and open themselves to experiencing cultural humility through exploration of cultural identity, cultural heritage, and new ideas and cultures through coursework and campus involvement.

Further, not all advisors feel comfortable using a counseling approach and have an equally effective model to advise pre-health students. Counseling theories offer an approach for advising pre-health students, but these approaches are not the only effective means for supporting students on the road to medical or other professional graduate programs. Faculty mentors guide students and open their minds to the creative possibilities in the arts and sciences, encouraging students to join a lab or contribute to a research project. Forming a bond with a faculty mentor profoundly shapes a student's professional development. Advisors may consider whether using counseling approaches fits the advising needs of their pre-health student population. Like anything, it takes time to integrate a new model into daily practice. References at the end of this chapter are a good place to begin.

CONCLUSION

Soren Kierkegaard observed, "Life can only be understood backward, but it must be lived forward."

Understanding backward is an apt metaphor for the pre-health advising relationship (Nelson, 2015). In pre-health advising, understanding backward means advisors join students in an uncertain process with no guarantee of success yet with an open willingness to move toward a meaningful, if allusive, goal. Pre-health students "live forward" by starting college and attempting pre-medical pre-requisite coursework, not knowing if they will be successful attaining admission to medical or other professional programs. Pre-health academic advisors cannot predict which advisees will be successful attaining the goal of being admitted to medical school or which will be successful in other fields of study. Instead, students and advisors "understand backwards" by engaging together in a collaborative process, the meaning of which evolves over time and cannot be known until the student attempts a pre-health program of study.

Along the way, academic advisors guide pre-health students on an uncertain path to help them gain professional skills and awareness throughout their college career. Advisors apply theoretical approaches, intentional strategies, and evidence-based practices to help students develop psychological flexibility, access motivation, and gain cultural awareness as they cope with uncertainties inherent to pre-health programs. Counseling approaches facilitate that process.

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KEY TERMS AND DEFINITIONS

Academic Persistence: The concept in higher education whereby students continue to pursue a degree program even when faced with academic or personal challenges.

Academic Preparedness: One predictor of persistence in college for pre-health professional undergraduate students.

Acceptance and Commitment Therapy: A counseling approach that teaches individuals to live according to their values and develop acceptance for times when life experiences cannot be controlled.

Experiential Avoidance: A concept in Acceptance and Commitment Therapy which describes evading or lessening the impact of uncomfortable thoughts or feelings by preventing oneself from moving toward meaningful goals, aspirations, and valued living.

Motivational Interviewing: A counseling theory based on a belief that the capacity for change comes from within.

Multicultural Counseling: A counseling approach that embraces cultural experiences and identities as key factors for wellbeing and holistic development across the lifespan. Practicing from a multicultural perspective means the helper explores his or her own biases, values, and cultural assumptions, especially how these cultural perceptions influence the helping relationship and process.

Perspective-Taking in Advising: An ability to view circumstances from points of view other than one's own.

Pre-Health Advising: An academic advising process focused on helping undergraduate students develop academic skills, excel in science, reflect on identity, and engage in pre-professional experiences en route to applying to graduate programs in medicine and other health fields.

Psychological Flexibility: A concept central to Acceptance and Commitment Therapy describing an individual's willingness to experience uncomfortable feelings or thoughts while staying true to personal values or behaving in accordance with personal values.


Stereotype Threat: Anxiety that one's performance will confirm negative stereotypes about one's racial, ethnic, or cultural group.

Structural Inequality: This concept refers to when people in one group are consistently and systematically denied equal status or rights and privileges enjoyed by other groups in the same society.

Chapter 10

Using Pre-Professional Competencies in Advising, Tracking, and Writing Letters of Evaluation

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ABSTRACT

This chapter presents organizational templates for advisors and admissions officers when describing or evaluating competency development among prospective students. Using these templates, stakeholders can articulate the strengths and capabilities of individual applicants based on information provided on their applications and letters of evaluation. Each major characteristic and competency are described with example sources identified to demonstrate the concept of “knows how, shows how, and does” for competency development. These concepts are generally reinforced in holistic review training for admissions staff and faculty evaluators to provide a consistent standard of assessment, especially in reviewing letters of evaluation.

INTRODUCTION

Admissions officers and their selection committees focus on choosing the best possible applicants who, in turn, will become the best possible medical students, residents, and practicing physicians. Admissions professionals have long sought to offer seats in their classes to students who present the right mix of academic achievements and personal qualities essential for entering the medical profession. Critics of US medical school admissions processes note that while much effort has been made to assess academic

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acumen with reliability, efforts have been less successful in identifying and measuring critical personality characteristics and habits of mind necessary for future physicians (Eva et al., 2004; Schreurs et al., 2020; Siu & Reiter, 2009). Progress to improve the assessment of personal characteristics has been hampered by a lack of agreement on which qualities should be most valued and how those qualities should be assessed (Koenig et al., 2013; Kreiter & Axelson, 2013).

In this chapter, we will provide guidance to pre-medical advisors, their students, and university and departmental leaders regarding how pre-medical preparation and experience may relate to developing desired personal qualities and competencies. We will present a consensus document prepared as part of the Admissions Initiative by the Association of American Medical Colleges (AAMC) in conjunction with the National Association of Advisors for the Health Professions (NAAHP) that enumerates 15 essential competencies that pre-medical students should seek to develop in preparation for medical school (AAMC, 2010; Koenig et al., 2013). We will provide templates that present:

- guide sheets that can be used by students to track their effort to develop and demonstrate each competency;
- an overview of the competencies, examples of developmental milestones, and evaluation strategies; and
- planning sheets for university administrators to consider their institutional culture, resources, and opportunities for pre-medical students to explore and advance in development of each competency.

We will also present additional documents from the AAMC that details Guidelines for Writing a Letter of Evaluation for a Medical School Applicant (Ibrahim et al., 2021) and an applicant self-assessment workbook. Also included are examples and suggestions that describe other competencies that could be mission-specific or valued by other health professions.

BACKGROUND

Competencies are defined as teachable and learnable attributes that individuals must develop in order to carry on their professional roles (Edgar et al., 2020). Medical education has embraced assessment of competencies to validate that medical students and residents have the interpersonal and technical skills, knowledge, attitudes, and values to be effective and caring physicians. Launching the current competency curriculum and assessment movement in 1999, the Accreditation Council for Graduate Medical Education (ACGME) enumerated a set of six defined competencies that all trainees in residency programs should master that included: patient care, medical knowledge, systems-based practice, practice-based learning, and improvement, and interpersonal and communication skills. ACGME guiding principles for the development and implementation of the competencies specify that: 1) the competencies be focused on the desired outcomes of residency training; 2) competency outcomes are based on societal needs; 3) learning occurs through experience and application, and 4) levels of achievement are sequenced in a manner that supports the progression to competence (Mooney et al., 2010).

Medical schools followed suit after the ACGME established its set of competency standards (Frank et al., 2010). Today's approach to competency-based medical education (CBME) focuses on accountability and curricular outcomes organized around school-specified competencies while promoting greater learner-centeredness. National accreditation standards specified by the Liaison Committee on Medical

Education (LCME; 2021) currently stipulate that medical schools should build their assessment programs around competencies and desired outcomes of the medical education experience. LCME accreditation Standard 6.1 on Program and Learning Objectives requires that “The faculty of a medical school define its medical education program objectives in outcome-based terms that allow the assessment of medical students’ progress in developing the competencies that the profession and the public expect of a physician” (2021).

Since the preparation and education of a physician is built upon the applicant’s background and pre-medical experience, it follows that certain essential competencies for incoming medical students had to be identified that are fundamental to the ACGME competencies and their success in medical school, residency, and practice. With input from national committees, advisory groups, and constituents and as part of a larger Admissions Initiative (Koenig et al., 2013), the AAMC identified three categories of core entry-level personal competencies for a medical school applicant: Thinking and Reasoning Competencies, Science Competencies, and Pre-Professional Competencies (AAMC, 2022). These competencies form the building blocks upon which the ACGME competencies can be measured and recognizes that (for example) communications skills and medical knowledge require some foundational skills developed prior to starting as a professional student (AAMC, 2022).

The Role of the Health Professions Advisor

Among the responsibilities a health professions advisor has includes developing a strategy that addresses an applicant’s strengths and weaknesses in preparing for a health professional career. Generally, the advisor meets with prospective applicants and navigates through the complex steps required to create an application that will be considered. The advisor bears responsibility for tracking and reporting outcomes to the institution, and many advisors leverage institutional or community resources to manage opportunities for increasing every applicant’s clinical experience, community service impact, or scholarly activity. Some advisors or advising offices assess their students’ preparation for a health professional career through institutional committee letters or letter packets, similar to the standardized process for graduating medical students seeking residencies (Medical Student Performance Evaluation). To this end, these templates were designed to help advisors better understand the concept of competencies and apply them in writing or reviewing effective letters of evaluation.

Development of Competency Templates

While the 15 competencies were defined, there lacked guidance to see how applicants, advisors, and evaluation letter-writers could utilize this framework. We developed three competency templates for advisors, university leaders, and prospective medical school applicants by focusing on particular personal qualities that should be acquired or burnished prior to entering medical school. We designed the templates that follow to serve as frameworks for thinking about core entry-level competencies from different perspectives. All three templates are flexible and modifiable to include additional competencies that may be essential for entry to other health professional programs.

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Template 1. Guide Sheet for Tracking Competency Development Experiences

Templates 1A-D (Guide Sheet for Tracking Competency Development Experiences) can be used by advisors to counsel students about necessary and important competencies to develop while in college, and by students in planning, tracking, and documenting their relevant experiences (Dannefer & Henson, 2007). Template 1 can be completed by students after consultation with their advisors and mentors. For each competency, the source of evidence, engagement activity, and personal learning outcome and its significance should be recorded. This tool can be used to help students reflect on the experiences that they describe in their medical school applications.

Table 1a. Template 1A. Thinking and reasoning competencies

Thinking and Reasoning Competencies	Evidence or Source	Engagement or Activity	Significance/Results
Critical Thinking			
Quantitative Reasoning			
Scientific Inquiry			
Written Communication			

Table 1b. Template 1B. Science competencies

Science Competencies	Evidence or Source	Engagement or Activity	Significance/Results
Living Systems Institutional			
Curricular			
Community			
Human Behavior Institutional			
Curricular			
Community			

Table 1c. Template 1C. Pre-professional competencies

Pre-Professional Competencies	Evidence or Source	Engagement or Activity	Significance/Results
Service Orientation			
Social Skills			
Cultural Competence			
Teamwork			
Oral Communication			
Ethical Responsibility to Self and Others			
Reliability and Dependability			
Resilience and Adaptability			
Capacity for Improvement			

Table 1d. Template 1D. Additional Competencies: While not specifically identified in the AAMC Core Competencies, these additional competencies may be considered to determine an applicant's understanding of challenges that affect one's resiliency to work within the health care system.

Other Profession- or Mission-Specific Competencies	Evidence or Source	Engagement or Activity	Significance/Results
Understanding of Holistic Approach to Health and Wellness			
Familiarity with Complexity of an Interprofessional Health Care System			
Financial Responsibility to Self and Others			
Personal Wellness and Management (including media exposure)			
Creativity and Entrepreneurship			
Psychomotor or Fine Manual Dexterity			

Advisors can use Template 1 to assist prospective applicants to gain an understanding of the importance of documenting and reflecting upon activities that highlight their competency mastery. Advisors may provide this guide sheet to new advisees to help them plan coursework and activities that could contribute to a desirable application, and as a semi-annual or annual self-evaluation. These templates and guide sheets provide a level of flexibility in adding competencies that can help the students prepare for their professional school education.

In addition, one may identify additional competencies and characteristics that could inform admissions committees about an applicant's knowledge of challenges working as a health care provider. The

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Association of American Veterinary Medical Colleges core competencies identified additional competencies for their graduates, including Public Health, Individual Animal Care and Management, Animal Population Care and Management, Financial and Practice Management (2018a). Clinical exposure to these topics is generally recommended for veterinary school applicants. Similarly, understanding the impact of osteopathic medical treatment through clinical observation and exposure is also commonly desired among osteopathic medical applicants, even though a specific sponsorship letter from an osteopathic physician is not universally required. We similarly list additional competencies expected for healthcare providers outside medicine. Template 1D, Figure 4 adds to the AAMC definition of Ethical Responsibility to Self and Others by specifically including the importance of values necessary for patient-centered interprofessional care in the healthcare system, which is one of the four major competency domains for interprofessional collaborative practice (Interprofessional Education Collaborative, 2011). We also identify personal wellness as an additional competency that emphasizes the importance of developing personal habits that will extend one's capacity to be adaptable and resilient without requiring the presence of a specific source of stress, as defined by the AAMC. Finally, in order to drive innovation, problem-solving expertise needed for creativity and entrepreneurship (Rubino, 2005) is increasingly sought after to approach systematic problems in public health outcomes, removing structural barriers to affordable access to care, and developing a more anti-racist diagnostic and therapeutic system of care; this is a more highly focused and more impactful competency than "leadership" or "teamwork."

Template 2. Overview of Competencies and Evaluation Strategies

Template 2 (Overview of Competencies and Evaluation Strategies) provides a detailed description of the defining characteristics for each competency with learning activities and examples of developmental progress in demonstrating attainment of the competency (Wiggins & McTighe, 2005).

Note that the subheading of Template 2 lists one of three domains of competencies: Thinking and Reasoning, Science, or Pre-Professional. The 15 competencies are grouped according to their corresponding domain. Referencing Template 2, column one lists characteristics of each competency as defined by the AAMC (2010; Koenig et al., 2013). Column two gives examples of possible learning activities and sources of evidence that document that the competency has been learned, demonstrated, and or incorporated into the student's behavior. Columns three to five provide suggestions of increasingly stronger evidence of competency mastery. Using a modification of Miller's Model of Clinical Competence (1990), *Knows (How)* refers to the ability to gather facts and apply knowledge, *Shows (How)* indicates that students can demonstrate their learning, and *Does* indicates that students have integrated their learning into their behavior.

Templates 2A- D. These figures focus on the four Thinking and Reasoning Competencies with AAMC's definitions (characteristics), possible sources of evidence in an application, and examples showing development stages of the competency as "knows how," "shows how," and "does" that could be described in a letter of evaluation.

Table 2a. Template 2A. Critical thinking

Critical Thinking Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Uses logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.	Coursework or assignments that have an emphasis towards critical thinking and evaluation as shown through specific grading rubrics or doctrines Literature-based research presentations or projects MCAT	The course discusses the importance of evaluating the validity and credibility of claims regarding homeopathic or alternative medical treatment. Our department seminars ask students to do literature reviews from high-impact journals. The students are asked to review a marketing plan and adapt it for a different customer base. The applicant has casually played chess as a hobby beginning in high school.	Provides documentation and references for a presentation arguing to remove the influence of Big Pharma in medical education Submits an annotated paper on the importance of the Civil Rights Movement in today’s world Final essay exam reveals proper synthesis of information learned in the class As an emergency room scribe, he/she frequently discusses the decision-making process with the physicians he/she works for.	Gets an undergraduate research project funded through a grant written by the applicant Completes writing an accurate historical one-act play that takes place during the Japanese shogunate period Applicant writes a weekly editorial for the student newspaper and robustly defends his/her arguments with citations in follow-up comments on the newspaper website

Table 2b. Template 2B. Quantitative reasoning

Quantitative Reasoning Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Applies quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world	Coursework that is traditionally based in quantitative skills as articulated by the syllabi Employment where quantitative or statistical reasoning is essential MCAT	Rigorous application of dimensional analysis to convert between moles and grams Appropriately uses the Student t-test in data analysis Uses Newton’s Law of Cooling to determine an accurate time of death for a corpse Accounting workshop to balance ledgers as club treasurer	Appropriately reports on a simulation of predator-prey interactions during famine Graphs the forces involved in collisions resulting in concussions based on experimental data Identifies appropriate “control groups” and confounding factors when designing experiments that require quantitative analysis	Created a tutorial to understand Hardy-Weinberg equilibrium Defended projections for climate change trends over the next millennium as part of the applicant’s research paper Assisted in developing a new medical device that will non-invasively monitor blood glucose concentrations

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Table 2c. Template 2C. Scientific inquiry

Scientific Inquiry Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Applies knowledge of the scientific process to integrate and synthesize information, solve problems and formulate research questions and hypotheses Is facile in the language of the sciences and uses it to participate in the discourse of science and explain how scientific knowledge is discovered and validated	Scientifically-rigorous coursework and research Coursework whose syllabi include a focus on experimental design Public understanding of science, engineering, technology	The class has a grading rubric that discusses the importance of repeatable observation and testable hypotheses in psychology experiments. Students are asked to evaluate a newspaper article’s accuracy regarding a scientific discovery.	Research assistants are charged with designing their own hypothesis-driven projects under supervision and coaching by postdocs. Residents in our Science and the Public living learning community discussed gender and racial bias regarding science understanding.	Ability to explain scholarly work Defend data analysis, interpretation, implications of results Role in scholarly work/ dissemination Develops relevant curriculum: labs, modules, learning materials

Table 2d. Template 2D. Written communication

Written Communication Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Effectively conveying information to others using written words and sentences	“English composition” or writing-intensive coursework AMCAS and supplemental application essays	Attendance at Writing Center workshops on writing personal essays Required freshman composition seminar class Scientific communication and writing seminar Course’s final exam involves a term paper Etiquette workshop on proper written and email communication to prospective employers Reads multiple novels in Latin American literature for a major term paper	Created a blog as a public journal about his/her not-so-straight path to medicine Writes a weekly sports column covering several athletes in swimming, tennis, and golf. Submitted a funding proposal to local foundation to support a “science lab day” at the nearby elementary school	Published a research article in an online undergraduate research journal Submitted a short story to student-organized literary journal Edits articles for alumni magazine Writing Center tutor to help professors evaluate student writing in the “Human biology of cancer” class

Template 2E-F. These focus on the two Science Competencies with AAMC’s definitions (characteristics), possible sources of evidence in an application, and examples showing development stages of the competency as “knows how,” “shows how,” and “does” that could be described in a letter of evaluation. The descriptions focus on the applicant’s overall comfort level with science content whether one is involved in teaching/learning assessments or research/scholarship.

Table 2e. Template 2E. Living systems

Living Systems Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Applies knowledge and skill in the natural sciences to solve problems related to molecular and macro systems.	Syllabi and course curricula for completion of degrees Professional society guidelines, such as American Chemical Society Guidelines for Bachelor’s Degree Programs, or ASBMB Degree Accreditation program Professional “blue-ribbon” reports such as “Vision and Change in Undergraduate Biology Education” Institutional center for teaching and learning	The instructor uses of case-based discussions during small-group sessions. The applicant learns under an organ-system-based context.	In laboratory course, each student produces a poster documenting their progress in a lab project for the department research showcase. This postbac program requires students to submit a synthesis report of the literature on a specific therapeutic drug integrating biochemistry, physiology, and pharmacology.	Each tutor is cross-trained to cover multiple science courses and topics, including statistics, molecular biology, organic chemistry, and physiology. The applicant’s research project is innovative in applying engineering principles to simulate blood flow in cerebral aneurysms.

Table 2f. Template 2F. Human behavior

Human Behavior Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Applies knowledge of the self, others, and social systems to solve problems related to the psychological, social, and biological factors that influence health and well-being	Syllabi and course curricula for completion of degrees Service organizations and advocacy groups Professional society reports such as the Curriculum Guide for Undergraduate Public Health Education Professional “blue-ribbon” panel reports such as the AAMC Behavioral and Social Science Foundations for Future Physicians”	Social Science including social sciences, anthropology, ethics, political science, public health & psychology Biology course focused on HIV in society, addressing biological mechanisms and the psychological & social barriers that result from lack of understanding. Joined a campaign to maintain a tobacco-free campus.	Assignments that integrate systems to address health disparities Formed a book club open to all prehealth students to discuss books by Paul Farmer, Perri Klass, Atul Gawande, and Abraham Verghese and others. Develops programs for residents at a local senior nursing home.	Top prize for a public health presentation at summer enrichment program Showcases collection of artwork created by traumatic brain-injury victims Provides resources to improve the cultural context of cases presented in class.

Template 2G-N. These focus on the Pre-Professional Competencies with AAMC’s definitions (characteristics), possible sources of evidence in an application, and examples showing development stages of the competency as “knows how,” “shows how,” and “does” that could be described in a letter of evaluation. Anecdotally, admissions committees focus on these competencies in their holistic assessment of the applicant’s preparation for a health professional career and often will employ standardized interview formats such as the Multiple Mini-Interview.

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Table 2g. Template 2G. Service orientation

Service Orientation Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
<p>Demonstrates a desire to help others and sensitivity to others’ needs and feelings</p> <p>Demonstrates a desire to alleviate others’ distress</p> <p>Recognizes and acts on their responsibilities to society locally, nationally, and globally</p>	<p>Involvement in organizations focusing on community service for a specific population or cause</p> <p>Culture of service from institution/programs attended</p> <p>History of family or peer community service</p>	<p>Posts flyers for future meetings of Amnesty International campus chapter</p> <p>Joins a team for Relay for Life 24-hour marathon</p> <p>Collects school supplies for students at a local underserved school</p> <p>Watches documentary of challenges with illegal human trafficking</p>	<p>Designs a presentation to recruit others to join upcoming service project at local free clinic</p> <p>Secures sponsorships for a charity performance to support domestic abuse victims shelter</p> <p>Supports Navy dentists in a mission tour taking care of patients in Southeast Asia</p>	<p>Helps in decisions hiring and training new volunteers for annual trip to help hurricane victims</p> <p>Develops lasting collaborations to recruit students from the entire campus for upcoming AIDS Walk</p> <p>Awarded campus community award for service to the student body</p>

Table 2h. Template 2H. Social skills

Social Skills Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
<p>Demonstrates an awareness of others’ needs, goals, feelings, and the ways that social and behavioral cues affect people’s interactions and behaviors</p> <p>Adjusts behaviors appropriately in response to these cues</p> <p>Treats others with respect</p>	<p>Peer and facilitator evaluations during team-oriented case discussions</p> <p>Working with fellow volunteers and clients of not-for-profit organization or clinical setting</p> <p>Interactions with faculty or staff</p> <p>Employment with a customer-centered focus (retail, food service)</p>	<p>Took coursework in interpersonal communication</p> <p>Attended workshop on understanding intergenerational dynamics in the workplace</p> <p>Passive involvement in intramural athletics</p> <p>Practiced at career services mock networking and interviewing workshop</p>	<p>Secures over \$10,000 in donation pledges by phone in fundraising campaign</p> <p>Tutors middle school girls in math and science</p> <p>Leads a weekly MCAT study group with classmates</p> <p>Interviewed caregivers of cancer patients for a term paper</p>	<p>Voted as recruitment chair for fraternity rush</p> <p>Appointed house manager of a concert hall</p> <p>Evaluates feedback and makes suggestions based on customer satisfaction survey</p>

Table 2i. Template 2I. Cultural competence

Cultural Competence Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
<p>Demonstrates knowledge of social and cultural factors that affect interactions and behaviors</p> <p>Shows an appreciation and respect for multiple dimensions of diversity</p> <p>Recognizes and acts on the obligation to inform one’s own judgment</p> <p>Engages diverse and competing perspectives as a resource for learning, citizenship, and work</p> <p>Recognizes and appropriately addresses bias in themselves and others</p> <p>Interacts effectively with people from diverse backgrounds</p>	<p>Courses with content in the behavior and social sciences, humanities, and history</p> <p>Activities involving cooperation with diverse peers</p> <p>Global or international experiences</p> <p>Professional resources on cultural competence, such as the National Center for Cultural Competence¹</p>	<p>Completed a minor in gender studies</p> <p>Member of a team that represented an under-resourced African nation for Model UN conference</p> <p>Lived in scholar’s dorm focused on Russian language and culture, but the applicant is not Russian by heritage</p> <p>Hosted a hospitality night for international students and scholars</p> <p>Discusses holistic approach to the doctor-patient relationship with clinical mentors.</p> <p>Takes Implicit Association Test² to understand bias.</p> <p>Reviewed the website on cultural competency from the National Diabetes Education Program</p>	<p>Discusses cultural considerations in addressing solutions to manage climate change</p> <p>Becomes a confidant and advocate for a transgender patient during clinical observation</p> <p>Reflects upon medical mission experience serving rural underserved patients</p> <p>Externship involves testing of portable medical equipment to help midwives take care of pregnant women in rural, underserved areas</p> <p>Oriented a new postdoc (non-English-speaking) to the laboratory and local culture</p>	<p>Actively trains peers and faculty to be LGBTQ allies on campus</p> <p>Establishes a high school “non-violence” club as its mentor</p> <p>Recruits, selects, and trains participants for international medical mission trip</p> <p>Publishes reflections on 6 months of volunteer work for local rehabilitation center for disabled veterans</p> <p>Defends thesis on the challenges of access to health care for Auralian aboriginals</p>

Table 2j. Template 2J. Teamwork

Teamwork Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
<p>Works collaboratively with others to achieve shared goals</p> <p>Shares information and knowledge with others and provides feedback</p> <p>Puts team goals ahead of individual goals</p>	<p>Employment</p> <p>Classroom projects</p> <p>Extracurricular and leisurely activities</p> <p>Research laboratory and collaborating groups</p> <p>Professional “blue-ribbon” reports such as the Core Competencies for Interprofessional Collaborative Practice</p>	<p>Discussed the rubric on “teamwork contribution” when grading a small group class project</p> <p>Took a management course in conflict resolution</p> <p>Enjoyed the team-building activities during pre-orientation camp</p> <p>Reviewed Teaching and Learning website section on Online Tools for Effective Teamwork</p> <p>Reviews articles discussing the importance of interprofessional teamwork and health care</p>	<p>Assigns roles to self and others to make the team more effective</p> <p>Establishes common schedule, goals and objectives for a small study group</p> <p>Publicly praises outstanding members of the team while privately coaching other members to perform better</p>	<p>Is invited to be a panelist at a leadership conference</p> <p>Creates protocols and criteria for successful training of future teams</p> <p>Is chosen by peers to be captain for the team at an upcoming competition</p> <p>Promotes and mentors others as leaders</p>

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Table 2k. Template 2K. Oral communication

Oral Communication Characteristics	Possible Sources of Evidence	Examples of “Knows How”	Examples of “Shows How”	Examples of “Does”
Effectively conveys information to others using spoken words and sentences Listens effectively Recognizes potential communication barriers and adjusts approach or clarifies information as needed	Speeches, group discussions and oral presentations Formal conversations with faculty, managers, or researchers as documented in testimonials Public speaking coaches or organizations	The instructor developed a formal grading doctrine outlining expectations for the required oral presentation. Joined Toastmasters chapter and listens to their podcasts frequently Recites his/her own work at a local weekly “poetry slam” Participated in mock interview workshop	Works as a news reporter for campus radio station Assumes the role of “translator” between physicians and caregivers who are waiting for patients after surgery	Wins regional speech/debate competitions Selected as a top poster presentation at a research showcase Prepares a candidate for class officer for upcoming debate

Table 2l. Template 2L. Ethical responsibility to self and others

Ethical Responsibility Characteristics	Possible Sources of Evidence	Examples for “Knows How”	Examples for “Shows How”	Examples for “Does”
Behaves in an honest and ethical manner Adheres to ethical principles and follows rules and procedures Resists peer pressure to engage in unethical behavior and encourages others to behave in honest and ethical ways Develops and demonstrates ethical and moral reasoning	Coursework in philosophy, ethics, theology, or social justice Adherence to institutional honor code of conduct Responsible authorship of research (posters or submitted articles) Training in confidentiality (FERPA or HIPPA) Criminal background check Testimonials from mentors, advisors, supervisors on observations of integrity	Takes a course that includes ethics, medical ethics, ethical conduct of research Works in lab and/or on group projects Reflects on the consequences of any witnessed unethical behavior (plagiarism, identity theft, illegal file sharing, etc.) Discussed the AMCAS Guidelines for Clinical Shadowing Experiences ³	Service-learning projects associated with ethics-related coursework Confronts others in voicing positions on integrity and ethics for challenging situations Advocacy on behalf of individuals, groups, communities Discussion of articles on ethics, philosophy, and moral reasoning	Recognized as a judge of outstanding moral character through awards or leadership Teaches and demonstrates to others ways to avoid plagiarism and cheating Consults with experts on new challenges in promoting a campus with high moral integrity

Table 2m. Template 2M. Reliability and dependability

Reliability and Dependability Characteristics	Possible Sources of Evidence	Examples for “Knows How”	Examples for “Shows How”	Examples for “Does”
<p>Demonstrates tolerance of stressful or changing environments or situations and adapts effectively to them</p> <p>Is persistent, even under difficult situations</p> <p>Recovers from setbacks</p>	<p>Objective evidence of circumstances that may lead to significant hardship, setbacks, disappointments, or failure. These may include frequent changes of address or academic status, disruptions with family lifestyle or health, or displacement due to natural disasters or manmade conflict.</p> <p>Self-reflection regarding the aforementioned challenges and how he/she persisted or adapted using a support system of family, friends, counselors, and mentors.</p> <p>Testimonials by mentors, advisors and/or supervisors particularly about relationships and challenges</p>	<p>Attends workshop series sponsored by the counseling center of maintaining healthy lifestyle habits and coping with stress.</p> <p>Discusses video “TED Talks” for a freshman seminar regarding the importance of resilience in education.</p>	<p>Participates in competitive activities but demonstrates healthy sportsmanship and support towards his/her opponents</p> <p>Frequently meets with advisors or faculty regarding difficulties with prehealth coursework.</p> <p>Accepted new job tasks and responsibilities when a team member falls ill and could not attend a community service event.</p>	<p>Represents challenges as something they overcame in an insightful way as opposed to challenges that proved an excuse for poor performance.</p> <p>Anticipates changes and adjusts priorities due to an unanticipated deadline.</p> <p>Counsels anonymous callers for a local help line for runaway teenagers.</p>

Table 2n. Template 2N. Capacity for improvement

Capacity for Improvement Characteristics	Possible Sources of Evidence	Examples for “Knows How”	Examples for “Shows How”	Examples for “Does”
<p>Sets goals for continuous improvement and for learning new concepts and skills</p> <p>Engages in reflective practice for improvement</p> <p>Solicits and responds appropriately to feedback</p>	<p>Frequent involvement in workshops, forums, or conferences that build upon material learned in a classroom.</p> <p>Extracurricular activities that were initiated in the last two years that do not relate directly to academic coursework or personal identity</p> <p>Annual updates of Individual Competency Plan, or similar holistic review benchmarking assessment</p>	<p>Discussed results of personality inventory surveys, such as Myers-Briggs and StrengthsQuest</p> <p>Improvement in course performance over the entire semester, or in several similar courses over a year</p> <p>Understands the importance of continuing education and technology updates in health care practice</p>	<p>Shadows a podiatrist and an optometrist to gain more insight into the health profession as an alternative to medicine</p> <p>Plans additional coursework to complete requirements for an additional minor/certificate</p> <p>Handles criticism during scholarly presentations</p>	<p>Designs alternate ways to help others learn difficult concepts in physiology</p> <p>Evaluates and mentors prehealth underclassmen</p> <p>Recognized by faculty at graduation for exemplary improvement in academic coursework</p>

Template 2 can be distributed to stakeholders for the purposes of reviewing examples of each competency and considering how these competencies could be demonstrated by students at their institution. Advisors may use the templates to consider how to incorporate the competencies into the advising of pro-

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spective applicants. Students may reference these templates as roadmaps for developing and documenting competencies while undergraduates, and prior to writing their application to medical school. Professors can use the suggested language to describe the academic rigor and pedagogy used for the class; some lectures may involve more active learning techniques like “think pair share” or case-based discussions, which may not be evident from a grade earned on a transcript. Template 2 can also be distributed to members of the faculty who regularly teach pre-medical students as well as university and departmental leadership to ensure they are aware of the AAMC’s core entry-level competencies for medical students.

As shown in Appendix A and the examples in Template 2, one activity may address multiple competencies. Applicants and advisors should be assured that this is likely more the norm. In making competency-based education more practical for assessment, medical educators use key entrustable professional activities (EPA’s) that tie specific tasks and characteristics expected of professional school graduates and early residents with competencies. For example, the Association of American Veterinary Medical Colleges (AAVMC’s) Competency-Based Veterinary Education framework includes specific EPA’s mapped to competency domains for gathering a history, perform an examination, and develop a differential diagnosis (AAVMC, 2018b).

Template 3. Institutional Culture, Resources, and Opportunities for Pre-Professional Students

The third template is a tool that administrative leaders and advisors can use to assess the availability of institutional and affiliated community resources that contribute to the development of competencies. Template 3, also a grid to be completed, provides the list of all competencies to be developed and then asks the user to consider where in the institutional infrastructure (offices, student support services, mentored experiences, etc.), curriculum (courses, laboratory, externships, etc.) and community (volunteer, service, work opportunities, etc.) students can develop competencies (Dannefer & Henson, 2007).

Templates 3A-B can be used by advisors and institutional leaders to evaluate and strategically improve an institution’s support for pre-professional applicants. Applicants and advisors may use this template to help determine a pre-professional program’s adherence to its mission and support for its students.

Table 3a. Template 3A. AAMC core competencies for pre-professional, thinking and reasoning, and science competencies

Competency Area	Infrastructure	Curricular	Community
I. Pre-Professional Competencies			
Ethical Responsibility to Self and Others			
Reliability and Dependability			
Resilience and Adaptability			
Capacity for Improvement			
Service Orientation			
Social and Interpersonal Skills			
Cultural Competence			
Teamwork			
Oral Communication			
II. Thinking and Reasoning			
Critical Thinking			
Quantitative Reasoning			
Scientific Inquiry			
Written Communication			
III. Science Competencies			
Living Systems			
Human Behavior			

Table 3b. Template 3B. Additional core competencies to assess profession- or mission-specific competencies

Other Profession- or Mission-Specific Competencies			
Competency Area	Infrastructure	Curricular	Community
Understanding of Holistic Approach to Health and Wellness			
Familiarity with Complexity of an Interprofessional Health Care System			
Financial Responsibility to Self and Others			
Personal Wellness and Management (including media exposure)			
Creativity and Entrepreneurship			
Psychomotor or Fine Manual Dexterity			

Template 3 should help institutional leaders survey and critically appraise curricular opportuni-

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ties and outreach activities tied to their campus and community that address the desired educational outcomes. This template represents the final stage of Backward Design as it focuses on the necessary learning experiences and activities that enable students to accomplish the desired outcomes. Template 3, considered in the context of one's institution and its mission and values, can be used to identify gaps in the provision of relevant student experiences as well as to note areas where ample resources exist. As with Template 2, additional competencies can be identified that reflect other desired applicant skills, behaviors, and knowledge. Competencies related to Other Pre-Professional or institutionally Mission-Specific competencies can be added as appropriate.

Fostering and Tracking the Development of Competencies

Documentation of competencies should be viewed as a structured opportunity for students to take responsibility for their education and personal growth. To that end, we encourage distributing the templates with the AAMC Anatomy of an Applicant Self-Assessment Guide (2017) to pre-health students to remind them of the definitions of the competencies and to tracking progress in building the competencies.

Advisors should pose the following questions to their students:

- Who is mentoring them?
- What are they doing, and in what situation or context?
- When are they working on the competency?
- Where is their activity occurring?
- Why is this activity personally and professionally meaningful?
- How is this activity helping them build a competency (or competencies)?

Applicants can create a portfolio that helps develop a timeline and a story arc of their relevant experiences which can later be shared with peers or admissions professionals. Applicants can access the free Health Professional Student Association (HPSA) Premed Planner App to remind them to update their experiences prior to submitting the application. These suggestions are similar to curricular requirements in many medical schools and residency programs that students write journals, build portfolios, or enter their reflections in a learning management system to demonstrate their achievement of professionalism competencies (Beck Dallaghan et al., 2020; Carraccio & Englander, 2004; Elam et al., 1998; Jarvis et al., 2004). By incorporating tracking, journaling, and portfolio development, applicants can begin habits that help students hone their skills of reflection and self-assessment.

Using the Templates With the AAMC Anatomy of an Applicant Worksheets

AAMC released the Anatomy of an Applicant self-assessment guide (2017) to advise pre-medical applicants on describing their activities with the competencies in mind. In addition to the worksheets, AAMC compiled several stories from medical students on its website ("Real Stories Demonstrating Core Competencies") where current students discuss their strongest competencies that they feel make them prepared for a career in medicine (AAMC, n.d.a.). These profiles can help current applicants share experiences with medical students to encourage application submission.

The self-assessment guide provides instructions to use their "Developmental planning worksheets" involving a six-step process of reflection and identifying progress as "planning," "progressing," or "dem-

onstrating.” Applicants are asked to name an activity or experience that best addresses the competency or its development, on the activity’s development of the competency, its importance or impact, and subsequent planning to further develop and demonstrate the competency if other activities are needed. Template 1 complements the AAMC Anatomy of an Applicant guide (2017) by providing examples of descriptions to show an applicant knows (“planning”), shows (“progressing”), or does (“demonstrating”) how to express a specific competency. Template 2 further provides some example language for advisors or references to articulate development of that competency in advising the student or developing the applicant’s letter of evaluation.

Template 2 illustrates the results from an applicant’s efforts with the AAMC Anatomy of an Applicant Guide (2017) to allow applicants and advisors to view development of groups of competencies. Such a dashboard can be used to assess against any evaluation rubrics made by the pre-health advising office and provide any needed advice to the applicant. We provide a partial example in Appendix A to show how information from a resume that would be included in an application could map onto the Scientific and Thinking/Reasoning Competencies using Template 1.

Communicating Competencies in the Application

While the applicant must be focused on articulating competencies in his/her work/activities and personal statement, especially for the AMCAS application, supplemental materials such as letters of evaluation should help admissions committees verify the key activities that reveal development of competencies. By using common language and terminology, professional educators can clearly support applicants in letters of evaluation and allay any concerns about a candidate’s preparation.

When asking for assistance from advisors or evaluators, an applicant should draft a short cover letter that highlights the key activities and competencies that are his/her valuable strengths. This may help evaluators and advisors affirm the themes to be addressed on behalf of the applicant. Such a cover letter may also be useful when a prospective student meets with admissions professionals when seeking advice prior to applying. We provide an example (Appendix A) with hypothetical highlights of an application, assuming the metrics are satisfactory.

Crafting a Helpful Letter of Evaluation

Medical school admissions committee members recognize that much effort goes into gathering information and writing letters of evaluation for prospective applicants. To facilitate the selection process, admissions committee members want letters from advisors to be useful, candid, and honest. And in turn, advisors want guidance on information that is helpful to medical schools in their admission decision-making.

To define qualities of useful letters of evaluation, a study was conducted surveying admissions committee members at six medical schools (a mix of public and private schools in the southern United States) asking them to describe qualities of letters that were “helpful” and “not helpful” (AAMC, n.d.b.). Eighty-one percent of admissions committee members responded. The top five areas of letter content considered to be most helpful were: 1) How long the writer has known the applicant, and the nature of their interactions; 2) Examples of the applicant’s actions that reflect on his or her character, service, or personal struggles; 3) Narrative and numerical comparisons of this applicant to other applicants, including what is admirable in the applicant, and/or concerning; 4) Observation of the applicant’s ability to interact

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with peers, in groups, and/or with faculty; and 5) Insight regarding the applicant's preparedness for medical school as well as knowledge of hardships the applicant has faced while in college (AAMC, n.d.b.).

Information that was already included in the application, lacked specificity, or was not substantiated through any evidence was deemed not helpful. The top five areas of letter content that were not regarded as helpful were: 1) A listing of the applicant's grades received or awards won; 2) Unqualified judgments about the applicant or generalized superlatives; 3) Detailed descriptions of the components of a particular course the applicant had completed; 4) Statements such as "I don't know the student" within the letter of evaluation that negate information provided; and 5) Too much information about the accomplishments of the letter writer or other members of the applicant's family (AAMC, n.d.b.).

Drafted by the AAMC Letters Working Group and the National Association of Advisors for the Health Professions (NAAHP) Letters Task Force, *Guidelines for Writing a Letter of Evaluation for a Medical School Applicant* (AAMC, n.d.b.) was disseminated at the Spring 2013 regional meetings of both the NAAHP and the AAMC Group on Student Affairs (Koenig, 2013; Ibrahim et al., 2021). These *optional* Guidelines are seen as tips for thinking through information that could be included and might facilitate the letter-writing process. The Guidelines are intended to improve the letter-writing process by providing a general framework of best practices and relevant content for letter writers to follow and can be applied to both individual and committee letters (Ibrahim et al., 2021). Most medical school admissions committee members find a balanced letter of evaluation that contrasts strengths and weaknesses of applicants more helpful than letters of recommendation and unqualified support. We believe that letters incorporating the Guidelines and addressing applicant competencies lend themselves to the intent of letters of evaluation in providing specific evidence of competencies achieved or in progress.

Communication Strategies Promoting Competencies in the Letter of Evaluation

While many colleges and universities have pre-medical offices that prepare letters of evaluation, most applicants rely on individuals to write and submit letters of support. While informing undergraduate faculty of the Guidelines and competencies can be a challenge, pre-medical advisors likely know who the most frequently-asked faculty letter-writers are on their campuses. First, advisors should educate the campus community about the competencies via targeted emails and provide links to the Guidelines handout on their website. Along with these reference materials, advisors can encourage advisees to give evaluators a cover letter highlighting the candidate's strongest thinking/reasoning and pre-professional competencies with specific evidence relevant to their interaction with the faculty member. Third, advisors can consider holding information sessions with faculty who frequently are called upon to write letters to introduce the competencies and the Guidelines. Many institutions have an administrative office supporting innovative teaching and learning practices where organizing a collaborative discussion on non-cognitive assessment may be encouraged. At professional meetings (such as the NAAHP meetings), advisors invite admissions officers and faculty members serving on admissions committees to affirm the importance and value of informative letters of evaluation. Finally, advisors and admissions professionals should consider common language that could be incorporated in letters of evaluation that addresses the thinking and reasoning and science competencies as well as pre-professional competencies that applicants have demonstrated over time (Stohl et al., 2011; Workman et al., 2005). Sedlacek's book *Beyond the Big Test* (2004) is commonly cited for discussing non-cognitive assessment for higher education.

If pre-medical advisors work with committees at their institutions to write letters of evaluation, they may want to assign roles to discuss competency evaluation in their assessments. Writing about

students' thinking and reasoning and their science competencies will be easier for faculty who teach in classroom or laboratory courses that are designed to assess those competencies. Describing students' pre-professional non-cognitive competencies may present a greater challenge for faculty. In contrast, advisors may not have expertise in identifying key activities from clinical or community experience to assess pre-professional competency development. Thus, committee membership may be expanded to include student development experts. Such individuals might include student affairs and student services officers, diversity advocates, faculty who advise service organizations, or residence life staff.

Pre-medical committees that do not regularly interact with the applicant prior to the writing of the letter may ask students to submit materials to the committee that address their progress in developing competencies. We suggest that the students submit a cover letter, their documentation tracking competencies, and a draft of their Work and Activities section of their application. Alternatively, pre-medical committees may suggest that applicants submit a portfolio that documents their work toward achieving competencies. Finally, those pre-medical committees that regularly interview applicants prior to the writing of the committee letter may choose to incorporate a series of specific questions about competency development in the questions they regularly ask applicants based on either the applicant's history or based on specific hypothetical situations prompting a response from the application (such as in a Multiple Mini Interview or similar Situational Judgment Test). Mentors and evaluators who do not author comprehensive institutional evaluations may use this template within the scope of his/her relationship with the applicant in describing the applicant's strengths and competency development. That said, letter writers should not feel pressed to adopt a "checklist mentality" in addressing an applicant's acquired competencies without providing substantive detail or history. They should address only those competencies about which they have insight into the student's experience and development.

Competency Assessment in Holistic Review Training for Admissions Professionals

Many health professions associations have also developed admissions committee training workshops and on-demand resources that reinforce the concepts of holistic review (American Association of Colleges of Nursing [AACN], n.d.; American Dental Education Association [ADEA], n.d.; AAMC, n.d.c.), emphasizing the importance of looking at a clearly defined set of desired admissions criteria and competencies across all applicants. Furthermore, holistic admissions processes complement an institution's strategic management goals in improving student services, financial aid, and the learning environment to support all students through the education continuum (Nakae et al., 2021).

In these workshops, champions of holistic review facilitate discussions on legal and educational policy foundations, implicit bias, and identifying and assessing priority-valued criteria in application materials. The workshops include a case study where members of the admissions committee review an applicant using the key experience, attributes, and metrics that are highly valued and defined by the group. Deliberations are conducted where each characteristic is assessed based on the strength of evidence described in an application, similar to the "knows, does, show" levels. Over the last 10 years, almost every medical school and dental school has participated at least once in their respective association's holistic review workshops. The impact of these workshops has generally been very positive since they were first offered over 10 years ago (Price et al., 2011; Wells et al., 2011).

These Templates should help admissions committees reinforce the importance of assessing the strength of compelling evidence for desired competencies when reviewing letters of recommendation

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as well as an applicant's own self-description of activities and motivation throughout the application and interview process. As part of calibration training and best practice, all screeners, interviewers, and decision-makers should be using the Templates and/or the Anatomy of an Applicant Self-Assessment Guide in reviewing application materials consistent with their holistic review mission and vision for the learning community. With a consistent set of criteria, advisors, references, admissions professionals, and professional school faculty can begin to see and evaluate an applicant's future potential with a more similar lens focused on the experiences, attributes, and metrics in context.

CONCLUSION

Looking back to their undergraduate experiences, medical students have expressed the desire for more guidance, consistency, and transparency in the messaging about how best to prepare for medical school (Ahmed et al., 2019; Lin et al., 2014). Advisors, faculty, and administrative leaders value insights from medical schools into the preparation of undergraduate students from their institutions and their capability as student physicians. We believe that medical schools and pre-medical advisors have the same goal: to select and to train the next generation of physicians who demonstrate competencies in both the biomedical sciences as well as in interpersonal effectiveness and communications. We strongly endorse the Guidelines for enhancing letters of evaluation and believe that moving toward enumerating particular personal qualities of students and documenting their mastery of competencies is appropriate as part of the continuum of the education of physicians.

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APPENDIX 1: EVALUATING AN APPLICANT USING TEMPLATE 1 (GUIDE SHEET)

Example from Health Professional Student Association “Becoming a Student Doctor” course (2022).
All relevant metrics are within the eligibility criteria for the appropriate professional programs.

Summary of academic record

- Current student in a special master’s program for health professions (physiology)
- Undergraduate psychology major with honors with a minor in biology

Letters of recommendation/evaluation

- Master’s program director (institutional/committee evaluation with other faculty)
 - Scholarly activities include literature reviews and physiology mock NBME “shelf exams”
 - Applicant will be a peer tutor in the second year of the master’s program (during application year)
- Psychology professor (undergraduate thesis advisor)
 - Presented at undergraduate research conference
- History professor (History of Social Justice, also co-supervises middle school student tutoring program)
 - Tutored underserved students in math and science

Work and Activities/Extracurricular Activities Summary

- Volunteered as hospital patient transporter (100 hours over 1 year)
- Shadowed health professionals (total 30 hours)
- Psychology research capstone project on the effect of social media on self-esteem among LGBTQ+ college students
- Summer mission
- Volunteered at Habitat for Humanity ReStore thrift shop (80 hours) and house-building (10 hours)
- Tutored middle school children in math/science tutoring program for Boys/Girls Club (20 hours)
- Employed part-time in retail store (10 hours/week: 300 hours over 2 years): became assistant manager (after 1 year), responsible for closing shift, supervising 5 employees during shifts
- Employed part-time veterinary assistant/technician (10 hours/week: 250 hours over 1.5 years)
- Peer instructor/Teaching assistant for undergraduate biology/chemistry (20 hours)
- Training for 10K (100 hours)
- Prehealth club member: CPR training, shared test prep materials
- Cultural dance club member: practice as part of ensemble (“I’m not very good”)
- Crochet: sells pieces on personal Etsy website since high school; raised \$1500 in donated items for fundraising auctions for tutoring program (80 hours over 2 years)
- Volunteer fundraiser for US Marine Corps Toys for Tots every November-December during high school

Questions for Discussion

- What additional information would help with evaluating the competency development of this applicant?
- Are there activities that do not fit into the Guide Sheet template?
- How should the evaluators inform admissions professionals and faculty about the applicant's competencies and strengths when it comes to the competencies?

Competencies Dashboard

Note how the template is used to match items from the above description to the science and thinking/reasoning competencies. The “Competency Level” assessment is deliberately left blank for discussion for training; the Template for Pre-Professional Competencies is intentionally left blank as an exercise to the reader.

Table 4.

Thinking and Reasoning Competencies	Evidence or Activity	Significance or Results	Competency Level None, Knows, Shows, Does
Critical Thinking	Psychology thesis research	Thesis submitted and approved Presented at research conference	
	Physiology literature review	Course grade LOR description	
Quantitative Reasoning	Psychology thesis research (statistics, data analysis)	Thesis submitted and approved Presented at research conference	
	Math/science middle school tutor (underserved)		
Scientific Inquiry	Physiology literature review	Course grade	
	Minor in biology	Coursework completed	
Written Communication	Psychology thesis research	Thesis submitted and approved	
	History of Social Justice		

Using Pre-Professional Competencies

Table 5.

Science Competencies	Evidence or Activity	Significance or Results	Competency Level None, Knows, Shows, Does
Living Systems Institutional (Employment or Research)			
Curricular (Coursework)	Master's in physiology Minor in biology	Currently enrolled in master's/ SHELF exams Minor completed	
Community (Extracurricular activities)	Will be peer tutor for SMP Math/science middle school tutor (underserved)		
Human Behavior Institutional (Employment or Research)	Psychology research	Capstone presented at a conference	
Curricular (Coursework)	Degree/major in psychology	Bachelor's Degree earned	
Community (Extracurricular)			

Table 6.

Pre-Professional Competencies	Evidence or Activity	Significance or Results	Competency Level None, Knows, Shows, Does
Service Orientation			
Social Skills			
Cultural Competence			
Teamwork			
Oral Communication			
Ethical Responsibility to Self and Others			
Reliability and Dependability			

Continued on following page

Table 6. Continued

Pre-Professional Competencies	Evidence or Activity	Significance or Results	Competency Level None, Knows, Shows, Does
Resilience and Adaptability			
Capacity for Improvement			

Table 7.

Other Competencies	Evidence or Activity	Significance or Results	Competency Level None, Knows, Shows, Does
Understanding of Holistic Approach to Health and Wellness			
Familiarity with Complexity of an Interprofessional Health Care System			
Financial Responsibility to Self and Others			
Personal Wellness and Management (including media exposure)			
Creativity and Entrepreneurship			
Psychomotor or Fine Manual Dexterity			

APPENDIX 2: TEMPLATE 3 FOR INSTITUTIONS, ADVISORS, AND STUDENTS

In holistic review, every admissions committee evaluates each student on the context of the available resources an institution, major, or postbaccalaureate program provides. Institutional officers (prehealth advisors, prehealth committee leaders, postbaccalaureate directors, summer program directors, etc.) best serve the mission of holistic and competency-based admissions by identifying the specific benefits of participation in their communications with admissions committees.

This worksheet helps institutional officers articulate the culture of support provided to prehealth students in the development of their entering competencies. Institutional officers identify specific policies or offices in place (**infrastructure**) at that program to help advisees learn, gain experience, and reflect upon activities for each of the specific competencies desired. With the help of faculty or academic affairs administrators, the institutional officer can use the worksheet to itemize the course and other **curricular** elements in a specific major or course of study (including living-learning communities) that also address each competency. Finally, the institutional officer can identify **community**-based resources established linked with the institution (such as service opportunities organized by a local free clinic) which are available to advisees. In this way, an admissions committee can evaluate the impact the program has had on preparing the applicant for a future health professional career. In addition, this template can also be used to evaluate an applicant whose journey to apply involves multiple institutions, summer programs, and/or postbaccalaureate/graduate coursework; the **community** resources section is most likely to be the most unique aspect of the applicant's use of resources.

Competencies Dashboard (Template 3): Describing Institutional Resources for Committee Letter

The Chair of the Pre-health Committee crafts a cover letter for all applicants. To address the critical thinking competency, he/she describes to admissions committees the way critical thinking is evaluated throughout the curriculum. Talking to admissions committee members of some target schools his/her advisees feed into, the Chair also begins to map the resources available to advisees regarding proper financial management and planning.

Table 8.

Critical Thinking	<i>Institutional</i> University has specific criteria to designate a class as critical-thinking-focused. Biennial survey from office of institutional assessment on critical thinking and learning outcomes. Teaching and learning office helps faculty develop assessments for critical thinking.	<i>Curricular</i> General education requirement: Literature-based seminar courses for all freshmen require applicants to read scholarly literature and discuss in class.	<i>Community (for personal evaluation letter)</i> Our student-organized science club participated in a local church-sponsored debate focusing on evolution vs. creationism
Financial Responsibility to Self and Others	Office of Student Activities invites an annual workshop on student debt and credit. Office of Financial Aid discusses loan repayment to graduating seniors who opt to attend their workshop.	None available unless one has a major in the business school.	This applicant has served as the fundraising chair for the campus Relay for Life campaign.

Chapter 11

Flipping the Script: Leveraging Technology to Enhance the Pre-Health Advising Experience

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ABSTRACT

This chapter explores the intersection of technology and advising students pursuing a health professional program. In consistently serving students, the delivery of the advising experience takes on a new aesthetic. In the chapter, the concept of flipped advising is introduced as a method of delivering information efficiently while leveraging technology. With a wide variety of technological tools available to advisees and advisors, this chapter will highlight the practical integrations on three campuses and examine the technological opportunities and challenges to improve the advising experience.

INTRODUCTION

Faculty and professional advisors of individuals who aspire to be health professionals understand that the journey can be complex and often overwhelming for pre-health students. Similarly, pre-health advisors are required to maintain a vast, diverse, and ever-changing knowledge base in order to provide the comprehensive advising students require. All the while, advisors often wear several hats, carry heavy advising loads, and battle against limited resources, including time, money, and staff. Technology can enhance experiences and interactions between advisors and their advisees while improving pre-health advisors' administrative efficiency and productivity.

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Flipping the Script

In this chapter, we present specific examples of how technology has been incorporated into the pre-health advising practices at three universities using existing resources of the respective institutions. While this chapter is designed to be broad in scope when speaking about technology, only select tools and platforms most likely already available at most college campuses, but not all, are mentioned as options.

BACKGROUND

During the COVID-19 pandemic, many people were able to feel closer together through technology despite needing to be apart. Entire industries, not just institutions, had to change how work was done in an incredibly short amount of time (Guillen, 2020). Higher education was no exception, and advising offices and operations were forced to shut down their on-campus operations and quickly pivot to a digital offering (White, 2020). In an article in *Inside Higher Ed*, White (2020, para. 12) wrote that “academic advising was one of the first higher education endeavors to embrace technology as a way to supplement its work.” In essence, this chapter will embody that same spirit as we continue into a world that integrates technology with the way we work, even more so than before.

This shift in how advising services were delivered allowed advisors to explore other ways of connecting with students. Traditional methods of in-person or group advising appointments were no longer possible, and technology was the best available tool to help advisors during a challenging time. Ithaca S+R, in partnership with EDUCAUSE, has been collecting case studies of the implementation of technology in response to the COVID-19 pandemic across multiple universities (Ithaca S+R, 2022). Initial reports have revealed that incorporating technology has allowed advisors to better explain complex institutional policies or procedures, reduce travel time for students to advising offices, and has led to increased attendance at appointments (Fried & McDaniel, 2020; Fried & McDaniel, 2021).

The use of technology in academic advising is not new. Steele (2016) has discussed the concept of flipped advising at length. A flipped advising approach is similar to that of a flipped classroom, a pedagogical method of shifting the typical in-person lecture component of a class to instead be completed at home, while what otherwise would have been homework is completed in class (EDUCAUSE, 2012; Tucker, 2012). This flip is intentional, with an emphasis on active learning as a core feature, allowing students to apply their knowledge and learn from one another (EDUCAUSE, 2012). In a flipped classroom environment, video lectures and other forms of multimedia are provided to the students and viewed in advance of the in-person lecture or as their homework assignments. The digital format allows students to watch the videos at their own pace, enables them to re-watch any part of the lecture they may not understand, and fosters reflection on what they have learned without missing additional content (EDUCAUSE, 2012).

There are several benefits for advisors by using the flipped advising model (Steele, 2016), particularly for pre-health advising. Technology allows for advising to be more equitable. Flipped advising allows advisors to work more efficiently to share common and foundational knowledge to a greater number of students in the most effective way possible (Lawton, 2018; Miller & Calchera, 2019). Rather than advisees potentially receiving different information, the focus remains solely on content by using a flipped advising approach, such as recording videos or screencasts that can be created by the advisor and then shared. Students who watch the videos or screencasts will start from a common point in their journey instead of possibly only receiving bits and pieces of information, regardless of whether they are a full- or part-time, domestic, international, or transfer student or an alumnus. Ultimately each student’s

individual advising will be customized to their unique needs, however, the flipped advising approach allows advisors to confidently know that students are all moving forward on their journey to a professional health career with the same foundational knowledge. The additional level of accessibility, with the use of digital resources and multimedia, provides students with opportunities to have their questions answered even outside of regular business hours (Steele, 2016). Utilizing this flipped classroom-type of approach can also help advising appointments evolve from transactional meetings to meaningful, in-depth, and reflective conversations (Lawton, 2018; Zainuddin & Halili, 2016).

Another benefit of the flipped advising approach is that current students and alumni can continue viewing the content at their convenience. For students who have recently graduated or are taking a gap year, in-person workshops, while helpful, often don't align with work schedules and a student's location relative to campus. Information regarding a specific application cycle, workshop, or panel presentation can be recorded for future viewing and maximizes the advisor's time without repeating the information to multiple students individually. Leveraging technology to distribute information is especially valuable for alumni, students on a leave of absence, students studying abroad, or students who are not yet part of the institution.

The flipped advising approach also allows for the ongoing collection of data to monitor the activities of the pre-health advising office (Phillips, 2013). Data analytic tools can track the number of views and length of time spent on various resources of a webpage or learning management system (LMS), which will be discussed in more detail in the following section. Advising platforms, like ePortfolios, can consolidate student data and materials into a digital space shared by both the advisor and advisee, improving efficiency and the advising process as a whole (Phillips, 2013).

Finally, the flipped advising method should yield a plethora of digital and multimedia resources that can be shared with other advisors across the country. Pre-health advisors are naturally collaborative, so their valuable work should be shared, when applicable, to provide additional perspectives for future health professional program applicants and their advisors. The ability to readily share resources is another way of maximizing an advisor's time and using technology to their advantage.

However, converting an existing advising model to incorporate elements of the flipped advising model can feel overwhelming to many advisors. This chapter is designed to provide advisors with ideas to make this process less intimidating and more accessible as they venture into this new way of work. The authors share examples of select technologies that are likely readily available to most pre-health advisors, as well as their experiences using the flipped advising approach into their advising practices at their respective institutions.

SELECT TECHNOLOGIES

With the plethora of new technologies rapidly emerging, it is challenging to keep up, and many advising offices will have access to a limited number of tools currently in use at their institution. In this section, we highlight a few of the most common and often readily available technologies at an advisor's disposal, as well as how advisors can evaluate whether or not these technologies will best meet their needs.

Video Conferencing

One tool that exploded in popularity as a result of the COVID-19 pandemic was video conferencing. An increasing number of people across various industries found themselves turning to a video conferencing tool as a part of the pivot to working from home. Three of the most popular tools for video conferencing include Zoom, Webex, and Google Meet, and depending on your campus, may already be available for advisors to use.

The benefit of video conferencing for advisors is being able to have a one-on-one conversation, or gathering groups of people in a virtual space, without having to navigate campus policies on how to reserve a classroom or needing to prepare copious amounts of handouts for an undetermined number of attendees. Video conferencing also saves time otherwise spent traveling to campus and in between meetings for both advisors and advisees. Advisees and advisors can share their screens with each other as necessary to explain an application timeline for a health professional program, an institution's general education requirements, or share feedback regarding an applicant's personal statement, which are all made easier by allowing someone to see what you have on your screen synchronously.

The virtual environment certainly has challenges in terms of keeping the students engaged during appointments or workshops, similar to teaching in a synchronous online environment, especially with larger groups (Pisutova et al., 2018). In a sense, video conferencing highlights the tradeoff that is made when using this technology. While convenient, the ability for students to disable the microphone and camera does not encourage the same type of participation that is typically felt in a face-to-face setting. However, Karasavvidis (2021) offered several suggestions to enhance student engagement during video conferencing such as the use of interactive tools like polls, quizzes, and the chat function.

Screencasts

Rather than using video conferencing to conduct synchronous communication, a screencast is a recording of what is on an advisor's computer screen, with narration, that can be turned into a video and distributed for later viewing. Popular tools to record screencasts include, but are not limited to, Camtasia, Panopto, and Screencast-o-matic. However, advisors may be more comfortable using video conferencing tools like Zoom and Webex to create screencasts.

Before creating screencasts, there are certain considerations, including how large your audience will be, how much time you may save not having to repeat the same information multiple times, and how long the production of this screencast will take. The primary benefit of using a screencast as a method of sharing material from an advising office is saving time. However, similar to video conferencing, the tradeoff is the lack of engagement with students as they consume the information. Integrating guiding questions or other knowledge checkpoints throughout the screencast can increase engagement (Brame, 2015). The goal is that after viewing the material, students will come to advising appointments with a deeper and broader base of knowledge regarding the topic presented in the screencast.

A screencast is an ideal tool to use for an asynchronous group meeting, event, or workshop. Typically, screencasts work best when you're presenting a slide deck or navigating a website that warrants information to be shown visually. However, it is important that recordings be short. According to Cynthia Brame at Vanderbilt University's Center for Teaching (2015), videos less than six minutes had excellent levels of student engagement, and videos over six minutes and up to 12 minutes experienced a steady decline in engagement levels. While it may be challenging to record short videos, it is an opportunity

to focus on a select number of topics and less to re-record if you have to work through the screencast multiple times. There are a number of guides and tips to creating screencasts available on the internet (Brame, 2015; Francis, 2021).

When determining whether screencasts are the appropriate technological route for your office or team, it is important to consider whether investing the time and energy into these products is feasible, no matter how large or small. Some offices may need to purchase additional equipment, which may or may not be possible depending on your budget and the financial health of your institution. However, a screencast is potentially a great tool.

Instructional Graphics

Advisors have often seen some eye-catching and aesthetically pleasing graphics from various professional health schools or associations. The colors pop out, the text is clear, and the messaging is direct. Instructional graphics are created to share or reinforce a brief message and done so in a very efficient way. Some graphic development platforms that have gained notable popularity recently include Adobe Spark and Canva. The foundational elements of both platforms are very similar and are made to be used by anyone, no matter your level of graphic design experience.

The proliferation of digital tools that allow you to create these instructional graphics has made them even more accessible than ever before. Various products allow the creator to begin with a blank canvas and add text, color, images, and icons as it automatically develops a creative vision of the graphic. Instructional graphics may be used in several ways, including explaining processes within your office, serving as reminders for upcoming deadlines, or inviting students to learn about your office and the services you provide. According to Sentz (2020), combining text and visuals into one instructional graphic streamlines the student's attention. When done correctly, this instructional graphic reduces the clutter on websites, handouts, and posters since the materials do not need to be redundant (Sentz, 2020).

Social Media

The use of social media, such as Facebook, Instagram, and Twitter, has been found to augment engagement and learning in higher education (Ganjoo et al., 2021; Krause & Coates, 2008; Manca & Ranieri, 2016) and can be utilized to the pre-health advisor's advantage. However, social media accounts are time-intensive to maintain, including content creation and account management, so it can be beneficial to distribute this responsibility among multiple people. Advisors can also share links to the social media accounts of health professional associations or programs where frequent updates are often posted. Leveraging the work that has already been done by other organizations and passing along that information to students allows for better efficiency of time.

Students can also be encouraged to create a LinkedIn account and build their network in a virtual setting. LinkedIn allows students to connect with alumni from the university and the health professional school or program they hope to attend. Using LinkedIn can make networking more equitable as students can search for and connect with people that may become part of their network. Using these strategies reduces the amount of time you may spend maintaining social media accounts that may not reach your students, since students are often using different platforms compared to what advisors may be familiar with.

Learning Management Systems (LMS)

Learning Management Systems (LMS), such as Blackboard or Canvas, are nearly universal within institutions of higher education (Dahlstrom, Brooks, & Bichsel, 2014). While primarily used for course delivery, “communities” within an LMS can be utilized as a repository for program-specific documents and communication. As a key part of any institution of higher education’s technological portfolio, an LMS allows the advisor to capitalize on a platform that students are either gaining familiarity with (as first-year students) or have used the platform extensively during their time at your institution. Most importantly, there is no need for an advising office to spend extra money to purchase this platform because it is already widely used across most institutions. Regardless of what LMS your institution uses, it is a type of technology that can make your work more efficient.

An LMS is a great space to serve as a repository for all the types of content that you have created. This platform allows videos to be embedded, discussion boards to be activated, and learning modules to be created to help facilitate the workshop or learning experience you intend to provide the students. Quizzes to test students on the material in each module can be integrated. An LMS allows the advisor to set up the learning experience in advance, which requires a considerable amount of time. However, the day-to-day management after the initial setup can be minimal. A helpful tip is to utilize the LMS’s adaptive release feature. This tool allows the creator of the workshop to set a specific set of criteria to be reached before a student can advance to the next part of the workshop. For example, a student must earn a perfect score on the quiz in the first module of the workshop in order to move onto the second module.

To create a workspace in your institution’s LMS, contact your Information Technology (IT) team or similar entity that oversees the day-to-day operations of the campus-wide system. If utilizing an LMS, advisors should be extra cautious regarding how to refer to the space to which students are being added. One recommendation is to refrain from using the term “course” since students may ask why they are being added or dropped or claim they never registered for the “course.” Instead, the term “workshop” can be adopted to stress the fact that the workspace is not for a letter grade, has no impact on a student’s grade point average, and does not earn the student college credit. However, if an institution does offer an actual credit-bearing, letter-graded course for pre-health advising workshops, “course” may be the most appropriate term.

The use of an LMS in support of pre-health advising has many advantages. Foremost is that advisees are already familiar with the functionality of the LMS from using it in their coursework. Additionally, university administrators may add current students and alumni to the LMS community without having to be enrolled in a particular course or academic program. Therefore, alumni can continue to have access to the advising resources. The LMS is often supported both financially and administratively by the university, and therefore it results in no additional cost to the advisors or advisees, while both can take advantage of technical support as needed.

ePortfolios

The ePortfolio, a centralized digital repository, is becoming an increasingly popular tool used in higher education (Association of American Colleges & Universities, n.d.; Meyer, 2016; Miller & Morgaine, 2009). For pre-health advisors, they can be utilized to engage in holistic and collaborative advising practices and empower advisees to take control of their narrative and ultimately build competitive applications to health professional programs. Pre-health students should be encouraged to begin building

their portfolios from the moment they step on campus. Portfolios may include documentation of clinical, service, and research experiences, engagement in their campus and local communities, and development of the core competencies and characteristics admissions committees are looking for (Association of American Medical Colleges [AAMC], n.d.a.).

In addition to developing an ePortfolio to collect relevant information about each applicant, it is equally important to create opportunities to work directly with advisees to evaluate their portfolios and provide them with constructive feedback and personalized recommendations (Wetzel & Strudler, 2006). Pre-health applicants, especially early in their academic careers, often fall into a check-box mentality and do not realize that while there are universal components of the application, they actually have a lot of freedom when developing their overall portfolios. Reflecting on one's experiences is an invaluable practice for applicants to engage in so they can consider their values and goals and provide them with the opportunity to connect the dots and develop their own narrative (Costa & Kallick, 2008). Ultimately, reflection allows applicants to build a portfolio that they are both proud of and passionate about (AAMC, n.d.b.).

Traditional ePortfolios often come in the form of a website or a collection of electronic artifacts and typically have a hefty price tag (Meyer, 2016). However, advisors likely have a collection of technological tools at their disposal that can be put together to develop an extremely useful and affordable option for day-to-day advising practices, such as software and cloud systems (Google Drive, Microsoft Exchange) and LMS. Below are some key features to consider when building an ePortfolio:

- The capability for both the advisor and advisees to interact with the system in ways that make sense based on their roles.
- The ability for advisees to not only track and organize their experiences into relevant categories like research, clinical, service, and leadership experiences, but also to provide reflections of these activities in real-time.
- The ability to interact with an institution's student information system, a core system of record, to display accurate and real-time academic data, including a student's academic plan as well as the trajectory of a student's overall and science GPAs.
- The ability for pre-health advisors to target communication to specific populations of advisees (e.g., pre-med vs. pre-pharmacy).
- The ability to securely collect and store letters of recommendation on behalf of applicants.

Whether at a small institution with a handful of applicants or at a large institution with hundreds of applicants, ePortfolios can play a role in advising. They can enhance relationships with advisees, as well as advisees' pre-health professional journey through meaningful reflection and conversation about what they are learning, about who they are, and what they want to accomplish. Not every individual will continue on the pre-health path but encouraging advisees to organize and reflect on their accomplishments using an ePortfolio can help them find what they are most passionate about, even if that means they pivot away from pursuing a career in healthcare. Those who stay the course will have an extremely useful set of materials they can tap into, which will help them purposefully develop a competitive application.

USING TECHNOLOGIES IN PRACTICE

In this section, the authors describe how they incorporated some of the aforementioned technologies into their advising practices at their respective institutions. These examples illustrate how technology can enhance the advising process for both advisors and advisees. Tools and platforms already available at the respective institutions made advising the pre-health professional student more efficient, accessible, engaging, and equitable.

An Engaging Workshop Series

At the University at Buffalo (UB), a sequence of workshops has been developed for students that chose to pursue a career in the health professions using Blackboard, the university's LMS. The first workshop is designed for new first-year domestic and international students and aims to provide each student with the same base knowledge about the path to health professional programs. Until 2018, our office used to hold between 12-20 in-person, small group sessions a semester, with a maximum of 12 students in each session for 90 minutes. The amount of time that was set aside for the workshops led to a reduction in available appointment slots for continuing students. The idea for a virtual workshop was implemented in 2019 and mirrors what would have been covered in an in-person group session.

The workshop structure is laid out as eight modules, with each one covering a different topic that is important for a first-year student to understand. Topics include understanding prerequisite courses, what is and what counts as clinical experience, research and extracurricular activities, and an overview of the services the office provides. Each module consists of a recorded screencast and a brief quiz, which students must earn a perfect score on in order to move onto the next module of material. Screencasts for this workshop are typically between six to 12 minutes, with the goal of holding the students' attention and keeping them engaged. At the end of the workshop, in the final module, students are asked to prepare a short reflection about why they are interested in pursuing a career in the health professions. The intentional act of reflection challenges the students to think about their motivations more deliberately than just telling their advisor they want to be a dentist or a physician assistant.

The second workshop is specifically designed for sophomore students and transfer students new to UB. The workshop, divided into three modules, is focused on the information students should be thinking about during their second year, including information about the Pre-health Committee process, special admission programs, and a reminder about the various components they need to be a competitive applicant. The spirit of the workshop is similar to the one offered in the first year and urges students to do some deeper reflection on their current academic trend, what experiences the student has had thus far that helps solidify their interest in the field, and if the student feels they are in the major where they can do their best academically.

An Online Community

At the George Washington University (GW), a pre-health professions advising service was launched in Summer 2019 to serve students enrolled in the Biomedical Laboratory Sciences (BLS) programs. Numerous students enrolled in the online, asynchronous BLS programs express interest in furthering their education in another health professional program such as medicine, pharmacy, or physician assistant upon completion of their BLS undergraduate or graduate degree. The BLS programs already maintained

online communities in the university's LMS, Blackboard; therefore, a new content area was created to house materials for the BLS Pre-health Professional Advising Service (BLS-PPAS).

Within the new content area, titled "Pre-health Prof Advising," pre-health students have access to numerous resources divided into folders based on specific health professions (e.g., medicine, pharmacy), as well as general advising resources focused on exploring health professions, writing personal statements, interviewing, financing one's health professional education, among others. A calendar of national events, including virtual health professions fairs, is kept up to date. Interested students and alumni may request to be added to a BLS-PPAS mailing list through which announcements regarding national events, as well as webinars hosted by the BLS-PPAS and other resources, are sent via email through the LMS. Students may also request a one-on-one virtual consultation with the BLS-PPAS primary advisor through a designated link within the online community.

GW's BLS-PPAS also uses the LMS as a repository for important documentation shared between advisors and advisees. Applications to many health professional programs prefer a letter packet containing a composite letter of recommendation (LOR) written by the advisor or pre-health committee along with additional LORs from professors, clinical supervisors, and research mentors. The "assessments" function of the LMS is used to facilitate the collection of a request for a LOR form from each external reference, which also serves as a waiver by the student to access the LOR. Separate "assignments" are created to collect multiple LORs, which then creates a corresponding column in the LMS Grade Center and is visible to the advisee. Uploading of the request for a LOR form informs the advisor which LORs will be forthcoming from external recommenders. As LORs are received via email, the advisor indicates its receipt by noting the "assignment" as completed in the Grade Center, as well as uploading a copy of the LOR in the instructor notes section of the assignment that is not visible to the advisee.

An ePortfolio for Application Preparation

At Boston University (BU), advisors shifted their approach to assisting applicants who are in the process of preparing for an upcoming application cycle. Instead of writing and submitting committee letters on behalf of applicants, the pre-health advising team developed an ePortfolio from electronic resources already existing at BU and implemented an enhanced advising model that emphasizes reflection and feedback and ultimately requires that applicants become active participants in the advising process. Together, the ePortfolio and advising model establishes an ongoing feedback loop between the advisor and advisee and encourages the applicant to reflect on their preparedness to apply and competitiveness as an applicant as they build their portfolio. Individuals who submit a Portfolio of Accomplishments & Reflections (PAR) qualify for access to the applicant-specific Blackboard site, a comprehensive advising appointment (CAA), a letter packet (for medical and dental applicants only, which is due to restrictions within the central application services themselves), and the interview workshop series.

Formstack, a software the University already has licenses to utilize, is used for the PAR, which allows the advisors to collect and process all relevant applicant data efficiently, including uploaded documents (e.g., demographic, academic, experiential, reports of judicial/academic misconduct, and essays). Any individual planning to submit the PAR and/or planning to meet with a pre-health advisor to discuss the application process is required to first attend or watch the annual application meeting and review the application-related materials on the pre-health advising website. The annual application meeting is offered virtually and recorded to accommodate current students and alumni and takes place early in the fall semester. During this meeting, the importance of reflecting on one's experience is emphasized. This

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process ensures subsequent advising appointments focus on an individual's specific questions about the process or areas they may need to continue developing before applying.

Applicants who submit a PAR then have the opportunity to schedule a comprehensive advising appointment during which an advisor provides in-depth feedback about the applicant's PAR. These appointments begin the conversation, and applicants are encouraged to schedule follow-up appointments to discuss revisions to their personal statements, develop their school list, and/or review their secondary/supplemental essays. These appointments are offered in in-person and virtual formats. Additional application-related programming is available to all applicants, not only those who submit the PAR, such as the "School List" and "Application" town hall meetings, Gap Chat (gap/glide year), and MD/PhD panels. These sessions are typically offered in virtual formats and supplement advisors' individual appointments with advisees.

After submitting the PAR, applicants are given access to an applicant-specific Blackboard site. Through this site, advisors provide applicants with a calendar of application-related events (e.g., virtual health profession school information sessions, central application service workshops), specific instructions related to letter packets, and how to participate in the Interview Workshop series.

LORs for individuals who submit the PAR are collected separately using a specific University email address. Recommenders submit their LOR and the office's LOR Waiver Form, which must accompany each LOR, to the specified email address (letters submitted by postal mail are also accepted). LORs are processed manually by staff in the office, which includes converting the documents to pdfs, and then adding the documents to students' electronic files that are accessible via BU's secure network server. Pre-health advisors have access to a specific area within the electronic filing system that was developed and is managed by BU's IT team and use it to store any and all documents submitted by or on behalf of a student including their PAR. Once the specific health professional programs' centralized application systems (CASs) open, students are provided specific instructions via Blackboard on how to enter their letter packet into the CAS and how to formally request that the office submit a letter packet on their behalf.

Finally, students who submit the PAR qualify for the two-part interview workshop series. Part 1 is offered once virtually (and is recorded) and provides an overview of the health profession school interview process. Facilitated by a pre-health advisor, Part 2 (can be done in-person and/or virtually) provides applicants the opportunity to practice answering a set of predefined questions, advisors provide constructive feedback in smaller groups, and then debrief to process their experience with the entire group. Participation in Part 2 requires an applicant first attend or watch Part 1.

By creatively using technological solutions already available on-campus, BU's ePortfolio system and enhanced pre-health advising model has ultimately helped student appointments evolve from transactional meetings to meaningful, in-depth, and reflective conversations that empower BU applicants to prepare competitive applications.

CHALLENGES IN USING TECHNOLOGY

Despite the benefits that technology can offer to both advisors and advisees, there are also some important considerations to be made before embarking on projects that take advantage of the aforementioned tools and platforms. The first consideration is time and how much you will be able to dedicate to the project. Whether it is the initial creation of the course or community in your institution's LMS, recording scre-

encasts, or implementing an ePortfolio system, these projects will consume a significant amount of time. One must consider whether the investment in this type of project is worth the time required to implement.

The next consideration is whether the technological platform chosen will be supported by the institution now or in the future. Using a platform that the university does not support means there will be no assistance from any IT team members, should that be necessary. Alternative options may need to be considered by those who do not have the institutional support or resources to utilize expansive platforms.

It is important to evaluate whether the technology you are using is, in fact, useful to your target populations. Using data analytics to track student engagement (e.g., email click rate, LMS usage statistics, virtual programming registration vs. actual attendance, number of ePortfolio submissions, and engagement in application-related advising and programming) may identify underutilized resources that students do not find useful. You could also survey your advisees to get feedback from the users' perspective to make necessary revisions.

While technology can make pre-health advising more accessible and equitable, it may present challenges to certain populations of students. Advisors must be mindful that some students may not always have reliable access to the internet and the requisite computer hardware and software needed to fully engage in electronic platforms and resources, particularly if those used are not supported by their institutions. In addition, some students have disabilities that may impact their ability to fully utilize certain technologies (National Center on Accessible Educational Materials, n.d.). Various tools used for video conferencing and screencasts now provide closed captioning via artificial intelligence (AI). AI-generated captions are typically highly accurate, with corrections needed for acronyms, names, and technical terms. Advisors can also ensure that students with reduced visual ability can engage with materials (e.g., PowerPoint slides, pdfs, webpages) by using accessibility checkers to add text alternatives for graphics and tags for text-to-audio readers. Students with learning disabilities, such as dyslexia or attention deficit disorder, may also struggle with web-based content (Hollins et al., 2013). Therefore, efforts should be made to improve the appearance, language, and usability of materials, as well as the structure and navigation through an LMS or ePortfolio, to benefit all students (Hollins et al., 2013). Pre-health advisors can find additional resources regarding accessibility of digital content through their institution's instructional technology and/or disability support offices.

Finally, the privacy of both current students and alumni, and applicable Family Educational Rights and Privacy Act (FERPA; 2021) policies and procedures, must be considered. It is important to be familiar with institutional guidelines regarding sharing recordings that include student/alumni participants. For example, some institutions may require recordings to be password protected and/or that participants be made aware that the session is being recorded and that the recording will be available to be viewed by other pre-health advisees. While advisors are familiar with FERPA, it is possible that during a screencast, virtual meeting, or webinar, an advisor may forget that a browser window is open with academic records, student identification numbers, or other private information that could be visible. Ensuring that one's workspace is clear from any FERPA-protected information is highly recommended.

CONCLUSION

Pre-health advisors are encouraged to explore incorporating technology into their practice. Despite inherent challenges, technology has the potential to offer many benefits to the pre-health advising process, including the provision of more equitable services to a diverse population of advisees, better use

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of advisors' limited time and institutional resources, and development of activities and materials that encourage collaboration, engagement, and reflection.

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Section 3

Creating Effective Pre-Health Programs

Chapter 12

Effective Transition From Individual Faculty Advising to Committee Structure

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ABSTRACT

The evolution from a traditional model of individual faculty advising pre-health professional students to a committee structure incorporating both faculty and staff is discussed. In detailing the transition, the advantages, disadvantages, successes, and failures of three models of advising are considered. The goal of this chapter is to assist other institutions that may be considering changes in their pre-health professional student advising model. Key considerations during transitions were the desire to have a consistent message, to address the multiple stakeholders of pre-health advising, and to create a cohesive, robust, collaborative strategy.

INTRODUCTION

Alma College, a small private liberal arts institution in the Midwest U.S. with an enrollment of over 1300 undergraduate students, has undergone a significant transition in pre-health professional student advising, including academic and professional development. This transition has moved the institution from a model of individual faculty advising to a formal committee structure charged with pre-health professional student development. In doing so, the committee structure incorporates both faculty and staff participation, thus establishing a model in which all sectors of campus play a significant role in the development of our pre-health professional students regardless of their professional path. To effectively navigate this transition, significant preparatory work was required to generate buy-in from campus leadership, faculty colleagues, and career/professional development staff. The result has been the formation of

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the Alma College Pre-Health Professions Committee (PHPC), responsible for all elements of pre-health professional student development.

This chapter provides a model for implementation of *cohesive, comprehensive, and collaborative* strategies for pre-health professional student development. More specifically, the authors will detail the transition process, arriving at the current structure for pre-health professional student development, better aligning with common practices. To accurately reflect on the process and outcomes, faculty, staff and administrators provided feedback via oral interview or written responses (see Appendix 1 for specific questions). This evolution in the institution's pre-health advising model has required significant time and energy along with multiple iterations in structure. It is our goal that by detailing the transition, those facing similar decisions can move from individual faculty advising to formal committee structure in a more streamlined and timely manner.

BACKGROUND

Alma College is an independent undergraduate institution located in central Michigan, founded in 1886 by the Presbyterian Synod of Michigan. The College offers 41 different majors in 21 departments, and supports 31 minors and programs, including nine pre-professional programs. Faculty and students interact closely at Alma, with a student-faculty ratio of 13.7/1 permitting an average class size of 15.5.

Typically, 40-50% of Alma's entering class express an interest in STEM and pre-health professional career pathways with approximately 20-25% graduating from relevant pre-health professional majors. Close to 20% of incoming students are first-generation college students and the number of Pell-eligible students is significant. These two populations are at particular risk of attrition, especially in STEM-related areas of study (Bettencourt et al., 2020). Therefore, the quality of advising, and student support more generally, is of particular importance to the Alma campus.

In his dissertation work, Chan (2021) noted that the literature on institutional structures that best facilitate pre-health professional advising is sparse. Specifically referring to structural considerations in pre-medical advising, he stated "...no empirical studies have been found on the development and practice understanding of premedical advising and the organizational structures that exist at various institutions" (Chan, 2021, p. 23). Some do report survey data, however, noting that no one model works best and that institutional culture must be considered (Habley, 1997; Pardee, 2004). That is not to say, however, that there have been no scholars identifying the many pitfalls in pre-health advising and recommending structures to address them. Nearly a half century ago, Bruhn (1977) noted that quality advising was hampered by faculty attitudes regarding their professional responsibilities and student need for support, lack of training and resources, lack of communication between advisors, and an inability to remain abreast of the changing nature of professional program requirements. To address these issues, he recommended a specific office for preprofessional advising and counseling, a model that is common today.

Recognizing the pitfalls identified by Bruhn (1977), Alma College has developed a structure consistent with his implied recommendation for centralized advising and a common approach taken among small, private institutions in the Midwest region. Importantly, consideration of institutional culture is critical to any model's success (Kuhmann, 2004). Habley and Morales noted: "the key factor in the success, or lack thereof, of an advising model resides in the degree to which there is a fit between the model and institutional culture" (Habley & Morales, 1998, p. 39). Within the Alma College context pre-health

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professional advising has undergone a transformation, moving to a shared model, developing centralized advising through a committee structure while retaining significant faculty involvement.

EVOLUTION OF PRE-HEALTH PROFESSIONAL STUDENT SUPPORT

Pre-Health Professional Advising, Pre-2008

The Model

Not uncommon across institutions of higher education, pre-health professional advising at Alma College followed the “faculty only” model of advising (Habley, 1997). Advising of pre-health professional students was historically the purview of individual faculty advisors, specifically those faculty within traditional pre-health professional disciplines, i.e., the basic sciences. Faculty advisors were spread across departments. Biology faculty worked with pre-medicine, pre-veterinary, pre-dental, and pre-optometry students whereas Exercise and Health Science faculty advised those pursuing pre-therapy. As a result, there was no common structure for student support, either in terms of personal and professional development across time or in the logistics of the application process as students neared the end of their tenure at Alma College.

Conversations with faculty and administrators from this time revealed a culture of fierce independence in faculty work with advisees. One colleague referred to a “Great Man” model in which the faculty mentor guided students and then successfully placed those deemed worthy into the program or path of choice. These were the keepers of the information; those select few who had the knowledge to propel students toward their professional goals. Adding to this was a climate of competition between faculty members for departmental majors.

Operating in parallel with individual faculty advisors, students could seek guidance from staff members in the Career Development Office. One administrator conveyed a historically contentious relationship between faculty and the Career Development Office, which led to competition between faculty and administrative structures in the provision of student support. Thus, the prevailing environment was one in which individual faculty and staff were competing to demonstrate superiority in student advising, leading to hostility between the two sectors at times.

Alma College did have a designated pre-medicine advisor on campus whose responsibilities were devoted to the area of pre-medical studies including medicine, veterinary, dental, and optometry. To support student development, the pre-medicine advisor developed resources including curricular guidance, workshops on standardized exam preparation and experiential learning opportunities, as well as coordination of campus visits by working professionals and program admissions officials. During the application cycle, support for student applications was limited to compilation of application materials, including letters of support. The pre-medicine advisor was also the person responsible for data collection on rates of success in the graduate admissions process.

Limitations to Effective Advising

Collectively, the institution found that this model for working with pre-health students was effective, with published acceptance rates and anecdotal evidence demonstrating this success. Pointed reflection from

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faculty and administrators suggested many pitfalls with this approach, consistent with those identified by Bruhn (1977). Overall, pre-health professional advising at this time was characterized by a lack of cohesion, narrow focus on successful graduate admissions, and little collaboration.

Most obvious among the factors limiting effective student support was the problem of communication and thus coordination of messaging. When combined with the competitive environment as described, distinct philosophies on the role of the academic advisor exacerbated the inconsistency in advice provided to students. For instance, some advisors took an active role in finding and placing students into clinical experiences whereas others viewed this as strictly the student's responsibility. Some faculty saw their major as the only major appropriate to pursuit of medicine and thus recruited students into their majors via this message. Complicating the situation was the fact that the quality of specific advice provided by individual advisors was entirely dependent upon willingness to remain current in their knowledge of the health professional school admissions process.

Data collection and thus realistic understanding of institutional efficacy was also problematic with the individual faculty advising model. Acquisition of accurate data on MCAT performance and medical school admissions was made especially difficult for the pre-medicine advisor in that official data could only be obtained on those students choosing to release their scores/outcomes. With no formal mechanism to identify who was applying each year, let alone how applicants had performed on standardized examinations, institutional data was questionable. The pre-medicine advisor depended on students self-identifying or reports by faculty members of recommendation letters they had written to generate a list of applicants in any given year. Accurate data on successful matriculation was equally difficult to obtain. Evidence-based development of student support was thus impossible, and there was no basis upon which to assess the reality of institutional success in health professional program admissions. Despite this, and reinforced in interviews with both faculty and administrators, the collective message on student outcomes in health professional admission was one of great success despite the lack of sufficient evidence.

By 2008, programs representing greater diversity of both basic and applied sciences had been added at the College with large numbers of pre-health professional students enrolling in these new majors. The advising of pre-health professional students was then spread across an ever-growing cohort of faculty with continued lack of coordination, thus resulting in an increasing inconsistency in student advising. As noted by one member of the faculty extensively involved in pre-health professional student advising, increasingly complex and highly varied requirements of the different professional programs (prerequisite courses, clinical experience requirements, etc.) highlighted the challenges inherent in individual faculty advising. As the complexity increased, it was less likely that faculty could/would remain current in the expanding base of knowledge upon which to ground their advising work with students. With the evolution of professional program admissions expectations, the quality of student support increasingly depended upon the individual faculty advisor with whom a given student worked.

Despite the widely accepted view of successful pre-health professional guidance, it became increasingly clear that the institution was failing to provide a cohesive, comprehensive, and collaborative approach to student development. Despite this, continued institutional support for pre-health professional initiatives was forthcoming, serving as a major impetus to change in advising structure for this cohort of students.

Integrated Health Studies Institute

One challenge of the independent faculty advising approach was that it was convenient to focus on a specific outcome, the successful applicant. The success of Alma College in health professional program admis-

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sion was consistently highlighted as a point of pride among the many stakeholders on campus including, students, faculty, administration, and the Board of Trustees. However, as noted above, the data collected was not necessarily an accurate reflection of the institution's success in pre-health professional advising, however. There was a failure to recognize the outcomes for all students. Acknowledgment of this fact, in part, precipitated the development of a new model for pre-health professional student development.

Professional Development Programming

In 2008, Alma College initiated efforts to further expand health-related programming through the development of an integrated signature program. The goal was to add specific majors such as Nursing and Health Care Administration and at the same time strengthen existing majors that produced large numbers of pre-health professional graduates. The outcome was the creation of the Integrated Health Studies Institute (IHSI) to coordinate the curricular and cocurricular professional development of all pre-health students. The Institute was led by a director, a faculty member with administrative course release; and a Coordinator, a full-time administrative staff member (see Appendix 2 for specific position descriptions as originally defined).

In addition to oversight of new program development, the IHSI was responsible for coordinating professional development of all pre-health professional students on campus. The mission called for the Institute "to bring together students and faculty sharing a common interest in health studies, coordinating student experiences and resources critical for the preparation of future health professionals" (Alma College, 2011). To accomplish this task, programming was built upon the specific recommendation of George Dehne and Associates to "intentionally develop the professional" via clear and coherent packaging of the many experiential learning opportunities afforded by curricular and co-curricular programming (Dehne & Associates Integrated Services, 2010). More specifically, this package included a 4-year developmental model coordinating support students received from individually assigned faculty advisors, Institute resources, and the career development office (at that time renamed to the Center for Student Opportunity, CSO).

The expectations of the Institute expanded over time to cover "all things health," as one colleague phrased it. This meant addressing the challenges associated with independent faculty advising, assessing the reality of our success in post-graduate placement, and ensuring quality professional development support to every pre-health professional student, regardless of specific professional path or membership in the Institute. Essential to this task was establishing accurate and consistent messaging across all sectors of campus (i.e., faculty, career development staff, admissions staff). In doing so, the IHSI created a shared model of advising, attempting to integrate the strengths of individual faculty advising with a centralized, administrative advising structure.

Institute Success

One way in which the goals of the Institute were achieved was in the provision of a centralized office for information dissemination. This included what one faculty advisor described as a "robust set of resources" for students and faculty advisors alike. In addition to hosting many professional development workshops and alumni panels, like that of the earlier pre-medicine advisor, students could utilize the services of the IHSI for standardized exam preparation (e.g., MCAT, DAT, OAT, PCAT), guidance on application preparation, and preparation for graduate program interviews (traditional or multiple mini-interviews).

One important task was coordination of institutional preparation for the 2015 alterations in the MCAT, engaging relevant academic departments in the collaborative effort of mapping content coverage. The outcome was development of a clear set of recommended courses for test preparation (Association of American Medical Colleges [AAMC], 2014).

Faculty advisors would routinely seek guidance from the IHSI Coordinator regarding prerequisites for graduate programs, clinical experiences/shadowing expectations, and the admissions processes. The Institute's objective was not to replace faculty advisors, but rather fill in the information gaps. Several faculty members confirmed that the IHSI provided them with a resource to which they could direct students when they felt they could not provide the appropriate guidance. More importantly, their students reported back that in fact the IHSI had directed them to the resources needed.

Disappointments

Despite the successes, there was disappointment noted by those directly involved in the implementation of this integrated model. A major factor limiting the ability of the Institute to achieve consistent messaging in student support was the lingering impact of the strongly individualistic faculty advising culture. As an administrative position, the Institute Coordinator recognized the need to defer to faculty. Thus, a position intended to provide consistent messaging to students was not empowered to speak. A sense of resistance developed as some faculty saw the Institute taking over their role while others viewed themselves as the experts possessing the only knowledge students should consider. As a result, the quality and consistency of student support continued to be hampered by a multitude of divergent voices and practices, with cohesion failing to materialize.

Broad student engagement with the Institute failed to materialize over time, creating further challenges. Students did not recognize the value of Institute membership, missing the rewards of the integrated model for personal and professional development. Many students chose to only seek advice rather than full engagement, some regularly participating in conversations with the coordinator and others just seeking answers to a single question. While this provided an important resource for student support, the overall objective for comprehensive student development was not met.

Coordination of academic and administrative structures in pre-health professional student development was equally challenging. Residing in distinct physical spaces, at opposite ends of the campus in fact, coordination of programming and advising provided by the Center for Student Opportunity (CSO) and the IHSI failed to achieve important synergy on behalf of pre-health professional students. Although created at the same time, these offices were birthed independently, with little overlap in administration and thus little shared understanding of how their relationship could meet student needs. Rapid turnover in career development staffing amplified the lack of collaboration between the IHSI and the CSO.

To appreciate the difficult position of the IHSI, one must also consider another critical stakeholder in pre-health professional advising, Admissions. The challenge for undergraduate institutions, and Alma College is no exception, has been that outcomes are narrowly defined in terms of success rates for professional program admission. To demonstrate success, the pressure on pre-health professional advising structures to produce the "right" admissions numbers is immense. In the case of the IHSI, the inability to define advising success more broadly proved to be a challenge with a continued disconnect between the Institute and Admissions in assessing student outcomes. The lack of identifiable progress, specifically in graduate admissions, was concerning to the administration and thus the Institute was dissolved by the Cabinet in 2018.

Pre-Health Professional Programs Task Force

With the absence of the IHSI, the continued need for effective pre-health professional student advising was recognized by the institution's administration. The Pre-Health Professional Programs Task Force was convened by the President in the fall of 2018. The specific charge of this Task Force included review of all elements of pre-health professional student preparation (curricular, cocurricular, advising), development of a plan for cohesive and collaborative advising that would ensure quality advising and professional development for every student, regardless of major or professional path, and coordination with Admissions efforts in student recruitment (Appendix 3).

To ensure that the findings of the Task Force would generate wide support, it was essential that selection of Task Force members would represent the diverse academic disciplines essential to pre-health professional student preparation. In addition, incorporation of newer faculty members as well as non-science representation provided perspectives free from institutional and divisional history. Members were appointed by the Provost/Senior Vice President for Academic Affairs (Appendix 3).

The lack of empirical evidence supporting efficacy of specific models for pre-health advising, left the Task Force in a position of assessing structures at peer institutions within the region. Throughout the analysis (review of publicly available documentation), the Task Force compared Alma College practices to peer institutions in terms of recruitment/matriculation, advising/professional development support, pre-health professional curricula, and co-curricular experiences. The primary questions considered were: what works against the College in each of these areas and how shall Alma College effectively address these roadblocks?

Roadblocks to Effective Advising

In the area of academic support/advising, the consensus of the group was that a major factor undercutting student support was the lack of well-defined, standardized advising. The group determined that the decentralized structure of individual faculty advisors combined with two distinct professional development offices (CSO and IHSI) had not worked well. The Task Force highlighted the concern that one specific consequence of the decentralized model was an inability to disseminate consistent and accurate information to all students.

It was important that the group's final report highlighted the negative impact of interdepartmental competition for pre-health professional students, an important source of inconsistent messaging. Specifically recommending any advising resources/materials for the pre-health professions be free of language specific to academic majors, approaching advising outcomes from reverse engineering was considered useful; begin with what a quality health professional looks like and then determine the elements of the undergraduate experience that contribute to this outcome.

The Task Force also completed an analytical report on pre-health professional curricula, noting areas of significant innovation while at the same time emphasizing the need for collaboration. As individual departments modify courses and/or pedagogical approach, the need to establish clear coherence between individual course outcomes and preparation for professional program admissions was clear. The Integrated Health Studies Institute had accomplished this task as it related to MCAT preparation, but with its dissolution there was no longer a formal structure to lead such efforts.

Consistent with the views of the administration that had contributed to the decision to eliminate the IHSI, the Task Force found that "the previous formulation of the IHSI, housed in a different location

with little coordination and effective communication with CSO, resulted in great confusion for faculty, students, and parents alike” (Alma College, 2019). So, while the IHSI was intended to serve as the centralized structure for support, establishing consistent messaging across stakeholders, it was not effective in doing so.

Addressing the Roadblocks – The Pre-Health Professions Committee Is Formed

Repeatedly, the Task Force came back to a single approach to address the barriers to improved student support: establish a formal committee structure to oversee pre-health professional student development as modeled by many peer institutions. Importantly for Alma College, this structure had to: 1) retain the valued role of independent faculty advising; and 2) include a mechanism for collaboration and integration of pre-health professional advising that occurs in the career development sector and that which occurs across the remainder of campus. The recommendation forwarded to the Alma College Executive Staff was the creation of a PHPC. In the following year, 2019, the President and the Provost/VPAA accepted the proposal and officially convened the Committee. To realize the goal of cohesive, comprehensive, and collaborative student support, the committee structure included faculty and administrative staff from across three sectors on campus: academic, career development, and admissions (Appendices 4 and 5).

Alma College Pre-Health Professions Committee

Establishing Cohesion

One of the major limitations to individual faculty advising, identified by the Task Force and confirmed by faculty members interviewed, was the dependence of student experience on the quality of individual advisors. There was a general recognition that the best advice will come from those faculty members who would prioritize their role in the advising process and remain abreast of changes in graduate program prerequisites, expectations, and the broader admissions landscape. Thus, to ensure the Alma College PHPC included voices committed to quality student advising, membership was constituted via administrative appointment as opposed to faculty elections. Once again, diversity in discipline was a key determinant in faculty composition. In addition, the Assistant Director for Career Development was appointed to the committee along with the STEM Liaison for Admissions. The institutional representation on the committee can be found in Appendix 4.

Unique to the Alma College PHPC today is the combination of faculty *and* administrative expertise in committee membership. The appointment of faculty Co-Chairs has addressed any concern that the faculty role in advising has been minimized. Inclusion of career development staff assures the presence of and coordination with expertise found in the Center for Student Opportunity. The participation of the Admissions Office’s STEM Liaison is critical, allowing for accurate and effective communication between our pre-health professional programs and prospective students and their parents. Integration of these three sectors provides a holistic approach to student development, beginning at the point of recruitment/matriculation and continuing through to graduate program admission.

The PHPC works with three different constituencies at the college: pre-health professional students, institutional faculty, and admissions personnel. A fourth constituency with whom the committee works is represented by the professional programs. Programming for students is designed to facilitate professional development, including not only academic preparation but development of appropriate profes-

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sional attitudes as well. The Committee hosts professional development activities for all faculty, leading educational workshops and highlighting important pre-health advising resources for all faculty advisors, irrespective of home discipline. Admissions efforts targeting pre-health professional students are now coordinated with the PHPC allowing for consistent, coherent messaging of the Alma College pre-health professional student experience. Ongoing communication with the array of professional programs is maintained as well, providing up-to-date and accurate information necessary for student success in the application process.

Comprehensive Programming

Programming for Alma College pre-health professional students has been developed to provide time-sensitive information. Appendix 6 provides examples of the workshops/resources provided to students across the four-year experience. During the first year, the emphasis is on student introduction to and engagement with the Committee. Additionally, support is provided to engage students in self-reflection upon the transition to college level work. Second year students continue to interact with the Committee through workshops explicitly designed to move students forward in their clinical exploration and encourage critical reflection on their individual strengths and passions. In the third and fourth years, programming is designed to help students understand the application process, analyze individual readiness for application, and begin preparation of the application.

To facilitate communication and maintain consistency in supporting information, the PHPC maintains a Canvas site with resources specific to becoming a competitive applicant and in their specific area of interest. The site also provides an additional mechanism for communication between the Committee and students. Further Committee communication occurs via the campus calendar, e-mail, and Handshake (a scheduling and information platform used by Career Development).

Synergy Through Collaboration

Throughout the entirety of the students' time at Alma, they still work closely with individual academic advisors. Admittedly, this creates the potential risk for disconnect in the guidance provided by faculty advisors and that of the Pre-Health Professions Committee, a major issue that was to be addressed by implementation of a committee structure. Therefore, to facilitate consistency and coherence in advising, the PHPC collaborates with individual faculty/staff advisors from any discipline to help them understand the professional development needs of pre-health students.

To facilitate early engagement with matriculating students, PHPC works closely with the Admissions Office. This collaboration allows the committee to help prospective students understand the breadth of experience required in pre-health professional preparation and the advising resources available to them as Alma College students.

Finally, the Alma College PHPC serves as a point of communication between the professional programs and our students. Each member of the Committee is assigned to be the point person for a specific professional path. In this way, not only do students have a single person with whom they can consult on program specific requirements, but the graduate program admissions officers in turn have a single point of contact with the institution. In being assigned a single health profession, each Committee member is then responsible for a lesser volume of knowledge acquisition and can more effectively disseminate profession-specific information to a given subset of students.

WHY TRANSITION TO AN INTEGRATED FACULTY/ ADMINISTRATOR COMMITTEE STRUCTURE?

Having detailed the evolution from exclusively individual faculty advising of pre-health professional students to an integrated committee structure, it is important to assess the extent to which the transition has enhanced institutional support for development of this student population. Conversations with administrators, faculty advisors from across disciplines, and current committee members have provided confirmation that critical objectives have been met, establishing a cohesive, comprehensive, and collaborative approach to pre-health professional student development.

Establishing Cohesion

As noted earlier, divergence in faculty members' perspectives/philosophies on advising can undermine institutional support for student development. While some faculty enthusiastically embrace their role as advisor, in fact demonstrating vehement resistance to professional staff advising, others have been comfortable in passing off the task to career development staff. Unfortunately, this model resulted in too many inconsistencies in the quality of advice. Through the efforts of the PHPC, there is now a consistent base of knowledge from which all members of the community can draw in their work with pre-health professional students. Regardless of the specific office from which our students seek assistance, they will receive uniform guidance.

In the past five to eight years, faculty turnover on campus has been significant, with more than one-third of the tenure-track faculty having been hired within this time. Many faculty retirements have occurred with significant loss of knowledge and experience in pre-health professional student advising. The National Association of Advisors for the Health Professions (NAAHP; Fisher et al., 2017) reported on changes in rank status of advisors between 2005 and 2016. At small (< 5,000 students) or private institutions, full professors made up 40-50% of advisors in 2016 (Fisher et al., 2017). With faculty turnover at Alma College, this percentage is markedly lower. A sizable number of those advising pre-health professional students are faculty members with less than a decade of experience.

While the institution provides advisor training, it has been inconsistent in structure and content, often emphasizing institutional requirements and processes to the neglect of longer-term student outcomes. Faculty report feeling overwhelmed at the time they are first assigned the responsibility of guiding students to graduation within the four years guaranteed in the Alma Commitment (Alma College, 2022). When adding to this the plethora of health professional program requirements that are unique to each professional path, institutional support for pre-health advisors in the form of the PHPC has been welcomed.

Comprehensive Student Development and Assessment

Maintaining a vibrant culture for individual faculty mentoring of students has been important to retain development of critical relationships built in the varied interactions between students and faculty/staff outside of the classroom. As a result, these members of the College community are able to provide insight into the students' capacity for work as a future health professional. From the perspective of PHPC members, contributions of non-committee faculty/staff during oral evaluation of an applicant's candidacy have proven invaluable. Since these individuals have worked most closely with individual students across time, they are best able to articulate through anecdotal evidence the students' abilities,

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personal and professional growth, and potential. A more “holistic” view of each applicants’ strengths and weaknesses is achieved and thus the quality of evaluation is markedly enhanced.

In PHPC deliberation of student materials and preparation of evaluation letters, each applicant is invited to nominate an outside member of the campus community, faculty or staff, to participate in the discussion. An interesting, and unexpected outcome of this process is the impact upon the non-PHPC faculty/staff member contributing to the evaluative deliberations. These colleagues report that participation has provided a deeper understanding of various health professional programs’ expectations and the characteristics of highly competitive applicants. They can then better guide the pre-health professional students with whom they work whether inside or outside of the classroom.

Strong relationships translate into strong individual letters of recommendation, yet the synergy coming from collective deliberation and evaluation of each applicant’s record should not be overlooked. Members of the PHPC noted the positive impact of diverse perspectives when interpreting curricular and co-curricular experiences and in composition of the committee letters. Additionally, those with prior experience writing individual letters of recommendation noted enhanced level of consistency in evaluation that comes from the committee structure.

One further success of the PHPC is that it can more readily engage students in the hard conversations about graduate school admissions. The relationships built between students and the PHPC allow for realistic assessments throughout their time at Alma as these conversations arise from PHPC’s deliberation, students more readily accept feedback regarding their progress toward professional program candidacy. As one member of the PHPC noted, the assessment and conversations are now data driven rather than based on emotion.

An early driver moving the institution toward a structured approach to pre-health advising was the need for accurate and consistent data collection. Public communication of student outcomes reported a variety of data, some provided by the career development staff, some collected via Chairs of the Science Departments, some from individual faculty anecdotes. While our Admissions Office was a key stakeholder pressing for outcomes data, the institution’s administration recognized that robust and accurate data must also be available to all pre-health professional students. Formation of the integrated PHPC is now perfectly positioned to collect and collate a comprehensive data set on graduate outcomes from a multitude of sources including the offices of Alumni Relations, Career and Professional Development, and the Vice President for Academic Affairs.

Collaboration Across Sectors

Beyond the pragmatics of committee evaluation, letter preparation, and data collection, transition to an integrated faculty/staff committee structure has intentionally connected our pre-health professional student development to institutional mission and core values. In an effort to demonstrate how an Alma College graduate might bring unique experiences and world view to programs in the health professions, the PHPC uses the College’s Mission Statement to guide its evaluation. Having an integrated PHPC, the connections between mission and student development are now explicitly communicated to current and prospective students alike.

LESSONS LEARNED IN THE TRANSITION

Address the Needs of Multiple Stakeholders

The primary stakeholder of consideration is the pre-health student, assisting them from first contact with Alma College through their admission into a health professions graduate program. This is undoubtedly challenging; to do so effectively requires input from and intentional coordination across sectors, minimizing the potential for conflict/turf protection.

Additional stakeholders are essential to identify as PHPC relations with these groups will impact student support. Individual faculty, the first point of academic guidance as students matriculate, must be (*and feel*) empowered to work with any pre-health professional student. Career development staff have experience and training in professional development that must be leveraged for optimal student outcomes. Effective inclusion of career development in student advising will result in a community philosophy of collective advising among faculty *and* staff, as opposed to faculty versus staff.

Two stakeholders that can easily be overlooked are the enrollment sector, and senior campus administration (specifically the Provost/VPAA and the President). In the current climate of student recruitment, prospective students and parents are intensely focused on: 1) student outcomes (i.e., rates of admission into graduate programs); and 2) specific programs/structures in place to assist students in successful graduate school admission. Effective collaboration between an institution's PHPC (or comparable structure) and the enrollment sector will generate answers to the most common questions of outcomes and support. A strong relationship between the PHPC and Admissions staff provides an effective means to introduce students to PHPC members and the PHPC's role in their development.

The importance of the relationship with upper-level administration - those who ultimately make funding and personnel decisions - cannot be overstated. The NAAHP (2015) recognized this in generation of The Twelve Best Practices to guide institutions in development and implementation of quality pre-health professional student advising. Examination of these practices emphasizes administrative commitment to provision of fiscal, personnel, and physical resources as well as cross-sector collaboration.

A central focus for administrators is on easily accessible and quantitative measures for pre-health professional student success (e.g., number of entering pre-health professional students versus numbers graduating with a health-related degree, institutional retention, metrics on graduate admissions criteria, and percentage of graduates admitted into health professional programs). An emphasis on isolated pieces of data can have unintended consequences for pre-health professional students, the most obvious being premature redirection of students struggling early in the transition to college work. Alternatively, emphasis on attrition in pre-health professional curricula may result in a hesitancy to redirect students for whom the pre-health professional path may not be in their best interest. A relationship built on trust and regular communication results in a more nuanced assessment of the relevant advising structure(s). Furthermore, accurate interpretation and dissemination of institutional data require a fuller understanding of the health professional program admissions landscape, achieved through the work of the Committee.

While the NAAHP (2015) recognizes the importance of alumni networking in its Best Practices document, coordination of Committee and Alumni Relations can be challenging. At Alma College, the Director of Alumni Engagement works closely with the Center for Student Opportunity. Communication with the institutional alumni network is enhanced by the presence of the career development staff as a full member of the PHPC. That position provides the critical point of cooperation between the committee, career development, and alumni relations.

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An important note of caution is necessary here. It is not an easy task to identify stakeholders. Such an exercise assumes a singular entity when referencing a given group, faculty, staff, administrators. In reality, as one colleague described it, each group is a compilation of multiple voices. Perhaps the best example of this is in describing the faculty, since each department and individual faculty member brings a unique perspective to conversations on pre-health professional student support. Similar diversity is apparent within the administration; the President, Provost/VPAA, Vice President for Admissions, and Board of Trustees have distinct objectives in their work. Thus, conversations are rarely a dialogue between two stakeholders, but rather between two labels with multiple players.

Prepare to Manage Change

As noted by multiple faculty members and administrators, the task of advising any student on our campus has grown increasingly complex. Advisors can no longer focus only on the academic needs of students, leaving the more challenging discussions of vocational aspirations and longer-term professional goals to the student life and career development sectors. Adding to the challenge is the need for social and mental health support of students, exacerbated by the current pandemic (Anft, 2018).

This evolution in faculty advising responsibilities is not new, and work with pre-health professional students presents unique challenges with rapidly changing expectations. Examination of institutional advising guides for pre-health students over the past two decades shows added complexity in the curriculum. Faculty colleagues pointed to an increased number of prerequisites together with a lack of commonality in prerequisites between professional programs, as a factor making it difficult to provide quality advice for a cohort of advisees pursuing a range of professional pathways. Added to the complexity in curricular choices, changing expectations for clinical and cocurricular experiences require extensive effort to remain abreast of how professional programs evaluate candidates for admission. It is easier for a single committee to adapt its processes in response to the changing landscape than for a large cohort of individual faculty advisors to do so of their own accord. A primary task of the PHPC is therefore to provide regular updates and inspire individual advisors toward utilization of the best information and best practices in their work with students.

Think Sustainability

The time commitment required of members of a pre-health professional committee cannot be overlooked. An advantage to administrative staff participation on the committee is the ability to clearly define the portion of time devoted to pre-health professional student advising, including committee work. Effective communication with appropriate Directors/Vice Presidents to establish what fraction of staff members' workload will be committed to pre-health professional tasks is essential to effectuate the positive impact of these positions on Committee work.

At Alma College, the PHPC work is an important component to faculty members' service responsibilities. This is consistent with the findings of Crecelius and Crosswaite (2020) who reported that nearly half of the physiology faculty they surveyed responded that advising was considered part of their service obligations, as opposed to teaching or administrative responsibilities. When viewed as service it becomes less likely that faculty members will be compensated at a level appropriate to time spent on task, be it financial or release time. This presents the real likelihood of committee member burnout, sacrificing

continuity in membership and thus consistency in student support and evaluation. To minimize this outcome, intentional processes to spread the workload evenly among all members should be implemented.

KEY ELEMENTS FOR SUCCESSFUL TRANSITION

1. **Empowered Committee:** The Alma College PHPC was given a clear charge with clear authority to implement. This sense of empowerment is retained via direct report of the Committee Co-Chairs to the Provost/VPAA. In addition, semiannual meetings/discussions between the committee (via Co-Chairs) and the President allow for direct and open dialog with the Chief Executive of the institution.
2. **Communication:** To effectively implement the responsibilities of the committee, communication is essential. Clear designation of routes of communication must be established. All stakeholders must be provided with regular and consistent messaging and they in turn must be held to the same: accurate and consistent communication with each other and with external constituents.
3. **Student buy-in:** Students must know the Committee exists and they must have confidence in the efficacy of the PHPC's work. Only then will they be willing to engage. This will always be exceedingly difficult in the first years of the transition; the challenge being exacerbated by rapidly changing technology. Identification and regular assessment of the optimal mode for communication with students must be performed regularly.
4. **Committee buy-in:** PHPC members must be willing to commit to the process. The PHPC's work requires extensive periods of time, and it is not always evenly distributed across the academic year. The greatest number of hours committed will be during the early months of the application cycle, months that align with personal and/or professional travel. Members must understand and commit to this work while specific processes to minimize the impact must be developed by the Chair/Co-Chairs.
5. **Faculty buy-in:** A shift from the longstanding tradition of individual faculty advising to oversight by committee requires broad faculty support. This was achieved at Alma College via formal and public commitment from the administration, pointed Task Force analysis on pre-health professional advising, and intentional selection of faculty committee members to include diverse academic disciplines.

CONCLUSION

There are many challenges in making a significant shift away from traditional models for pre-health professional student advising, including individual faculty passion for student advising and multiple stakeholders with distinct expertise and expected outcomes. This chapter has presented one specific model for transformation of pre-health professional student development on the campus of a small, private, liberal arts institution: a model that incorporates significant faculty-staff collaboration, utilizing the expertise of professionals across multiple sectors on campus. By integrating career and professional development with academic expertise, Alma College is achieving its goal of intentionally developing the professional (Dehne & Associates Integrated Services, 2010). It is the goal that others contemplating

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such a transition can take away important lessons from the detailed evolution in pre-health professional advising as presented here.

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APPENDIX 1: INTERVIEW QUESTIONS

The following questions were asked of community members in conversations held in August and September of 2021. The specific questions asked from the list were based upon colleagues' time of arrival and experience in pre-health professional student support.

Pre-Health Professional Advising Pre-2008

1. How would you describe the institutional approach to advising/professional development of pre-health professional students?
2. What was your role in working with/advising pre-health professional students?
3. Did you have any role in development/implementation of specific workshops, group advising sessions, etc.?
4. What institutional resources were available to assist you in your work with these students?
5. How effective was pre-health professional advising? What were the strengths of such an approach? Limitations/weaknesses?

IHSI Era

1. From your perspectives, what was/were the major goals/objectives of the IHSI? Was there an expectation for pre-health professional student development/advising?
2. What was your relationship with the IHSI? If you were not formally involved with the Institute, what were your interactions with the Institute?
3. How effective was the IHSI in meeting your expectations? Student expectations?
4. How effective was pre-health professional advising during this time? What were the strengths of IHSI? Limitations/weaknesses?

Pre-Health Professions Committee Era

1. What is/has been your interaction with the PHPC?
2. Have you been involved in the process for student application and Committee recommendation? What is your impression of the process; advantages/disadvantages?
3. As a member of the committee, do you feel there was sufficient training/preparation for the work you do? If so, what elements of the preparation were important? If not, what elements would be especially helpful to new Committee members?
4. Do you feel empowered to be effective in your work as a committee?
5. Do you feel empowered to be effective in your individual advising of pre-health professional students?
6. What are the most important elements for effective Committee support/advising of pre-health professional students?

APPENDIX 2: POSITION DESCRIPTIONS FOR INTEGRATED HEALTH STUDIES ADMINISTRATION

Integrated Health Studies Institute Director

Position Summary

The Director of Integrated Health Studies will 1) help coordinate faculty and staff support for students in our Integrated Health Institute and in health-related professions, 2) help coordinate faculty efforts to assist admissions in their outreach to prospective students interested in health-related professions, and 3) help coordinate interdepartmental faculty discussions about future support for students interested in health-related professions.

Essential Functions

1. Direct the Integrated Health Institute and chair its Advisory Board, where appropriate consulting them for guidance on program direction and review.
2. Supervise the Integrated Health Institute Coordinator, guiding her efforts to coordinate faculty and staff support for our students in the health professions, including assistance with placements, applications, and external exam preparation.
3. Coordinate efforts by faculty in the health-related professions to assist with outreach to prospective students, including developing a schedule of faculty availability for visits by prospective students and for presentations about health-related professions at admissions events.
4. Working in conjunction with the Provost's Office and affiliated faculty, coordinate periodic assessment of current Integrated Health programming, helping develop plans to reinforce existing areas of strength and to respond to identified needs.
5. Help coordinate interdepartmental faculty discussions about Alma's future support for students interested in health-related professions, including responses to changing external expectations.
6. Other duties as assigned

Integrated Health Studies Coordinator

Essential Functions

1. Lead implementation of Career Development Programming for students in health studies
2. Internship Coordination; assisting with identification, promotion, and evaluation of clinical experiences for pre-health professional students
3. Coordinator of external speaker visits and professional development workshops
4. Management of Institute application/admissions process
5. Program Assessment
6. Provision of support to the IHSI Director with added responsibilities as necessary

APPENDIX 3: INSTITUTIONAL PRE-HEALTH PROFESSIONS TASK FORCE

Table 1. Membership

Task Force Chair Charles A. Dana Professor and Chair Integrative Physiology and Health Science	Member #1 Associate Professor and Director Nursing
Member #2 Associate Professor and Chair Physics and Engineering	Member #3 Assistant Professor and Director of Writing Center English
Member #4 William R. Angell Professor and Chair Biology Member #6 Associate Professor Chemistry	Member #5 Assistant Professor and Chair Psychology

Task Force Charge

In an effort to support stated goals of a more coherent advising model and a more directed focus on over-arching outcomes, the Pre-Health Professional Programs Task Force is charged with the following:

1. Complete a comprehensive review of the pre-health professional programs across the disciplines, considering the following areas: curriculum, co-curricular experiences, and advising.
2. Evaluate both curricular content and strategy as well as pedagogical approaches, especially the impact of the curriculum on students' success on standardized examinations as well as other traditional markers of academic success.
3. Assess co-curricular experiences in terms of institutional support for students seeking learning outcomes that will have the greatest impact on their professional development. Presumably these will be the same experiences viewed most favorably by graduate admissions committees.
4. Form a plan for a cohesive and collaborative advising structure to establish appropriate means to insure consistent advising for every student regardless of major, professional path, or perceived student aptitude.
5. Actively collaborate with Admissions and the Center for Student Opportunity to formulate a structure that helps promote our pre-health programs to prospective students and their families and support a comprehensive student experience.

APPENDIX 4: PRE-HEALTH PROFESSIONS COMMITTEE MEMBERSHIP

Table 2.

Co-Chair Associate Professor Chemistry	Co-Chair Assistant Professor Integrative Physiology and Health Science
Member #1 STEM Liaison Admissions	Member #2 Associate Professor Biology
Member #3 Assistant Director, Career and Professional Development Center for Student Opportunity Member #5 William R Angell Professor and Chair Biology Member #7 Assistant Professor Integrative Physiology and Health Science	Member #4 Associate Professor Mathematics Member #6 Associate Professor Chemistry

APPENDIX 5: PRE-HEALTH PROFESSIONS COMMITTEE CHARGE

The members of the Pre-Health Professions Committee are charged with the following responsibilities and expectations:

1. Promote development of students planning career in professional health disciplines from the first year through the senior year
 - a. Coordinate time-sensitive workshops
 - b. Assist students in the identification of appropriate curricular and co-curricular experiences
 - c. Maintain appropriate web materials to support students from the point of recruitment to graduation and admission into a professional program
2. Mentor students through the admission process to graduate and clinical programs
 - a. Advise regarding preparation for standardized tests
 - b. Advise and assist with the selection of appropriate graduate and clinical programs
 - c. Write letters of recommendation for graduate and clinical program admission
3. Support the development of faculty and staff academic advisers
 - a. Provide workshops and training to ensure consistent and cohesive messaging
 - b. Provide adviser support as needed
 - c. Address advising questions and concerns
4. Promote effective internal and external relations
 - a. Support collaboration with Alma's admissions office
 - b. Work with marketing and PR to ensure appropriate materials are available
 - c. Maintain appropriate web materials to recruit students into our pre-health professions programs
 - d. Support articulation agreements and informal collaboration and communication with graduate and clinical programs

APPENDIX 6: PRE-HEALTH PROFESSIONS COMMITTEE STUDENT PROGRAMMING – SELECT EXAMPLES

First Year Workshops

- Welcome to Alma College Pre-Health Professions. A session introducing Committee members, the role of the Committee, and student resources
- Finishing Strong. A session providing guidance as students approach their first set of final exams.
- Interpreting Your First Semester. Engages students in honest reflection of first semester performance and development of specific actions for success in the coming semester.
- Effective Use of the First Summer. A session to encourage initial shadowing experience.

Second Year Workshops

- Sophomore Symposium. Sponsored by the Center for Student Opportunity, explicitly engages students in planning for experiential opportunities of relevance to professional development.
- Alumni Panel. Students interact with a range of health professionals, hearing their “stories”.
- Evaluating Your Progress. Engaging students in detailed research on the application process, program expectations, standardized exam preparation.


Third- and Fourth-Year Programming

- Application Month. Weekly workshops during the month of March preparing for the application cycle, e.g., “Writing a Personal Statement”, “Why Take a Gap Year?”, Alumni Panel, etc.
- Applicant Assessment and Feedback. All applicants interview with the Committee in preparation for letter writing.
- Mock Interviews. All applicants may complete mock interviews that are tailored to the format of their specific interviews.

Chapter 13

The Foundations of Success in Health Professions Education: Applying Strategic Learning to Training Pre-Health Professions Learners

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ABSTRACT

Pre-health professions learners are physically mature adults. However, in early adulthood, cognitive and emotional development are incomplete, and the transition to higher education presents a challenge for learners. The academic environment is demanding, requiring strong will, advanced skill, and self-regulation ability. Even exceptional learners may struggle. With so many variables, how can pre-health professions educators best support learner success? The goal of this chapter is to establish the model of strategic learning as a foundation for identifying and adopting strategies that support learner success. Here, the authors present the model of strategic learning and each of its four components: academic environment, skill, will, and self-regulation. Within each section, the authors discuss the impact of these on learner success and make recommendations to cultivate a strategic academic environment in pre-health professions programs. The authors conclude by justifying a holistic approach to developing pre-health profession learners into strategic learners.

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INTRODUCTION

In pre–health professions education, a significant amount of effort is dedicated to pursuing the question: How do we design our program to support learner success? The definition of learner success is highly variable. It is often defined by traditional indicators of achievement such as grades, graduation, and career placement. Alternatively, and arguably more appropriately, broader definitions of learner success consider outcomes such as engagement, satisfaction, and career performance (Kuh et al., 2006). From this perspective, programs that aim to enhance learner success must address personal, psychological, and organizational variables.

Overwhelmingly, the literature supports this, revealing a multitude of non-cognitive variables that significantly impact learner academic achievement, irrespective of level, program, or institution. Nonetheless, much of the prior research on pre–health professions learners’ success has focused on investigating which undergraduate pre-requisites are essential to guarantee success in professional programs. This is likely based upon the belief that a rigorous introduction to the fundamental sciences will promote success when those concepts are encountered a second time. Rational as it may be, there are limited data to support this theory, and this deeply held belief is most likely informed by anecdotal evidence and personal experiences of academic faculty and staff.

In designing pre–health professions programs, educators often overlook the amount of evidence that supports non-cognitive factors as influential to learner success, more so than prior knowledge itself. These include characteristics like learning skills, academic mindset, self-directed learning ability, and external factors such as academic environment. Based upon this evidence and theory, we propose that interventions aimed at supporting pre–health professions learners’ success must be holistic, taking into consideration multiple non-cognitive variables relevant to the needs of the learners they serve.

BACKGROUND

For over a century, researchers in the fields of education, psychology, and neuroscience have worked to characterize human learning. As a result of this cumulative work, one conclusion is evident: learning is complex. The process of learning is not only biological, but also developmental, social, and cultural. Learning happens everywhere, all the time (National Research Council, 2000). For those who dedicate their career to education, this is intimidating. In the field of pre–health professions education, where academic demands are heightened, risk of failure is high, the consequences of failure are significant, and the task of developing a program that supports learner success is overwhelming.

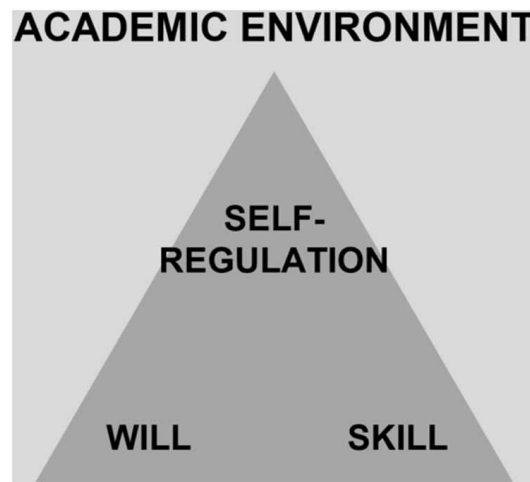
Educators may apply a number of theoretical learning models to develop a program. We propose that, considering the complexity of learning, the most advantageous model is one that respects the number of variables known to impact learning and success. In this chapter, we discuss a model that satisfies this requirement, present evidence to support it as a foundational model for pre–health professions programs and describe practical applications key to promoting learner success.

A Model of Strategic Learning

C. E. Weinstein et al.’s (2004) Model of Strategic Learning is founded upon the idea that the interaction of multiple variables determines success in learning (Weinstein et al., 2004). This learner-centered model

acknowledges that learners can develop the relevant knowledge, skills, attitudes, motivation, and self-regulation to manage their own learning. (Weinstein, 1994). It categorizes the variables that influence learner success under four major components: academic environment, skill, will, and self-regulation. In its visual representation, the learner is symbolized by a triangle at the core of the model, and the three points of the triangle represent the components under the learner's control, namely their intrinsic skill, will, and self-regulation (Figure 1). The academic environment is not under the learner's control and is demonstrated by the surrounding rectangle. The placement of these components demonstrates the impact of the academic environment on the three intrinsic components (Figure 1).

Figure 1. Model of strategic learning
(Weinstein et al., 2004)



In the following sections, we define each component, provide evidence to support its consideration, and offer strategies that pre-health professions programs can apply.

A STRATEGIC APPROACH TO TRAINING

Support the Academic Environment

The academic environment is defined as the atmosphere in which one learns, determined by contexts, cultures, educational approaches, and the physical locations where teaching and learning occur (Weinstein et al., 2004). The academic environment can greatly aid in the learning experience or distract from and diminish it. Murray (1938) hypothesized that an individual's behavior is not only influenced by personal characteristics, but also their perceptions of their environment. This idea spurred research into the effects of the academic environment on learning, which confirmed that a supportive academic environment favorably impacts their success (Genn, 2001; Moos, 1973).

In pre-health professions education and beyond, the perception of a supportive academic environment is largely determined by the learner's perception of the program's effectiveness in supporting

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their personal aim of gaining admittance to professional school or advancing to professional practice. Major determinants of a supportive academic environment include clear expectations, relevant content, high-quality formative feedback, academic support, and a sense of community (Schönrock-Adema et al., 2012). These variables share one commonality: they are determined by goals and practices of the institution and program. When an institution or program centers decisions around the needs of learners and their well-being, learners succeed and thrive in the pre-health professions academic environment.

Cultivate a Learner-Centered Environment

Weinstein's Model of Strategic Learning presents the learner at the core, reinforcing the importance of a learner-centered environment. The positive correlation between a learner-centered environment and learner success is well established. (Bragazzi et al., 2016; Jordt et al., 2017). Learner-centeredness exists on a spectrum. At one end of the spectrum, the focus is on what the educator does, and the aim is to transmit knowledge from expert to novice. On the other end, the focus is on what the learner does in the environment, with the aim of promoting learner-driven development (Kember, 1997). In this learner-centered environment, power dynamics shift as the learner becomes more involved in and responsible for their learning. Education becomes transformative, resulting in changes in thoughts, feelings, and behaviors (Brandes & Ginnis, 2001).

Recommendations to Cultivate a Learner-Centered Environment

Pre-health professions educators can promote a learner-centered academic environment by assessing where their current practices lie on the continuum and implementing new practices to promote learner involvement in the learning process. Conceivably, the most important step that educators can take toward promoting a learner-centered environment is the adoption of outcomes-based practice. Learning outcomes describe what a learner can do at the conclusion of a module, course, or program. In contrast, learning objectives describe what a learner should know. In outcomes-based education (OBE), the curriculum and program are designed around what the learner should be able to do, not just know, upon completion. Promoting mastery of learning outcomes mapped to program goals, as opposing to learning objectives mapped to educational content, broadly impacts instruction, assessment, and the overall academic environment (Harden, 1999).

Support the Adult Learner

Pre-health professions learners are adults. As such, each learner matriculates with different knowledge, experience, behaviors, and beliefs they are ready to apply to learning. Knowles (1980) first acknowledged the importance of creating an academic environment that uniquely supports adult learners. Knowles' adult learning theory, or andragogy, assumes that adults learn differently than children in five key areas, described in the Table 1.

Table 1. Knowles' adult learning theory

Learning Characteristics	Children	Adults
Need to Know	Need to know what the educator tells them	Need to know why something is important
Self-Concept	Are dependent upon the educator to decide what needs to be learned	Take responsibility for identifying their own learning needs
Role of the Learner	Do not have many past experiences to build upon	Have a rich resource of past experiences to apply to learning
Readiness to Learn	Are open to learning all new information	Are ready to learn what they see as relevant to a goal
Motivation	Are externally motivated by the educator	Are internally motivated by personal needs and desires

Based on these assumptions, Knowles suggested that four principles be applied to support adult learning. These principles dictate that pre–health professions education programs, in order to promote learner success, must: (1) demonstrate the relevance of the content to the learner’s professional goals; (2) promote problem-oriented learning, as opposed to content-oriented, (Deas et al., 2012); (3) create opportunities for learners to apply and build upon their prior knowledge and experience; and (4) provide opportunities for self-direction in learning (Knowles, 1984).

Recommendations to Support the Adult Learner

Optimally, the learning process supports the needs and desires of adult learners. The guiding principles of andragogy promote the idea that adult learners should be involved in as many aspects of their education as possible (Knowles, 1980; Lindeman, 1926). Thus, many pre–health professions programs promote adult learning by providing opportunities in which the learner is responsible for driving their own learning and assessment, and is given the structure, tools, and support to accomplish learning tasks. The learning tasks should be authentic, timely, and relevant, and focused on learning outcomes. To facilitate the *need to know*, educators can explicitly connect objectives and goals or, to further support internal motivation, ask learners to identify how the learning objectives and outcomes can help them achieve their personal goals.

Nurture Well-Being in the Academic Environment

It is critical that pre–health professions programs explore the impact of environment on learner well-being. Though subjective, a learner’s feelings and attitudes about their education deeply impacts their ability to prosper. Well-being consists of a set of affective, cognitive, social, and psychological characteristics implicated in human functioning (Ryff & Keyes, 1995). It is well-established that learners with positive well-being experience an increased sense of autonomy, mastery, self-acceptance, and purpose (Ryan & Deci, 2000). Well-being is fundamentally related to two key measures: self-efficacy and resilience (Etherton et al., 2020; Yıldırım & Tanrıverdi, 2021). Here, we address these relationships and recommend interventions to support well-being in the academic environment.

Self-efficacy in learning refers to an individual’s perception of their capability to achieve a learning goal (VandenBos, 2007). Negative beliefs of self-efficacy are known to increase the level of stress imposed by an academic task (De Caroli & Sagone, 2014). Alternatively, self-efficacy is positively

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correlated with achievement of learning outcomes across disciplines (Usher & Pajares, 2008). It is key to understand the critical role that self-efficacy plays in cognition, motivation, and behavior. This relationship primarily depends upon the impact of self-efficacy beliefs on self-regulation (Bandura, 2005). Learners with positive self-efficacy are more proactive, internally motivated, and self-regulated, and less likely to allow their emotions to influence their behavior. In contrast, learners with low self-efficacy are more likely to be controlled by negative emotional responses, and thus are more likely to avoid the tasks necessary to achieve a learning goal (De Caroli & Sagone, 2014).

The effects of self-efficacy impact two overarching learner outcomes: academic achievement and satisfaction with the educational process. Regarding academic achievement, it is key to consider that self-efficacy is often misjudged by learners, in that they are overconfident or underconfident in their proficiency with an individual task (Moores et al., 2006). A concept often overlooked, satisfaction plays a key role in a learner's decision to maintain a goal, such as continuing with a program or pursuing further education (Levy, 2007).

It is well-established that well-being is strongly associated with resilience, a more objective measure of how learners respond to challenges or failure. Low resilience strongly correlates with negative emotions and, more troubling, mental health disorders such as anxiety and depression (Hu et al., 2015). High levels of resilience are associated with positive relationships with others, optimism, satisfaction with life, and adaptive coping skills, which are all known indicators of positive well-being and mental health (Hu et al., 2015). In the academic environment, a learner's resilience is positively correlated with academic achievement and program retention, demonstrating the relationship between well-being and learner success (Yıldırım & Tanrıverdi, 2021).

Recommendations to Nurture Well-Being in the Academic Environment

Interventions directed at promoting positive self-efficacy beliefs must address the skills required to accurately judge one's own performance (Moores et al., 2006). Learning experiences should be designed to allow for application, practice, and mastery. As learners master skills, they develop a growing sense of their self-efficacy (Bandura, 1994). Interventions in the academic environment that are aimed at optimizing well-being can prevent burnout and promote resilience (Wasson et al., 2016). Research shows that learner resilience is cultivated by an academic environment that builds confidence, demonstrates relevance, develops intrinsic motivation, promotes problem-solving skills, offers non-academic support, and supports meaningful relationships (Hupfeld, 2010; Wasson et al., 2016). Note that many of these factors also support the adult learner and cultivate a learner-centered environment. Thus, the impact of any one classroom intervention is multi-faceted. In addition to classroom practices, programs can achieve these goals by offering services like tutoring, mentoring, and counseling (Chandler et al., 2020; Turner et al., 2017).

Promote Academic Skill

Skill is a component of the strategic learning model that is under the learner's control. Academic skill is the ability to use cognitive processes to recognize key concepts, construct meaning, and apply knowledge to a task (Weinstein, 1994; Weinstein et al., 2000). This ability is derived from the learner's knowledge as well as their selection and use of appropriate learning strategies. There is significant overlap between academic skill and self-regulation, as the same knowledge and strategies that determine academic skill

are also components that the learner can self-regulate (Weinstein et al., 2004). For the purposes of this work, we will equate academic skill with skill in learning.

A variety of definitions, theories, and concepts of learning exist. The most influential and widely accepted theories on what learning is and how it works are behaviorism, cognitivism, and constructivism (Ertmer & Newby, 1993). Considering these together, learning is a process resulting in a change in knowledge, skill, or attitude that results from the active construction of meaning and application of information processing, and it is best observed as a change in behavior in response to external stimuli (Schunk, 2020; Shuell, 1986). The common factor among these is that two things must occur in the mind of the learner: they must know the information and know what to do with it. Therefore, interventions to enhance academic skill must support two key processes: the construction of knowledge and the development of skill.

Support the Construction of Knowledge

According to constructivism, knowledge is constructed, not passively acquired, based on prior knowledge and experience. As a result, knowledge is personal and contextual, housed within complex networks connected to feelings and emotions. Meaning and understanding look different in the minds of different learners (Schunk, 2020; Shuell, 1986). According to cognitivism, to construct and use this knowledge, information processing is required. These theories are well supported by research on the neuroscience of brain systems, which has identified the key structures and processes responsible for memory formation in the brain (Aggleton & Morris, 2018; Squire, 2004).

Memory is a form of information processing, involving multiple structures in the brain responsible for the encoding, storage, and retrieval of knowledge (Anderson, 1984; Atkinson & Shiffrin, 1968). Knowledge is acquired by encoding new information into a type of memory, and storing that information in long-term memory (Anderson, 1984). When engaging in decision making or problem-solving, the information stored in long-term memory is retrieved and temporarily stored in working memory, where it is integrated and processed (Atkinson & Shiffrin, 1968).

The way knowledge is constructed determines how it is retrieved from long-term memory. Schema theory describes how learners construct memory structures, referred to as schemata, when learning new material (Anderson, 1984). Connections are built between existing knowledge and new information. Learning is cumulative and schemata become increasingly complex (Anderson, 1984).

Recommendations to Support the Construction of Knowledge

The strength and duration of memory can be enhanced by individual practices and environmental influences. Environmental stressors can impair memory formation, but moderate amounts of stress imposed by challenging but achievable tasks can optimize memory through emotional attachment (D’Mello et al., 2014). Learning and study techniques also promote or detract from learning. Techniques like highlighting and rereading have proven time-consuming and ineffective (Dunlosky et al., 2013a). Techniques with proven efficacy are retrieval-based practice and distributed practice (Carpenter et al., 2012; Rawson & Dunlosky, 2012).

Retrieval-based practice enhances recall and long-term retention through deliberate practice testing. Schema theory may explain the effectiveness of retrieval-based practice. Information recall requires searching schemata stored in long-term memory. Since knowledge is constructed in networks, recall of

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any one piece of information, called a cue, promotes access to other relevant information through connections called pathways. The more often a pathway is activated, the easier it becomes to activate it in the future. The greater the number of pathways to the information, the easier it is to access via multiple cues. This technique can be used by learners during independent study or by educators in the classroom. A variety of methods support retrieval-based practice, such as flashcards or practice questions (Rawson & Dunlosky, 2012).

Distributed practice has also demonstrated efficacy in improving academic performance. Distributed practice refers to spacing learning over a long period (Carpenter et al., 2012). Longer intervals between study periods leads to enhanced long-term retention (Dunlosky et al., 2013b). A meta-analysis of 254 studies found that distributed practice consistently showed better achievement of learning outcomes compared to cramming (Cepeda et al., 2006). This effect was enhanced when more time passed between learning episodes. Distributive practice across days or months, compared to one time, substantially improves the amount and durability of retained information (Cepeda et al., 2006).

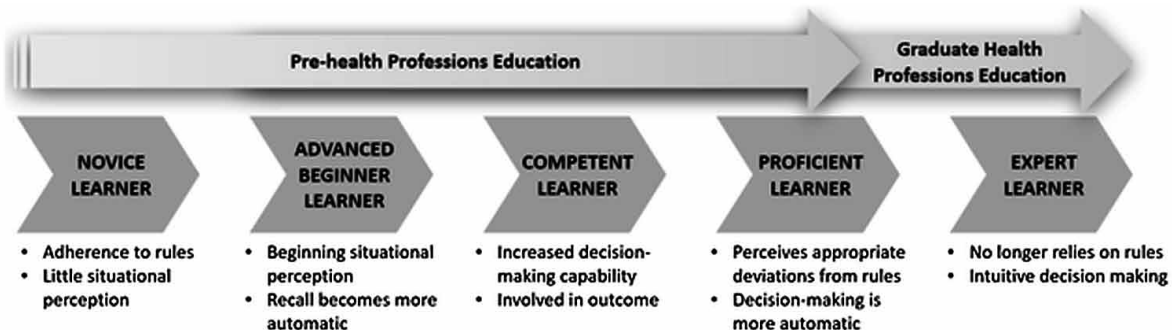
Promote Skill Development

As stated previously, academic skill is the ability to use cognitive processes effectively and efficiently to learn. The Dreyfus model of skill acquisition explains how a learner develops academic skill. It describes five stages: novice, advanced beginner, competent, proficient, and expert, whereby an individual's ability to perform a task increases at each level (Dreyfus, 2004). Expertise in a skill develops only after considerable practice, and true expertise is the product of years of deliberate practice and coaching (Bloom, 1985). Thus, expertise cannot be developed through passive teaching.

According to the Dreyfus model, as learners progress from novice to expert, they rely less on analytic cognitive processes and more on non-analytic cognitive processes (Dreyfus, 2004). Analytic processes include approaches such as deductive reasoning and logical argument, while non-analytic processes include intuitive approaches that incorporate pattern recognition (Locke & Covell, 1997). Therefore, the expert learner can effortlessly identify meaningful patterns of information and understand their implications (Chase & Simon, 1973). Decisions about how to learn become intuitive and learners are more efficient at learning. They adapt to circumstances, critically appraise sources, prioritize information, and conduct self-assessment, all without much overt thought.

In graduate health professions education, the goal of the academic program is for learners to develop the skills necessary to become experts in their field. Success in the health professions requires life-long expertise in strategic learning (Cutrer et al., 2017; Hendricson et al., 2006). With deliberate interventions, learners in pre-health professions programs can acquire competence and proficiency in strategic learning, helping them transition to the expert learner stage during graduate health professions education (Figure 2).

Figure 2. Application of the Dreyfus model of learning to health professions education



Recommendations to Promote Skill Development

Pre-health professions learners must be given the tools and environment to progress from novice to proficient strategic learners. Interventions based on Miller’s pyramid supports skill development (Miller, 1990). While originally intended to apply to clinical skills development, we argue that Miller’s pyramid applies to the development of any skill, including academic skills. Miller argued that assessment of skill often focused on the learner’s theoretical knowledge instead of their behavior. He posited a hierarchical process for skill development, with sequential milestones that describe the lower-order to higher-order thinking that is demonstrated through the actions or behaviors of the learner. The four milestones are: “knows,” “knows how,” “shows how,” and “does.” Later, Miller’s pyramid was expanded to include the foundational levels “heard of” and “knows about” and one paramount level that demonstrates the highest order of skill, “is” (Cruess et al., 2016; Peile, 2006).

Like other skills, academic skills must be developed through this hierarchical process. All learners have “heard of” or “know about” study skills. However, when they don’t “know” effective study techniques and “know how” to apply them, they cannot achieve the highest levels of Miller’s pyramid and become expert strategic learners.

Educators can implement practices to facilitate academic skill development by providing resources about effective learning techniques or directing students to university resources. Educators should provide ample opportunities for learners to practice applying academic skills through authentic learning tasks and spread that practice out over time. In conclusion, successful application of academic skill encourages learners to transfer their learning strategies in future situations, like learning challenges they will encounter during graduate education.

Promote Academic Will

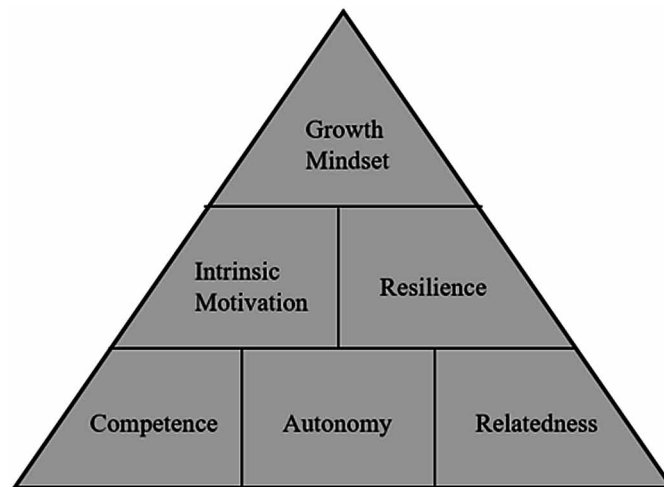
Academic will is a learner’s desire to actualize a task based on their personal feelings about the task. Positive attributes of academic will are associated with achievement of academic, professional, and personal goals, and broadly impacts both academic success and well-being.

There is no consensus on what characteristics, qualities, or practices determine one’s will. However, self-determination theory research has identified three overarching components: mindset, motivation, and resilience. Although the components are discussed here separately, they are interdependent. A mindset oriented to learning, called a growth mindset, depends on intrinsic motivation and resilience. In turn,

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intrinsic motivation and resilience depend on feelings of competence, relatedness, and autonomy (Figure 3) (Weinstein et al., 2012).

Figure 3. Interrelatedness of motivation, mindset, and resilience



There are a variety of ways educators can promote positive attributes of academic will in learners. Beneficially, a single strategy is likely to affect multiple components. Interventions aimed at promoting perceptions of competence, autonomy, and relatedness are likely to enhance intrinsic motivation and resilience and subsequently support the development of a growth mindset.

Cultivate a Growth Mindset

Mindset is defined as the attitudes or beliefs someone holds about their abilities. In an academic setting, mindset can substantially influence learning (Dweck, 2000, 2006). Based on mindset, a learner can believe that their intellectual abilities are inherent and unchangeable, referred to as a fixed mindset, or that they are malleable and can be developed, referred to as a growth mindset (Dweck et al., 1995).

Individuals with a fixed mindset believe that natural ability drives achievement. They tend to avoid challenge, are extrinsically motivated, and internalize negative emotions when working toward goals (Burnette et al., 2013; Dweck & Leggett, 1988). Fixed mindset individuals tend to be less resilient and less likely to seek help or strategies to overcome challenges (Dweck, 2006). In contrast, growth mindset individuals believe that effort drives achievement. They seek challenge, are intrinsically motivated, and manage expectations when working toward a goal (Dweck, 2006).

Recommendations to Cultivate a Growth Mindset

Growth mindset individuals understand that skill is developed through effort, reflection, and support from others (Dweck, 2006). They view competence differently. Competence beliefs are the perceptions the learner has about their own ability to master a concept or skill. To a growth mindset, competence is not an inherent trait, but a feeling based on past experiences. Learners develop feelings of competence

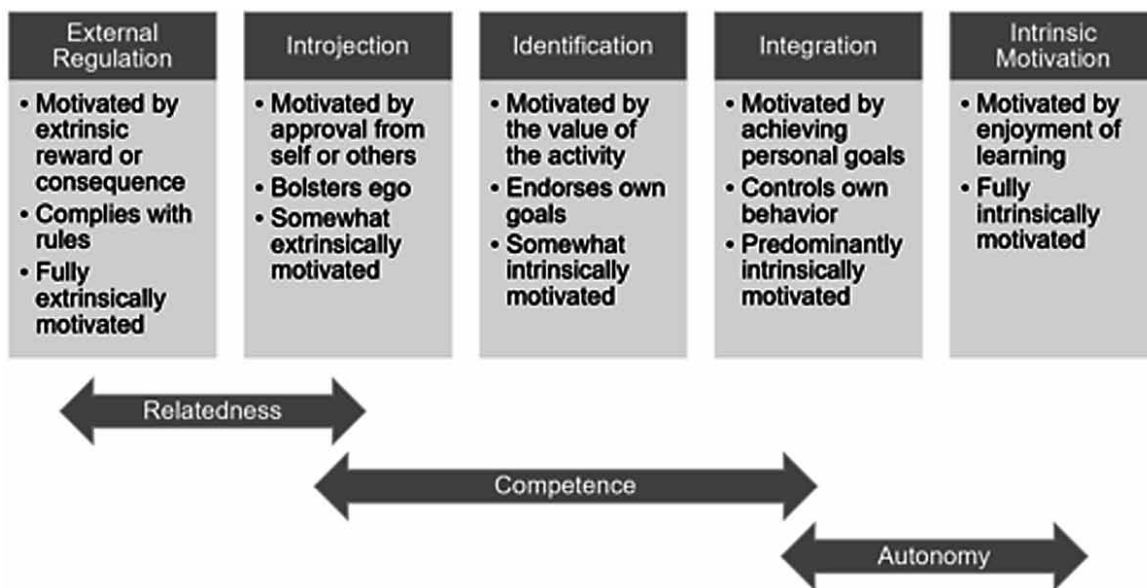
through previous encounters with success, by modeling educators and peers, and through positive feedback (Cook & Artino, 2016; Morales 2014). Educators can build learners' perception of competence by providing frequent and varied opportunities for success, followed by positive feedback. Straightforward assignments that require significant effort help learners correlate effort with success and bolster perceived competence (Morales, 2014). Offering frequent low-stakes formative assessments with actionable feedback increases the frequency that learners encounter success and promotes goals of competence over performance (Bomia et al., 1997; Elliot et al., 2000; Morales, 2014; Waxman et al., 2003). Providing opportunities to demonstrate mastery with moderate risk, such as discussion, group projects, or self-directed learning, supports feelings of competence as learners model peers and share knowledge and experience (Bomia et al., 1997; Cook & Artino Jr, 2016; Elliot et al., 2000; Herman, 2012).

Build Intrinsic Motivation

Motivation is the driving force behind a particular behavior. There are two types of motivation: extrinsic and intrinsic. Extrinsic motivation is motivation from an external source. It is often directed toward performance goals such as achieving high grades and family approval. Intrinsic motivation is internal. Learners with intrinsic motivation learn for the sake of learning, find joy and satisfaction in learning, and develop mastery goals (Ryan & Deci, 2000). Intrinsic motivation is undermined by extrinsic motivators like grades, deadlines, competition, judgments, and threats (Cook & Artino Jr, 2016; Ryan & Deci, 2000).

Learners will not find intrinsic worth in all learning activities, and external motivators are often unavoidable. However, a learner can develop intrinsic motivation through internalization, or identifying value, and integration, or incorporating the value into their self-identity. In this way, motivation evolves from fully external compliance to internal personal dedication (Figure 4) (Ryan & Deci, 2000).

Figure 4. The spectrum of motivation
(modified from Ryan & Deci, 2000)



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Intrinsic motivation is known to improve academic performance independent of prior academic achievement. Four large meta-analyses demonstrated intrinsic motivation as the sole predictor of academic success (Taylor et al., 2014). Additionally, intrinsic motivation is associated with increased self-efficacy and resilience, as learners who believe they have the necessary attributes to succeed and develop mastery goals are more likely to believe they have the capability to achieve a learning goal (Ryan & Deci, 2000).

Recommendations to Build Intrinsic Motivation

Motivation coexists on a spectrum of autonomy. A learner completing a weekly assignment to receive a passing grade versus a learner valuing the assignment as relevant to their career path are both extrinsically motivated. However, the level of autonomy varies. The first learner is complying with deadlines and threats, and therefore lacks autonomy, while the second learner maintains some autonomy in their actions.

Educators can support autonomy in a variety of ways. Discussions, group projects, and self-directed learning allow learners to determine their own method or direction of study based on their interests (Waxman et al., 2003). Offering extrinsic rewards for *optional* work gives the learners a sense of self-ownership over their grade. Since these activities are optional, the learner's autonomy in selecting to do the task outweighs the potential detriment of extrinsic reward (Morales, 2014). Other options include incorporating peer evaluations and accepting a variety of formats for projects (Bomia et al., 1997; Elliot et al., 2000; Waxman et al., 2003). Finally, asking learners to reflect on how a topic or project helps them achieve a future goal strengthens feelings of autonomy, as perceptions of the assignment shift from something they must do to something they want to do to accomplish their goal.

Develop Resilience

Resilience helps learners cope with difficult academic tasks. Resilient learners see effort, challenges, and setbacks as opportunities for growth rather than a threat to their intelligence. Resilient learners demonstrate four key traits: intrinsic motivation, goal-oriented behavior, self-regulation, and growth mindset (Hupfeld, 2010; Yeager & Dweck, 2012). Shifting learners' perception from a fixed to growth mindset improves resilience and academic performance in high and low achieving learners (Aronson & Good, 2002; Dweck & Leggett, 1988). For example, an online intervention program on resilience and growth mindset reduced the number of learners who withdrew due to academic difficulty by more than 50%, despite no other forms of reinforcement. Additionally, learners' grades improved, and the failure rate decreased (Yeager & Dweck, 2012).

Recommendations to Develop Resilience

Relatedness, or the degree someone feels connections to others, is key to promoting resilience. Schools that foster a sense of community and belonging build resilience in their learners (Glassner, 2021; Hupfeld, 2010). Discussions, group projects, and self-directed learning promote community by providing an opportunity to achieve a shared goal with peers, fostering trust and interdependence (Bomia et al., 1997; Elliot et al., 2000; Herman, 2012; Morales, 2014; Waxman et al., 2003). Educators can build trust through one-on-one discussions with learners, and sharing stories of overcoming barriers, especially if the educator reveals their own academic struggles. These actions close the "social and intellectual distance" between educators and learners (Morales, 2014, p. 96). A survey of learners identified caring educators and staff as one of the most important factors in promoting resilience (Morales, 2014).

Promote Self-Regulation

Self-regulation is the management of one's own behavior by monitoring and evaluating their own actions to determine which behaviors are effective in achieving their goals (VandenBos, 2007). The capacity to self-regulate is not determined by an individual's inherent intellect. Instead, improved self-regulation enhances the ability to perform cognitive tasks such as reasoning, memory formation, and problem-solving (Zimmerman, 1990).

Self-regulated learning (SRL) applies the concept of self-regulation to behaviors that impact one's learning in an academic setting. Self-regulated learners realize greater academic achievement than non-self-regulating peers (Zimmerman, 1990). In most academic environments, there is a clear focus on developing and measuring cognitive knowledge. However, developing skill in SRL also grows the learners' ability to control their thoughts, emotions, and behaviors (Bandura, 1986).

Skill in SRL is an important requirement for lifelong learning. Lifelong learning is the propensity to continue to learn throughout one's lifetime after formal education (London, 2011). In health professions, lifelong learning is important. Due to continued advancements in biomedical sciences and healthcare practices, it is impossible to provide learners with all the knowledge and skill required in the workplace over their lifetime. However, the ability to stay up to date on advancements, and apply these throughout one's career, is a required competency for healthcare professionals (Liaison Committee on Medical Education [LCME], 2014; Association of American Medical Colleges [AAMC], 1998). SRL skill supports pre-health professions learners' success during formal schooling and beyond. In this section, we will explore the three components of self-regulation: cognition, motivation, and metacognition, and identify best practices to promote self-regulated learning.

Support Cognitive Self-Regulation

Cognition refers to the mental processes engaged when acquiring and using knowledge. Cognitive knowledge is what the learner knows about the learned concept. In other words, it is the form of knowledge usually assessed in the academic program. Cognitive strategies are what the learner does with that knowledge to achieve a learning goal, such as engaging in reasoning and problem solving. Therefore, cognitive knowledge and strategies are the information and actions used to achieve a learning goal (Flavell, 1979).

In 1986, Zimmerman and Pons published the first model of SRL, which demonstrates how self-regulation of a cognitive skill is developed (Zimmerman & Pons, 1986). In this model, they outlined the levels a learner must achieve to develop cognitive self-regulation. These include observation, emulation, self-control, and finally, self-regulation (Table 2) (Zimmerman & Cleary, 2009).

Table 2. Zimmerman's multi-level model of self-regulation (Zimmerman & Cleary, 2009)

Level	Description
1. Observation	Recognizing the application of a skill through observation of others
2. Emulation	Application of the skill with guidance
3. Self-Control	Automation of the skill without guidance
4. Self-Regulation	Application with adaptation of the skill across dynamic settings

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The overall concept is that to possess a cognitive skill, the learner must first identify it, and to use the cognitive skill, they must adopt it. Through practice and varied opportunities, the learner will eventually be able to self-regulate the cognitive skill, applying it to achieve goals across changing situations.

Recommendations to Support Cognitive Self-Regulation

Self-regulated cognitive skills and habits can be developed by providing an environment where learners learn to learn (Zimmerman, 1998). In pre-health professions education, an example of this might include a learner observing their professor apply a concept. The educator can assist in this by making their actions explicit. The learner would then attempt to apply the skill to similar problems, both under the guidance of the educator during class, and independently outside of class. After practice, the self-regulated learner can then apply the concept to different scenarios they encounter in the future.

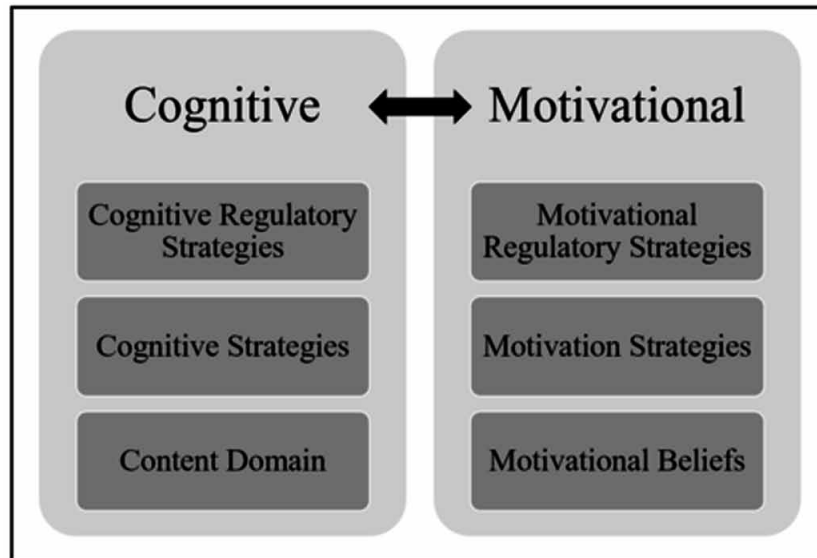
Promote Motivational Self-Regulation

Self-regulated learners are skilled at learning independently and are active participants in their own learning. They set goals for their learning, monitor their learning, evaluate their performance in achieving these goals, and adopt or modify strategies to become more effective in doing so (Zimmerman, 1990).

Identification of goals is a necessary component of the SRL process, and clarity is key. Without clear goals, learners cannot envision achievement or measure progress. Further, goals must be challenging enough to promote motivation, but not so challenging that they are not achievable. Finally, the learner must be committed to goal achievement, tying SRL back to intrinsic motivation (Locke et al., 1981). Zimmerman's original model of SRL failed to address motivation. Ample evidence demonstrates that cognition and motivation are intimately related to the extent that learning cannot occur without motivation to learn. Learners with higher motivation make greater progress toward achieving learning goals and do so more quickly (Hematian et al., 2017). However, the relationship between cognition and motivation is complex.

Boekaerts' model of SRL considers the influence of motivation on self-regulation (1996). It establishes two mechanisms, cognitive and motivational self-regulation, and three components of each mechanism, goals, strategies, and foundational knowledge or beliefs (Figure 5). This organization was based on observations that self-regulated learners are aware of their own cognitive and motivational strategies and actions and which ones need to continue or change to meet their personal goals (Boekaerts, 1996).

*Figure 5. Boekaerts six-component model of SRL
(Boekaerts, 1996)*



In this model, cognitive self-regulation and motivational self-regulation are parallel processes but are strongly interrelated (Boekaerts, 1996). The self-regulated learner has the right information (knowledge), engages the appropriate mental processes (strategies), and applies these together to learn what they desire to learn (learning goals). In addition, they have a positive attitude about learning (beliefs), can select appropriate mechanisms to reflect and cope during the learning process (strategies), and apply these together to become who they intend to be (behavioral intentions) (Boekaerts, 1996).

Recommendations to Promote Motivational Self-Regulation

Traditional undergraduate courses often do not require learners to engage in self-regulation. There are few opportunities to define their own goals because the expectation to “know this” and “apply it this way” is articulated by the educator. This can be described as performance based, where the educator seeks only to observe learners demonstrate an ability. In this setting, there is limited reflection and experimentation. As a result, the learners may achieve the course learning outcomes, but in the future, they may not know what to do, or remain determined, when faced with new learning challenges (Boekaerts, 1996). An alternative is to design the course centered around mastery goals. Mastery goals focus on developing the ability not just demonstrating it. Success is assessed by comparing present performance to past performance, and learners reflect on their performance to select strategies. Mastery-based learning increases motivation because learners define their interests and challenges and determine their own learning goals (Pintrich, 2000).

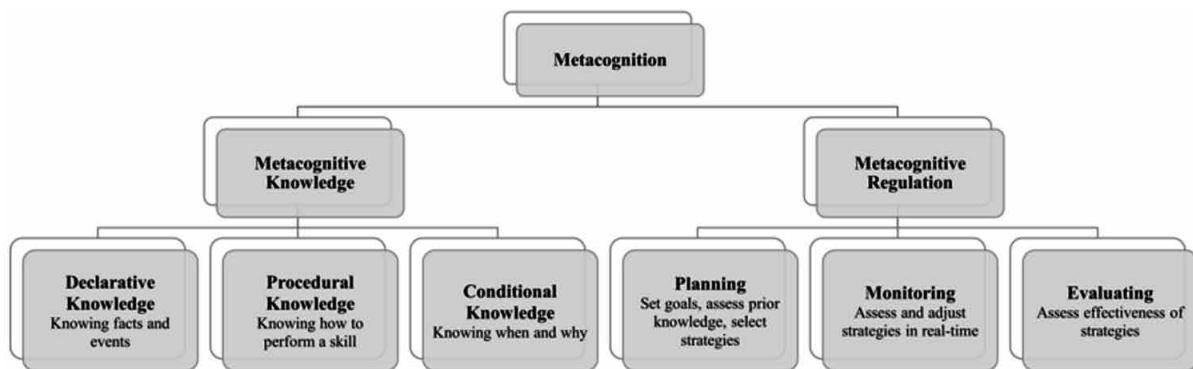
Pre-health professions programs can also promote SRL outside of the classroom through academic coaching. In education, a coach is a person who supports a learner in envisioning their learning goals, identifying their learning needs, generating plans to achieve their goals, and reflecting on their performance, all while holding them accountable (Deiorio et al., 2016). Coaching is different than mentoring or advising. Coaches do not need to have expertise in the content of the program, or knowledge of

program requirements and processes. In contrast, coaches should be skilled at supporting each of the six components of SRL.

Encourage Metacognition in Learning

Metacognition, or cognition about cognition, is an element of SRL that impacts academic performance (Zimmerman, 2002). There are two key components of metacognition: metacognitive knowledge and metacognitive regulation (Figure 6) (Flavell, 1979; Schraw & Dennison, 1994).

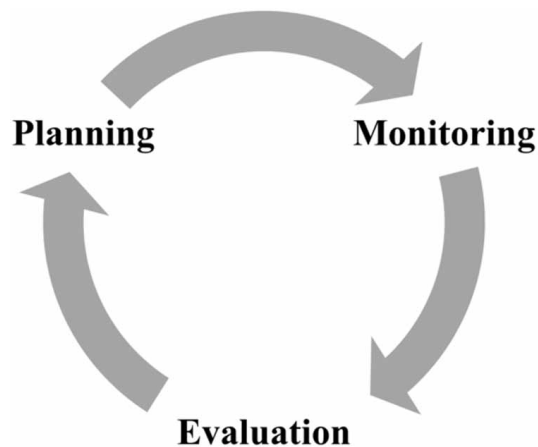
Figure 6. The components of metacognition



Metacognitive knowledge refers to the learner's understanding of their own cognition. It can be broken down into three variables. Personal variables are what the learner knows about their own characteristics as a learner, including their perceived strengths and weaknesses. Task variables are what the learner knows about the learning task, specifically what knowledge, skills, strategies, and resources it requires. Strategy variables refer to the repertoire of strategies the learner has at the ready (Flavell, 1979, 1987).

Metacognitive knowledge does little good in isolation. It must be used in metacognitive regulation. Metacognitive regulation is a three-step cycle employed throughout the learning process to exercise self-control over cognitive processes. First, the learner must plan for a learning task. This includes setting learning goals, assessing prior knowledge, and selecting appropriate strategies. During the learning process, the learner engages in monitoring by assessing their own understanding and performance and adjusting strategies in real-time. Finally, when the learning task is complete, the metacognitive learner conducts an evaluation, considering the success of their chosen strategies in achieving the learning goal. The knowledge and experience they gained is then used to plan for the next learning task (Figure 7) (Fogarty, 1994).

Figure 7. The metacognitive regulation cycle



Recommendations to Encourage Metacognition in Learning

While humans are innately capable of metacognition in everyday life, research has shown that metacognition is not a reflex process for many learners, but a teachable skill (Cao & Nietfeld, 2007; Zimmerman, 2002). Pre-health professions learners who develop metacognitive skill early in their college education will continue to refine and master their metacognitive strategies in health professions programs. To create an environment that supports metacognition, educators should promote awareness of metacognition and metacognitive strategy development in learners. Many common practices support metacognition in the classroom, for example, setting learning outcomes, posing questions, and thinking out loud. However, educators can be more intentional and explicit when teaching metacognitive skill, by incorporating a few additional techniques into their courses.

Wrappers are a metacognitive activity, occurring immediately prior to and after another activity, that provide a structured opportunity for the learner to engage in metacognitive regulation. Wrappers can be implemented in conjunction with sessions, assignments, or exams, in the form of pre- and post-questions. For example, during a session an educator might ask the learners to consider the three most important concepts within the given topic, and then conclude the session by asking the learners to again decide. An exam wrapper promotes metacognitive evaluation by prompting the learner to describe how they prepared for the exam before taking it, and afterward, to consider what they will do differently next time (Tanner, 2012).

Incorporating opportunities for metacognitive skill development can take time away from traditional methods of instruction. However, taking only a few minutes to pause and incorporate a moment for learners to reflect on what they are doing, what is confusing, or how the topic relates to their prior knowledge and expectations can promote metacognition and promote academic success.

RECOMMENDATIONS AND FUTURE DIRECTIONS

Many common educational practices that health professions educators use every day promote a supportive academic environment, and the development of non-cognitive knowledge and skill in learners.

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However, few practices can individually impact all components. Though a variety of topics have been discussed here, one concept is repeated. Successful strategic learning is dependent upon both knowledge and strategies.

Hidden curriculum theory illustrates the differences in learner outcomes developed through the formal curriculum, the curriculum educators intend to deliver, and what learners informally take away from the curriculum. In line with constructivist learning theory, knowledge is also constructed through social interactions with others, resulting in changes in behavior that are in alignment with the norms and values of the larger community in which the learner resides. The hidden curriculum is unavoidable and can have a large impact on the knowledge and strategies that learners gain during their education. It is necessary that pre–health professions educators recognize this, as the words, actions, and behaviors of educators, whether intentional or not, impact the learning experience. By implementing practices and interventions that promote learner skill, will, and self-regulation within the formal curriculum, and making their presence explicit, not hidden, educators can create an academic environment that allows learners to succeed and thrive during their pre–health and health professions education, and in the future, meet the social professional expectations of health professions careers.

Further, all the strategies we have discussed here are supported by active learning. Active learning refers to any educational approach that involves the learner as an engaged participant in their own learning. In active learning, it is key that educators view learning as a goal-directed process, rather than the transmission of knowledge from educator to learner. From the more traditional point of view, the educator is viewed as the “sage on the stage,” and their primary contribution to learning is through the application of content expertise. From the more modern perspective, the educator becomes the “guide on the side,” who facilitates the process of learning. From this point of view, the educator recognizes that the learner is responsible for regulating their own learning, and the educator is responsible for creating the academic environment in which to do so (Fornari & Poznanski, 2015).

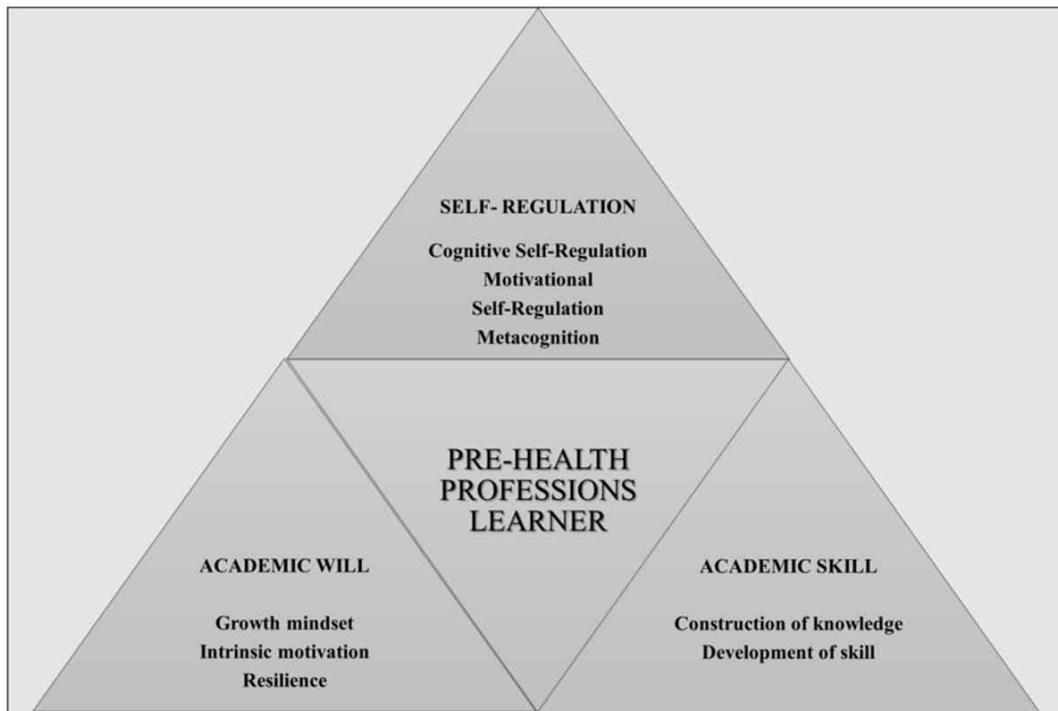
We propose that adopting active learning strategies and the accompanying change in educator mindset makes the broadest impact on learner success. Active learning is learner centered and outcomes based. It requires educators to consider what is relevant and applicable to problem solving in the given field. Active learning supports the organization of learning in the same ways that information is constructed and recalled in the mind. It provides opportunities to apply knowledge to do something, encounter challenges, accurately self-assess performance, reflect, apply new strategies, and achieve mastery. As such, when entrenched in the institutional culture and practices, active learning has the potential to promote all four components of strategic learning.

As we have emphasized here, there are many practices that pre–health professions educators and advisors can incorporate to apply the model of strategic learning into the design and delivery of their programs. However, it is important to consider that this does not require an all-or-nothing approach, and that no single strategy is required or correct. Weinstein et al. emphasized the need for a holistic approach when promoting strategic learning. Each pre–health professions program should develop its own repertoire of strategies, based on its mission and goals, which will likely not include all of those highlighted here. We posit that the key to promoting strategic learning in pre–health professions education is that educators and advisors recognize that academic skill, academic will, self-regulation, and the academic environment are important variables impacting learner success. Educators should implement evidence-based strategies to develop the learner’s inherent abilities to succeed and develop an environment in which they can do so.

CONCLUSION

In this chapter, we defined strategic learning, justified its application in pre–health professions programs, and proposed strategies that educators can implement to support the development of pre–health professions learners into strategic learners (Figure 8).

Figure 8. Integrated model of strategic learning



Strategic learners are effective learners in any academic environment because they have the skill, will, and self-regulation to be so. Educators tend to know a strategic learner when they see one. Strategic learners understand how to navigate a learning task and are confident that they can master it. They recognize the control they have over learning and approach it systematically. They set learning goals and are steadfast and industrious in their pursuit. When learning challenges arise, strategic learners seek resources, such as help from others, and implement and test new strategies.

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Section 4

Committing to Diversity, Equity, and Inclusion in the Health Professions

Chapter 14

Overcoming Systemic Racism in Health Professions Advising

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ABSTRACT

The professional healthcare admissions process is rife with inequalities, and it is imperative that advisors do not amplify the unequal system. Health professions advisors can use their work with historically marginalized students to overcome systemic racism in pre-health advising and the professional school application process. Health professions advisors must support students who have not historically been supported in pursuing admission to professional healthcare programs. In this chapter, advisors will learn how to engage with those who do not fit the traditional image of a “perfect” candidate for professional healthcare programs. Advisors will learn how historically marginalized students, with non-traditional activities, are in fact strong candidates for their respective professional programs. This chapter also recommends specific language that advisors can use to engage with students who have varied experiences in order to support them on their journey to a professional healthcare career.

INTRODUCTION

The healthcare professional school application process is racist. There are systemic biases in the graduate admissions process that have negatively impacted historically marginalized students' paths to a professional healthcare program in a variety of ways. Racist policies and beliefs are entrenched in the system, and marginalized students who might have an excellent future in healthcare are frequently prevented from even attempting to enter the field due to these systemic biases. Health professions advisors must understand the biases inherent in the application process, and in their own advising work, so they can move beyond the frame of systemic racism to help support and advise historically marginalized students. It is the job of the health professions' advisor to help students who might have an excellent future in the profession but are blocked by systems and policies that serve as barriers built to keep them out. As the population in the United States rapidly diversifies, the health professions advisor is on the front line in creating a stronger and more diverse healthcare workforce.

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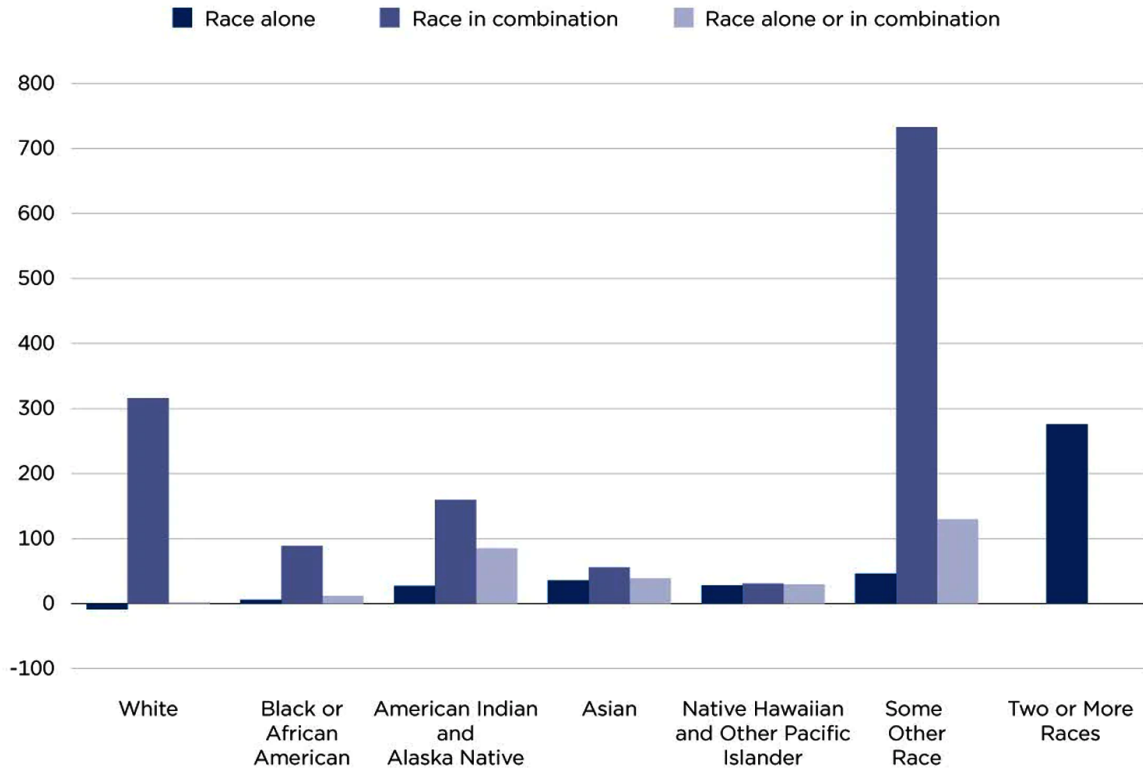
BACKGROUND

In 1926, William J. Gies, Ph.D. released *Dental Education in the United States and Canada*, (Gies, 1926) commonly referred to as the Gies Report, wherein Dr. Gies detailed the importance of, and urgent need for, more practitioners of color in the dental profession, recognizing that populations needing the most care receive the least (Booker et al., 2021). Fast forward to 2004, the issue is still front and center in the Sullivan Commission's report *Missing Persons: Minorities in the Health Professions* where it is noted that the United States is rapidly diversifying and healthcare professions must become more diverse to reflect the population that they serve (The Sullivan Commission, 2004). The 2015 report from the Association of American Medical Colleges (AAMC) report *Altering the Course: Black Males in Medicine* (AAMC, 2015) points out that there are fewer black males applying and matriculating to medical school in 2014 than in 1978. Most recently, in April 2021, systemic racism was officially declared a public health crisis in a media statement released by Rochelle P. Walensky, MD, MPH, Director of Centers for Disease Control and Prevention (CDC). The CDC officially defines racism as "a system consisting of structures, policies, practices, and norms that assigns value and determines opportunity based on the way people look or the color of their skin. This results in conditions that unfairly advantage some and disadvantage others throughout society" (CDC, 2021, p.1). While systemic racism has recently been at the forefront of a national conversation about race and ethnicity in America, clearly it is not a new issue (Cruz, 2020).

The 2020 Census confirmed that the U.S. population has grown much more racially diverse (Frey, 2020), and this shifting demographic requires a change in who pursues healthcare careers and provides care to an increasingly diverse population. Since 2010, the multiracial population, defined as two or more races, increased 276%, growing to nearly 33.8 million people in 2020 (Jones et al., 2021; see Figure 1). While this could be due to the additional choices on the 2020 census form (Denby & Wang, 2021), it could also be related to the fact that Latinx/Hispanic individuals were not comfortable checking just one box for their race identity, identifying more with their ethnicity than the racial categories offered by the form (Wang, 2021). Regardless, two things are clear. First that the new boxes on the 2020 census allowed for individuals to more accurately self-identify, and second that the America of the future will continue to be a more richly diverse, multiracial, and multiethnic population.

Figure 1. Percentage change in race groups: 2010 and 2020

Percentage Change in Race Groups: 2010 and 2020



Note: Data users should use caution when comparing 2010 Census and 2020 Census race data because of improvements to the question design, data processing, and coding procedures for the 2020 Census. Information on confidentiality protection, nonsampling error, and definitions is available at <https://www2.census.gov/programs-surveys/decennial/2020/technical-documentation/complete-tech-docs/summary-file/>. Source: U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File; 2020 Census Redistricting Data (Public Law 94-171) Summary File.

Missed opportunities to encourage historically marginalized students who do not fit the preconceived mold of “ideal applicant” ensures that future practitioners will not mirror the patient population they serve. A strong and well-supported diverse population of practitioners means that cultural competence will be inherent in their practice and also ensures continuity of care and best practices. When a patient feels alienated by a caregiver, their health suffers (Hoffman et al., 2021). Continuity of care, cultural competency, and a general belief in one another’s humanity are essential in maintaining quality health-care for the community and the country. Health professions advisors are dedicated to fostering students’ development and creating safe spaces in which students can do this. In order to accomplish that task, advisors must intentionally look beyond their own individual privilege and implicit bias to break apart the systemic racism in the application process and meet students where they are; see their ability and potential and help them realize their goals.

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Many advisors have not created safe spaces for historically marginalized students and instead have created “safety theater,” or the illusion of safety where little exists. Students are not ignorant nor stupid. They have succeeded against all odds to arrive in advising offices despite a multitude of injustices, inequalities, and tragedies. To do this, students must develop a “sixth sense” that can tell when institutions have their best interests at heart. They see past the stickers and meaningless posters, and when they do not feel supported, they stop showing up, they give up, and unsupportive advisors did that to them.

The country is changing in dramatic ways and its healthcare system is not keeping up. It is the historically marginalized, non-traditional, BIPOC (Black Indigenous People of Color), first-generation, immigrant students who can fix this problem. Health professions advisors must advocate in authentic ways that empower these pre-health students on their journey to be part of the solution.

ANATOMY OF AN APPLICATION

In a traditional evaluation, an ideal candidate’s competitive admissions applications to health professions schools include three main parts: Grade Point Average, Standardized Test Score, and “Everything else” which includes a strong personal statement; strong letters of recommendation; healthcare experience and shadowing; community involvement; and volunteer experience. These application parts have been seen as equally important and must be equally strong in order to have a strong overall product. If one main part of a student’s application is deemed weak, the entire application will not be seen as competitive.

The process of crafting a competitive application to gain access to a healthcare professional school takes dedication, time, resources, and support. Due to systemic racism, many historically marginalized students start from behind when it comes to crafting the most competitive application (UNCF, 2020). Health professions advisors must understand what makes the current application process racist, and help historically marginalized students move beyond this systemic racism to communicate to admission committees that they have the skills necessary to be successful in a health profession.

SYSTEMIC RACISM IN THE APPLICATION PROCESS

In order to combat systemic racism in the application process, advisors must first acknowledge that the application process is racist, a byproduct of a society that relies on systemic racism to marginalize entire segments of the population. This author posits that the ideal candidate is rooted in privilege that is a direct result of white supremacy (Cruz, 2020). That statement is supported by breaking down the ways in which an applicant creates a strong application in a few key areas.

Community Involvement and Volunteer Experience

This takes time. Lots of time. Who has time to get involved in their college community? Students who live on campus, students who do not have a significant commute, students who do not have to work, etc. In other words, students who start the process with money.

The traditional model of evaluating healthcare professional school applications relies on the assumption that all applicants have equal access to activities and time to volunteer. The most highly prized community involvement activities are met through on-campus student organizations or via Habitat for

Humanity-type organizations where students are “helping the underserved.” What happens when the underserved seek to serve themselves? Many historically marginalized students serve their communities through part-time, or even full-time, work. These students are contributing to their own community whether it be working as a barista, cashiering at their local grocery store, or driving for a rideshare company. All these jobs are focused on customer service; time management; interacting with unhappy people; managing multiple expectations and tasks; and learning to thrive in high stress situations. These jobs provide the same knowledge, aptitude, and empathy that volunteerism is meant to provide and these are the very skills required by healthcare workers. The admissions application evaluation process must recognize and reward these experiences and advisors must help students reframe these experiences as positive and worthwhile.

Healthcare Experience and Shadowing

Yes, it is essential that students know what they are getting into when they pursue a particular healthcare career. They absolutely need to have an idea of what the day-to-day looks like. What if advisors think of how this experience is gained in a more student-centered way, rather than through the lens of systemic racism? A common assumption is that the most successful students pursuing a career in healthcare have parents who also work in healthcare; however, this thinking does not match the journey of many historically marginalized students. Not only do many of these students not come from legacy families, they do not have easy access to professionals to shadow. If a student must work in order to support themselves and their family, they may not have the time to shadow extensively or find unpaid, or underpaid, healthcare experiences. The expectation of admissions committees that competitive applicants will have a large amount of unpaid shadowing hours must be adjusted. Advisors can explain the importance of this experience to students and help them brainstorm ways to find a professional to shadow, keeping in mind that shadowing does not need to happen in large chunks of time. One or two hours of shadowing, every other week, will add up over time and not be so overwhelming that it gets in the way of other student responsibilities.

Faculty Support and Strong Letters of Recommendation

Health professions advisors, as well as admissions committees, must stop and ask how students can earn a strong letter of recommendation and faculty support. At the end of the day, it comes down to relationships. Relationships thrive on safety, which many historically marginalized students may not experience during their undergraduate years if they never feel fully seen or authentically appreciated by a faculty member. The same issues of race and privilege that make health professions advisors’ work vital must also be examined across all of higher education, which, similar to healthcare, has a limited number of faculty of color, limited support for historically marginalized students, and frankly, limited populations of historically marginalized students due to the racist admissions policies of undergraduate institutions (National Association for College Admission Counseling [NACAC] & National Association of Student Financial Aid Administrators [NASFAA], 2022). Within these undergraduate settings, health professions advisors must help students understand the importance of going the extra mile to build relationships with faculty early on in their college career; faculty must make the extra effort to connect with students who do not look like themselves, and hiring committees in undergraduate institutions must diversify their hiring pools.

Leadership

In traditional models, applicants are rewarded for having time for leadership: being involved in student government or with campus clubs and activities. At a predominantly white institution (PWI), are historically marginalized students comfortable enough to engage with these campus organizations or with student government? Many historically marginalized students show leadership through their work experience, managing, and training colleagues. Students do not always see these connections and often do not think it is important enough to list their non-healthcare-related job experience in their application's activities list. Advisors must communicate the connection between the leadership skills learned in these positions to what admission committees are looking for, core competencies (AAMC, 2017) help make this connection.

Also, leadership may look different in various cultures. Many male Muslim students are leaders who participate in Quranic recitation competitions. Many Latinx students work in their communities teaching folkloric dance and traditional handcrafts to younger siblings and cousins. Many Indigenous students are taught how to support their community through hunting. Students of all genders and ethnicities demonstrate leadership by service as shift supervisors or managers at work. All these are examples of leadership earned through merit, not privilege or popularity.

Test Scores

There is well-documented research that standardized tests at all levels are based on racist, biased, white supremacist ways of thinking (Cooperative, 2021). The practice itself is modeled on continued oppression of historically marginalized students from pre-K through postgrad and the MCAT, DAT, OAT, PCAT, GRE, and PA-CAT are not immune. Students who do well on standardized testing are generally going to be the same students who have the means to pay for test prep courses. The racial wealth gap (Aladangady & Forde, 2021) ensures that the majority of students who are able to pay the exorbitant fees for test prep, and repeated testing, are white students. While there are Fee Assistance Programs (FAP) to help cover the cost of test registrations and test prep, given the racist nature of standardized testing, one is left to wonder if admission committees are holding fast and tight to this final bastion of assessment in order to hold firm to a line that has helped create the less diverse makeup of health professionals. Advisors cannot circumvent this inevitable "thorn in the side" of an otherwise competitive application but can offer suggestions on where to find FAP; how to locate discounted or free test prep books (libraries, used bookstores); and suggest students form a study group and have everyone purchase a different test prep book to share and swap resources.

Grade Point Average

While a student applying to a professional healthcare program must have strong foundational academic knowledge to successfully enter and finish health professions school, does this need to be proven with an exceptionally high GPA? Admission committees must broaden their definition of academic success to be something other than "numbers focused". Health professions advisors must not get caught up in the mire of metrics and numbers, and instead support the student where they are and not where they "should" be. This may mean introducing the student to various post-Baccalaureate programs, which serve as an academic bridge between undergraduate coursework and strong applications for professional

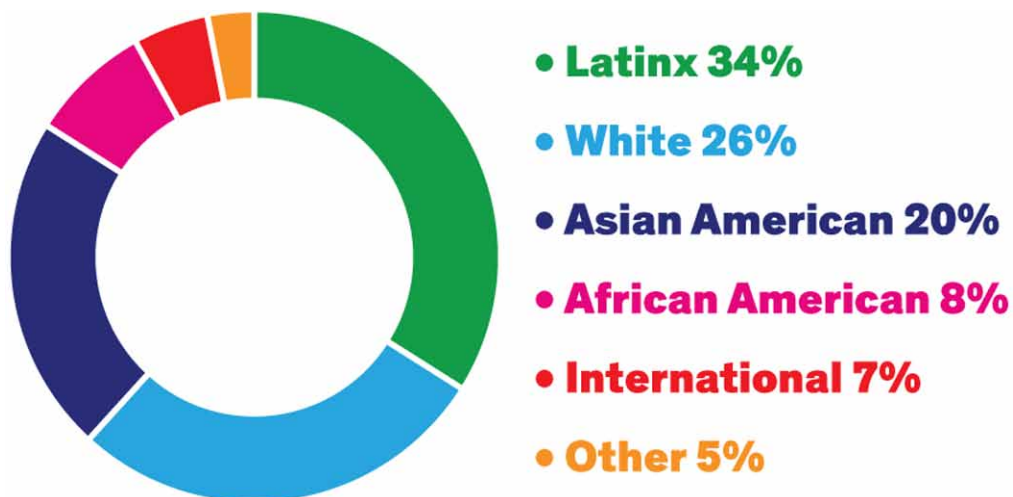
healthcare programs. For students who need an academic boost, a post-Baccalaureate master's program is a good option to prove to admission committees they are able to thrive in upper-level science courses. However, the added cost of these programs often creates additional barriers to an already expensive application process.

ADVISING IN PRACTICE AT THE UNIVERSITY OF ILLINOIS CHICAGO

The experiences of the health professions advisors at the University of Illinois Chicago (UIC) can serve as a laboratory for how to successfully mentor and steer a shifting student demographic to careers in healthcare professions. As the country continues to rapidly diversify, the undergraduate students enrolled at UIC are emblematic of higher education's new normal. What is the UIC norm that other institutions must prepare for? It includes students that speak multiple languages, live in multigenerational households, and work part-time jobs (Cruz, 2020). Health professions advisors must see that these experiences are all strengths, not deficits.

UIC is a unique Research University as it serves an extremely diverse population. A part of the University of Illinois system, it is located just west of downtown Chicago and serves the nearly 10 million people in the Chicago metropolitan area (University of Illinois Chicago, 2021a). As a result of its location, UIC serves as a Hispanic Serving Institution (HSI), Minority Serving Institution (MSI), and Asian American and Native American Pacific Islander Serving Institution (AANAPSI) (University of Illinois Chicago, 2021b).

Figure 2. Racial distribution of students at UIC



Approximately 38% of UIC's students identify as first-generation college students, 70% receive financial aid, and 60% are Pell eligible. Thirty-six percent of students speak a first language other than English (University of Illinois Chicago, 2021c.). A typical UIC student commutes up to 3 hours a day to and from campus, works 20+ hours a week, and is enrolled in a full-time course load. Reviewing these

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statistics, it is clear that much of UIC's student body does not have the access, means, or background that is similar to many of their more resourced peers at other institutions (Cruz, 2020). From the outset of its founding in 1859 as the Chicago College of Pharmacy, UIC has evolved to meet the changing higher educational needs of the city, state, and nation (University of Illinois Chicago, 2021c). After WWII, the institution moved to Navy Pier, in the heart of downtown Chicago, to serve returning veterans looking to capitalize on the benefits of the GI Bill close to home. Moving to its current location at the intersection of interstates 55, 90, 94, and 290, the newly named "Circle Campus" became an economic engine for Chicagoland and was eventually renamed UIC in 1982. Officially "founded" in 1965, UIC is a young institution making it unique; the campus was built nearly overnight to serve the diverse population of the Chicagoland area. History has demonstrated that as the country's demographics shift, undergraduate populations will continue to reflect that shift (Espinosa et al., 2019).

STUDENT EMPOWERMENT MODEL OF ADVISING: THREE GUIDING PRINCIPLES

Being acutely aware of the University of Illinois Chicago's legacy of innovation and change, the UIC pre-health advising office's support of historically marginalized students embraces a student empowerment model of advising. This model puts the student in the middle of the advising conversation and uses three guiding principles to frame these conversations and interactions with future professional healthcare program applicants (Cruz, 2020).

Guiding Principle #1: Help Students See Value in Their Actions, in Their Activities, and in Their Lives

Why do students not see value in their activities? Because academia does not see value in their activities. Marginalized students often work low-paying, undervalued jobs to support themselves or their family, while most admissions committees give more value to students who can afford to volunteer or work unpaid internships. In many conversations with historically marginalized students at UIC, it is apparent that students feel ashamed and embarrassed by this experience, thinking that their lack of employment or experience in the white-collar sector means they are not eligible to become healthcare professionals. This is not the case, and it is imperative that health professions advisors frame conversations with students in this position as positive ones. If advisors do not recognize the value of these work experiences, historically marginalized students will not feel that health professions advising office is a safe space where they are able to honestly talk about how they spend their time out of the classroom.

Guiding Principle #2: Help Students Understand Skills They Are Building in Their Everyday Lives Are Needed in Healthcare Professions

The advisor needs to help the student make connections between what they do and core competencies for their intended profession, whether those are associated with a pre-health track (AAMC, 2017) or detailed through a college or university career office, expanding on National Association of Colleges and Employers (NACE) career readiness competencies (NACE, 2021). If students feel their work in food service, retail, or labor is devalued, whether explicitly stated or passively suggested by an advisor

or other authority figure, they will internalize that their experience disqualifies them from a career in healthcare. These microaggressions have convinced students that jobs with hourly wages do not, and cannot, directly relate to many of the core competencies required by the career they hope to pursue. Advisors must stop letting students believe this lie. It is an advisor's job to help students make these connections and tell students that their labor is valuable. To expect students to overcome microaggressions and have the maturity and ability to make these connections on their own is absurd.

Guiding Principle #3: Help Students Relate Their Experiences Through Their Pre-Professional Application

After helping students understand their worth and the value in their activities, advisors must also help them promote those experiences through their application. Students can, and should, put all activities into the application to showcase their whole personality. Sometimes students are leery of doing this. Health professions advisors must encourage students to highlight their work experiences as strengths, not weaknesses. It should not be a detriment that a student has to work in the food service industry in order to pay tuition, for these are skills that show determination, fortitude, dedication, perseverance, and grit, all of which will help them to be successful in a professional healthcare program and in a healthcare career.

EMBRACING INCLUSION BY ELIMINATING GATEKEEPING AS AN INSTITUTIONAL PRACTICE

Gatekeeping, the practice of centering one's bias rather than the student in advising, is detrimental to the student, the health professions advising profession, and ultimately the future of healthcare. It is vital to remember that it is not the job of a health professions advisor to steer certain students, based on racist beliefs and undefinable characteristics, towards a non-healthcare career because they are not deemed suitable for the profession. Advisors must make direct connections between core competencies and activities that students pursue outside of the classroom that may seem "off course". Core competencies, long a building block of successful advising, are the best way to recognize and frame myriad student experiences and help students connect these to the desired qualities of professional healthcare programs. If there is only one way to achieve these core competencies, then colleges and universities will continue to send only one type of student to professional healthcare programs.

Many pre-health advising conversations rely on a framework that gauges potential applicants based on a set of ideal experiences. Advisors must reject this "one size fits all" advice and recognize that many hard-working students with non-standard activities and backgrounds also deserve support on their path to a healthcare profession. While metrics are an easy way for institutions to make judgments in the admissions process, it is lazy for advisors to rely purely on numbers while preparing students for their application journey. Health professions advisors who fail to look beyond the traditionally ideal candidate will further harm an already struggling healthcare system.

In shifting from gatekeeping to student empowerment advising, advisors need to gather information in more empathetic and inclusive ways. Some questions that accomplish this goal in a one-on-one setting could include:

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- **What do you do other than eat, sleep, and study?** This question often elicits a smile from students and then they contemplate what, exactly, they do with their time. Sometimes they will start off by saying “nothing.” Often students think their application can only include activities directly pertaining to healthcare, clinical experience, or research. This is not the case. If students are only listing this subset of activities, then they are not showcasing their authentic selves! This is where students may need to be pushed a bit more, in order to get a clearer picture about their skills and activities, leading to one or more of the following questions:
- **Do you live on campus?** Even in residential colleges and universities, not all students live on campus. How long is their commute to campus? This question matters as a significant part of their day could be spent in the car, on a bike, walking, or riding public transportation. Advisors might recommend ways that students can use their commute to learn more about the career field they are interested in by listening to podcasts or audiobooks related to their healthcare interests.
- **Are you involved in your faith community?** This question can be a sensitive one as some students, understandably, do not want to open themselves up to discrimination based on their religious beliefs. Particularly for historically marginalized students, stating they have a deep commitment to their non-Christian faith and/or religious community possibly comes with trauma. This is why it is vital to create truly safe offices. If students do not feel empowered to bring their full, authentic selves into the advising space, then this question will yield nothing. In that case, the advisor is missing an opportunity to help the student craft a strong application. The answer to this question can reveal so much about a student, their commitment to community, and their commitment to helping others.
- **What home responsibilities do you have?** Often historically marginalized students live in multigenerational homes where there can be an expectation that they must care for elders, siblings, or even their own children. Many students who speak multiple languages accompany their family members as primary caregivers to medical appointments and serve as translators. This requires a delicate balance of caring for family while also respecting the pride and authority of their elders and the healthcare workers they are translating for. Time management is essential in homes where students care for younger siblings or their own children. This skill alone makes them the kind of healthcare professional this country desperately needs. Often students must organize their class schedules around family members’ work and school schedules, getting home in time to make dinner and help with homework.
- **Do you have a job?** Many historically marginalized students on financial aid often need to work to help contribute to their tuition, their family’s household budget, and put food on the table at home. This isn’t because their home life is not filled with support and love, it is because of the racial wealth gap caused by systemic racism. Students may be embarrassed that their family does not have as many resources as other families and they may not want to highlight this part of their life in their applications. Particularly in these instances, poor advising causes extreme harm. For students to not highlight these contributions in an application is a missed opportunity for the advisor to get to know them better and for the student’s application to showcase all their abilities and skills.
- **Do you think anything is missing from your list of activities?** Students often come in concerned that their list of activities “is not good enough” and they are worried they need to add more activities in order to be admitted to a professional program. Responses to students in this case should be to meet them where they are at. This question requires the student to reflect on what they’ve done and what they’ve learned. This puts the student in the center of the conversation and empowers

them to determine whether something may be missing, rather than just telling them they need to complete a list of activities to build their resume. Remember, it's important that students search out meaningful activities for themselves, not activities that tick the boxes. Many times, students have already built up their activities list with a variety of options and need to step back and take a break, rather than continue to pad their resume.

Putting These Questions and Guiding Principles to Work

Humility is required to look beyond individual privilege to help historically marginalized students make connections between their activities and core competencies. Intentionality is required on the part of the health professions advisor to move beyond individual bias and bring out information about student experiences. True humility and intentionality are not possible consciously making certain that advising practices are one of equity and not one of oppression (Cruz, 2021). To that end, below are some examples of historically marginalized pre-health students at UIC, their activities, and their intended healthcare career path. Details are included on related core competencies, opportunities for growth that present themselves through the experiences, and ideas on how the health professions advisor can encourage the student on their journey.

Example 1

Jane works in their auntie's nail salon. They clean and sort the tools, keeping them organized and sterilized. They are responsible for cleaning the stations between clients, maintaining the appointment schedule, and the cash register. Jane is interested in a career in dentistry but does not see that this experience relates to that interest.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking, Quantitative Reasoning

Opportunities for Growth

Utilize connections to gain healthcare experience, practice painting nails to work on manual dexterity.

Health Professions Advising Opportunity

Help Jane see the connections between this experience and the skills required by a career in dentistry by pointing out the manual dexterity and attention to detail needed to sterilize and organize the tools. They are also interacting with nearly everyone who comes into the salon, maintaining a busy schedule, and keeping their auntie's business running smoothly. These are all skills needed to successfully run a dental office.

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Example 2

Rogelio has worked at the local fast-food restaurant for over 5 years. This fast-food restaurant is located near a high school and a hospital and is incredibly busy most of the day. Rogelio has learned over the years how to help put together product orders; clean the store and all the equipment; run the register; take customer orders; and cook and serve the food. Rogelio has solved many problems during their shifts at the restaurant when there were shortages in food or staff. Rogelio can multitask. Rogelio has regular customers who come to the restaurant at the same time every morning to say, “Hi.” Rogelio is interested in a career as a physician.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking, Quantitative Reasoning, Written Communication

Opportunities for Growth

Utilize connections to gain healthcare experience.

Health Professions Advising Opportunity

Encourage Rogelio to talk with the restaurant regulars who work in the hospital to tell them about their interest in healthcare and ask if they could shadow. Remind Rogelio that the skills they are utilizing during their work are necessary for a successful career in healthcare, particularly the teamwork and problem solving that they are doing when the restaurant is busy or short staffed. Remind Rogelio that their regular customers enjoy interacting with them, and that this excellent communication skill will aid them when they are working with patients.

Example 3

Kris lives at home with their parents, grandparents, and younger siblings. Their grandfather has diabetes, and their younger sister is on the autism spectrum. Since Kris is the oldest grandchild and fluent in English, they are responsible for taking their grandparents to doctor appointments where they serve as translator. They help their younger sister with homework and help ensure that their regular appointments with an in-home occupational therapist are scheduled. Kris is certain they want to work in healthcare, but they have not figured out what career field yet. They are leaning towards a career in occupational therapy.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking

Opportunities for Growth

Kris has a lot of connections to healthcare providers and many opportunities to ask questions, build a relationship, and possibly shadow or be introduced to other healthcare providers to shadow.

Health Professions Advising Opportunity

Encourage Kris to make connections with the healthcare providers they interact with regularly. Kris can ask the occupational therapist if it would be possible to shadow them when they work with other clients and ask questions about their career and day-to-day activities. These questions do not need to lead to long winded conversations that could interfere with the session. Once the occupational therapist knows that Kris is interested in a career in healthcare, answering one quick question every visit is an easy way to introduce Kris to the career field. Through these snippets of information, Kris gets an idea of what that career field entails. Kris can introduce themselves as a pre-health college student to the healthcare providers at their grandparents' doctor office, using this connection to ask if it is possible for them to shadow. If the provider says no, encourage Kris to counter with this phrase: "Thank you so much, do you know anyone else who I could ask?" This way they are still using the connection to their full ability and expanding their network to gain more experience.

Example 4

Adeel completely overhauled the child care center at their local mosque, redoing the check-in and check-out system, which handles an average of 300 children every week. They also helped manage COVID-19 protocols by checking temperatures and keeping lists for contact tracing should anyone test positive for COVID-19. Adeel wants to be a pharmacist.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking, Quantitative Reasoning, Written Communication

Opportunities for Growth

Understand that the skills they are utilizing through their community involvement and volunteering at their mosque are directly related to a career in pharmacy. Have conversations with pharmacists about the career field and their day-to-day, and shadow a pharmacist if possible.

Health Professions Advising Opportunity

Adeel came into the pre-health advising meeting concerned that they had no experiences they could put on their application. After asking them "Do you participate in your faith community?" Adeel began to describe many experiences they participate in at their mosque that relate to a future career in healthcare. Assure Adeel that research and working as a pharmacy technician are not the only activities necessary to pursue a career in pharmacy and what they are doing at the mosque is an important, valuable experience. Adeel is managing a very large project that they completely reorganized, juggling many personalities and timelines, and also getting in some healthcare experience by taking temperatures and keeping up-to-date

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contact tracing lists. Encourage Adeel to talk to members of their mosque to find out if anyone works in pharmacy or is connected to a pharmacist so they can talk with that person about possibly shadowing or having a conversation about their profession.

Example 5

Sammi runs a lucrative home-based business where they work 20-30 hours a week cutting hair in their basement. Sammi uses the money from this business to help pay for their undergraduate degree while saving as much as possible. Sammi is interested in becoming a dentist.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Human Behavior, Critical Thinking

Opportunities for Growth

Sammi knows that they need to get some dental experience and find a dentist to shadow. They plan to decrease their business hours by half in order to add dental shadowing to their schedule. They are having a difficult time finding a dentist to shadow.

Health Professions Advising Opportunity

Talk with Sammi about their business, ask about the clientele they serve to determine if any of their clients work in the dental field. Reassure Sammi that their haircutting experience is fantastic preparation for a career in dentistry, as manual dexterity, attention to detail, and putting clients at ease are essential to a successful dental career.

Example 6

Sara has worked 20 hours a week in the beauty department at a big box store for two years. Sara enjoys interacting with people from different backgrounds, practicing their language skills, and seeing the joy on people's faces when they find that perfect product that helps them feel better. Sara wants to be a physical therapist.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking, Quantitative Reasoning, Scientific Inquiry

Opportunities for Growth

Sara has already built up their physical therapy shadowing hours and also works as a rehab aide during the week. Sara speaks eloquently of their desire to help others through a career in physical therapy.

Health Professions Advising Opportunity

Point out similarities between their job in the beauty department and their future career as a physical therapist; the joy they see on a customer's face is similar to the joy they see on a client's face when they are working as a rehab aide. Sara loves to help people feel better and loves to be part of that process. Help Sara realize that in both of these instances, they are using their knowledge to help others be better.

Example 7

Bea has worked as a customer service associate for 5 months and is excited that they were just asked to be the “designated hitter” at the pharmacy where they work. This new position means that, during busy times of the day, they will need to float between the front of the store and the pharmacy as needed. Bea wants to be a physician.

Related Core Competencies

Capacity for Improvement, Cultural Competence, Ethical Responsibility to Self and Others, Oral Communication, Reliability and Dependability, Resilience and Adaptability, Service Orientation, Social Skills, Teamwork, Human Behavior, Critical Thinking, Quantitative Reasoning

Opportunities for Growth

Bea talks excitedly about how this is a great experience for a career in medicine because it is dealing with the public; interacting with people who work behind the pharmacy counter and with people who need specific pharmacy-related assistance. Bea details how this “designated hitter” position is particularly connected to a healthcare career because they will be jumping from one thing to another, having to prioritize and keep things organized, while continuing to engage with people in the community, many of whom are irritable or having a crisis of one sort or another. Bea knows they need to find a physician to shadow, bringing up how difficult that has been to find, stating, “It’s so hard to find someone who looks like me to shadow!”

Health Professions Advising Opportunity

Congratulate Bea on this new role! Agree with Bea and their assessment about the direct connections between this new role and a career in healthcare. Bea is right on the mark with this assessment and it’s fantastic that they already see those connections. Remind Bea that they are a pioneer and a career in healthcare will help other pre-health students of similar background. Brainstorm with Bea to find people for them to talk with and shadow: maybe there is a physician who comes to the pharmacy regularly or they could ask their own primary care physician. If they do not have a primary care physician, do they know someone who does who could introduce them?

CONCLUSION

Healthcare professions advisors must use an inclusive, creative, and supportive method of advising in order to support historically marginalized students in their quest to apply for health professions pro-

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grams. Within a student empowerment model of advising, advisors should use core competencies to guide their practice, center students instead of institutions in their advising, and create offices that are authentically safe spaces in order to help students see value in their actions, in their lives, and in their futures as a healthcare professional.

If some health professions advisors continue to act as gatekeepers, they are supporting systemic racism by maintaining the status quo. Advisors must fully see and support each student without making them feel devalued. These steps are necessary to assist in the transformation of healthcare in the United States. Even before the COVID-19 pandemic, the country was facing a critical shortage of qualified healthcare providers, particularly in the communities many historically marginalized students come from. The stresses of COVID-19 have only made the situation worse (Kantamneni, 2020). The problem is not because of a lack of qualified students, it is a failure of vision, humility, and empathy: failure to understand what makes a truly exceptional healthcare professional, and a lack of humility and empathy needed in supporting the qualified students who need pre-health advising the most.

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KEY TERMS AND DEFINITIONS

Bias: Tendency to be for or against something or someone based on preconceived notions.

Core Competency: Career knowledge derived from a skill directly related to an activity.

Equity: Ensuring that all individuals have the resources they need to fully contribute to American society.

Gatekeeping: The act of limiting access and controlling the outcome of an individual or group of people based on internal bias.

Health Professions Advisor: A primary contact for students interested in working in health professions, typically this person works at an institution of higher education.

Historically Marginalized Student: A student who has not been given access to the full opportunities of American life due to one or more facets of their identity.

Implicit Bias: Unconsciously discriminating against someone because of preconceived stereotypes.

Inclusion: Ensuring that students feel welcome, seen, and heard in a community.

Microaggressions: Subtle or indirect comments or actions that devalue and dehumanize an individual based on one or more facets of their identity.

Oppression: Holding someone back by insisting they are not worthy of their goals.

Predominantly White Institution: Higher education institution where the majority of students in attendance self-identify as white.

Racial Wealth Gap: Income disparity between people of different races because of systemic racism.

Safe Space: Environment where students are allowed to embrace all facets of their identity without judgment or penalty.

Student Empowerment: Encouraging a student to take ownership in achieving their goals.

Systemic Racism: The manner in which racism permeates the structures of a society.

White Supremacy: Power structure that seeks to normalize the placement of individuals of European ancestry being above all others.

Chapter 15

Reflecting on Race and Health Outcomes: Through the Eyes of a Pre-Health Professional Student

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ABSTRACT

A recently graduated pre-health student reflects on the valuable lessons learned about race and health outcomes in social science and humanities courses throughout her undergraduate interdisciplinary program. Coinciding with her unique college experience were the turbulent events of 2020, with a global pandemic and the murder of George Floyd bringing to light racial inequities in the student author's own backyard of Minneapolis. These events illustrated the need for empathetic and humanistic health professionals who are aware of and can address race and health inequities. Based upon research from her honors thesis, this chapter will use the example of maternal health disparities to demonstrate the complex history of racism in healthcare and the impact of system levels on health. The authors make the case for using liberal arts courses to prepare students to become health professionals who have interpersonal and intrapersonal awareness necessary to address racism and health inequities.

INTRODUCTION

Undergraduate pre-health students are often required to take liberal arts courses in order to graduate with a baccalaureate degree and meet admissions requirements for health professions schools. These courses present an opportunity to learn about the relationship between the social sciences and humanities and examine the growing body of health disparities research which sheds light on historical context, the social determinants of health, upstream factors beyond clinical care, and systems level impacts of

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racism and gender bias. Given that clinical care determines a small percentage of health status, health professionals and those-in-training would benefit from expanding their awareness beyond biology of disease and health care (Barton, Brandt, Dieter, Williams, 2020). Undergraduate liberal arts, social science, and humanities courses can provide excellent opportunities for pre-health students to learn about and reflect on important issues for their future health professions careers. By understanding factors determining health and outcomes, pre-health advisors and undergraduate faculty can play an important role in facilitating learning necessary for health professionals practicing in the rapidly changing health system that is proactively addressing health inequities of race and gender (University of Minnesota, 2021).

The chapter co-authors, a pre-health graduate and supervising honors thesis mentor, write about what they learned together in the University of Minnesota's Biology, Society, and Environment degree program. Due to exposure to social justice initiatives during high school, the pre-health graduate selected the focus of race as a thread in her biology, social science, and humanities courses. Coinciding with her undergraduate education were the events of 2020—a global pandemic and the murder of George Floyd—which illuminated racial inequities in her own community. The juxtaposition of these issues, simultaneously with study, created an opportunity for critical thinking about the meaning of research, theory, and realities.

This chapter takes readers through the thread of liberal arts, social sciences, and humanities by focusing on the issue of maternal health disparities and its history of racism in the United States. This case study illustrates a sociohistorical understanding of racism in healthcare while also introducing the concept of implicit bias interventions. The chapter discusses how implicit bias can manifest in health professionals and provides recommendations for pre-health advisors and faculty to assist students with the selection of courses and activities to prepare them for careers that will require understanding and competency around race and the impact of social determinants of health (SDOH). A prototype of a learning guide to facilitate awareness and reflection is also included (see Appendix A)

BACKGROUND

An Undeniable Truth: Race and Health Outcomes

The deadly reality of the relationship between race and health outcomes can perhaps best be showcased by examining maternal health disparities. In 2019, the U.S. Center for Disease Control and Prevention (CDC) released a report detailing the extent of the current maternal mortality crisis in the U.S. Upon reviewing data collected between 2007-2016 from the CDC's Pregnancy Mortality Surveillance System (PMSS), the CDC reported that Black women were dying disproportionately from childbirth at an alarming rate (Petersen et al., 2019). In fact, the report found that the Pregnancy-related Mortality Ratios for Black women were 3.3 times higher than those of their White counterparts (Petersen et al., 2019). The publication of this report drew significant national media attention to an ever-growing crisis that had been festering in the U.S. for decades (Caryn Rabin, 2019). The report also found that 60% of these deaths were preventable, signaling a broken system that has failed its patients (Petersen et al., 2019).

Five areas contribute to the disparities reported: community, health facility, patient/family, provider, and system (Petersen et al., 2019). Suspected causes included factors considered “upstream” from clinical care: lack of access to services such as housing, transportation, education, income, and community safety (Hood et al., 2016; Petersen et al., 2019). Other attributed causes are healthcare itself, inadequate

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medical protocols, poor patient education on maternal health behaviors, and the failure of clinicians to diagnose and treat associated conditions (Petersen et al., 2019). Suggested interventions included further research into maternal deaths, standardizing protocols for obstetric emergencies, improving access to healthcare, and reducing social inequities (Petersen et al., 2019). What this report illustrates is the reality that social factors can have tangible, deadly impacts on health outcomes and cannot be ignored when discussing racial disparities in healthcare.

The stark reality of health inequities between Black women and their White counterparts is only one of many examples of disparities in healthcare. Research has demonstrated other health conditions which have similar differential outcomes between racial groups, such as: hypertension, diabetes, and renal disease (Carter et al., 1996; Hertz et al., 2005; U.S. Renal Data System, 2010). With the start of the COVID-19 pandemic in 2020, increasing media attention is further illuminating the reality of health inequity for all people of color (Oppel et al., 2020). Startling disparities in COVID-19 prevalence, hospitalization rates, and mortality have been observed for Black individuals around the globe (Mude et al., 2021). Explanations for this disparity reveal more disproportionate health outcomes for Blacks. Black Americans are overrepresented in poverty compared to their prevalence in the general population, and poverty correlates with a higher risk for conditions such as hypertension and diabetes which put an individual at higher risk for COVID-19 (Arasteh, 2021; Creamer, 2020).

These disparities are greater than merely access to healthcare. They are a result of the unequal distribution of the burdens of disease and the benefits of good health in society (National Academies of Science, Engineering, and Medicine [NASEM], 2017). Health inequity results from “social, economic, environmental, and structural disparities that contribute to intergroup differences in health outcomes both within and between societies” (NASEM, 2017, p. 99). Root causes for health inequity are more complex than individual choices or randomness, but instead the result of the interchange between disparate “structures, policies, and norms that shape lives” (NASEM, 2017, p. 8). Health disparities are explained by a complex interplay of factors that go far beyond healthcare institutions. Therefore, in the endeavor to understand health disparities, a macro-level perspective of the various social factors affecting health is useful.

The way in which the U.S. healthcare system is structured gives disproportionate attention to treating disease and tends to overlook underlying social causes and necessary preventative measures (NASEM, 2021). This oversight has become systemic as demonstrated by research indicating that only 10-20% of health outcomes can be attributed to clinical care, while the remainder can be attributed to the SDOH (Hood et al., 2016). The SDOH can be defined as “the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks,” (Healthy People 2030, 2021). Examples of the SDOH include: education, healthcare, housing, income, and environment (NASEM, 2017). Health disparities attributed to the SDOH are well-studied, revealing the impact of socioeconomic factors, gender, ethnicity, and immigration status (NASEM, 2017).

Moreover, the reality of health disparities based on socioeconomic status (SES) is just as startling as the metrics on racial health disparities. A large study conducted in 2016 analyzed 1.4 billion American tax and social security records to further investigate the relationship between income and life expectancy (Chetty et. al, 2016). The study not only found large gaps in life expectancy between the highest and lowest income groups--to the tune of 14.6 years for men and 10.1 years for women--but also found that these disparities varied greatly even within the same local area (Chetty et. al, 2016). This suggests that the notion of “place” may play a critical role in health disparities as well (NASEM, 2017). Poor health

behaviors and lack of access to healthcare and insurance characterize rural communities, leading to disparate health outcomes such as higher rates of obesity, heart disease, and COPD (Eberhardt et al., 2001).

Any approach to tackling widespread health inequity must target wealth inequality and address the influence of geographic location on health. These disparities can and do affect White Americans living in poverty and in rural areas. Health inequity is not only a problem affecting minorities. However, studies have demonstrated that both socioeconomic status and race have profound impacts on health outcomes, while also exerting an influence on each other (Farmer & Ferraro, 2005; Williams et al., 2010). Race has been shown to be an independent predictor of health outcomes outside of SES due to the negative effects of racism (Cohen & Northridge, 2008; IOM, 2003; LaVeist, 2005; Roth & Henley, 2012). Disparities persist even when SES, insurance status, age, and severity of conditions are factored in, indicating other systemic issues and influences at play (Farmer & Ferraro, 2005; Nelson, 2002). With Black people being overrepresented among the poor, they face a combined disadvantage due to the compounding and interacting effects of race and SES (Farmer & Ferraro, 2005; LaViest, 2005; Shi, 2006; Waitzman & Smith, 1994). Therefore, race should be a critical consideration of any approach to targeting health disparities.

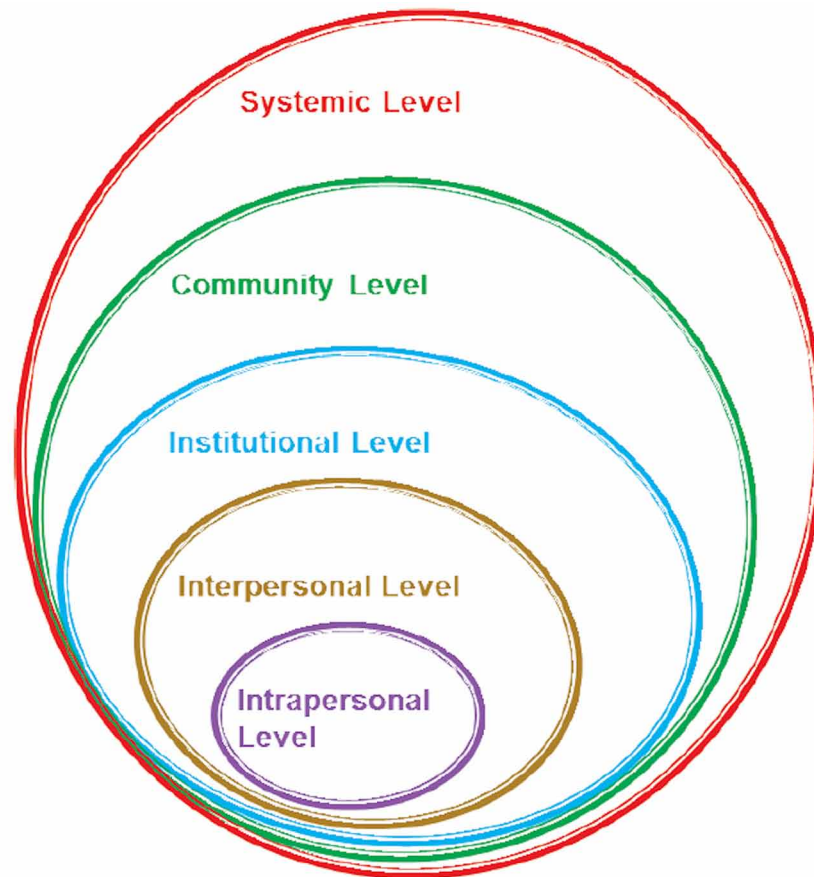
While maternal mortality rates have indeed declined for women of all races over the past few decades, the inequity that continues to exist between Black and White mothers persists (Peterson et al., 2019). For example, when it comes to maternal health disparities, college-educated Black mothers did not have better childbirth outcomes and in some cases fared worse than Black mothers with less education (Petersen et al., 2019). The reality is more disturbing when considering the metrics on infant health. The disparity between Black and White infant mortality rates today is worse than it was during the Antebellum period under slavery (Cooper Owens & Fett, 2019). Not only are these disparities persisting, but in some areas such as infant health, they are in fact worsening.

This finding suggests that discriminatory forces on the basis of race are impacting maternal and infant health disparities and is illustrative of a systemic problem affecting many other areas of health care. Racism can be defined as “prejudice, antagonism, or discrimination by an individual, institution, or society, against a person or people on the basis of their nationality or (now usually) membership of a particular racial or ethnic group, typically one that is a minority or marginalized” (Oxford University Press, n.d.). Like the SDOH, racism exists at many levels: systemic, community, institutional, interpersonal, and intrapersonal (Figure 1, NASEM, 2017). While influenced by the other levels, the interpersonal and intrapersonal factors (e.g., overt discrimination, implicit bias, internalized racism, stereotype threat, and embodying inequities) directly impact patient- and family-specific clinical decision-making every day (Figure 1, NASEM, 2017). Therefore, addressing these factors are within the control of individuals, including pre-health students, their advisors, and faculty.

Against this backdrop, the authors’ goal for this chapter is to explore the sources of systems level racism and propose self-awareness strategies that individuals can take to educate themselves on the relationship of race to health disparities. Knowledge of the SDOH and the impact of systems on race is an important tool in a health professional’s arsenal because it provides the bigger picture to health beyond clinical care. A socio-historical review of the factors in maternal and child health in the U.S. sheds light on the influences of systems that have led to the described current inequities.

Figure 1. The levels of racism

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Systemic Level

- Immigration policies
- Incarceration policies
- Predatory banking

Community Level

- Differential resource allocation
- Racially or class segregated schools

Institutional Level

- Hiring and promotion practices
- Under- or over-valuation of contributions

Interpersonal Level

- Overt discrimination
- Implicit bias

Intrapersonal Level

- Internalized racism
- Stereotype threat
- Embodying inequities

RACIAL HEALTH DISPARITIES: HISTORY, LEGACY, AND REALITY

Maternal Healthcare in Antebellum America

The roots of maternal health inequities can be traced to the Antebellum period in the U.S. Midwifery was a predominantly female practice for centuries, but men began to enter into the field in the 18th century in the Americas and Europe (Cooper Owens, 2018). In the U.S., partnerships between male midwives

and male slaveowners formed naturally, as both parties had common interests: to keep enslaved women fertile and healthy enough to bear children (Jenkins Schwartz, 2006). As American medicine became more professionalized, pregnancy and childbirth became an area of practice for White, male physicians (Cooper Owens, 2018). Once the transatlantic slave trade was formally banned in 1808, slave owners became particularly interested in the reproductive health of their female slaves, as this was the only means to create more slaves without importing them (Cooper Owens & Fett, 2019). This resulted in a practice of sexual abuse and reproductive exploitation designed for the purpose of continuing slavery (Bridgewater, 2001). An enslaved woman's value was reduced down to her ability to bear children who could then be sold as slaves themselves (West & Johnson, 2013). Distrust on the part of enslaved mothers towards White physicians quickly grew, as they were viewed in a league with the slaveowners and were encroaching on their traditional healing practices (Jenkins Schwartz, 2006).

As medical schools became more established in the U.S. during the early 19th century, a demand by medical practitioners for accessible test subjects for experiments grew (Savitt, 1982). Where slavery was legal, Black individuals arose as a natural choice due to their slave status and their effective legal invisibility (Savitt, 1982). Many modern medical practices such as the cesarean section were developed because of experimentation conducted on enslaved women (Wolf, 2018). Publishing in widely read medical journals soon became the gold standard of legitimacy for physicians, and enslaved women became unwitting research subjects in these published studies (Cooper Owens, 2018). In these medical texts and colloquially, Black women were referred to as “breeders”, and described as hypersexual compared to White women (Cooper Owens, 2018, p. 19). This mindset enabled slaveowners and White physicians alike to justify giving subpar medical care to their slaves and contributed to the hyper-fixation on Black women's fertility and childbearing abilities. The stereotype of the Black female “Jezebel” contributed to the rampant sexual assaults experienced by enslaved women at the hands of their White masters (West & Johnson, 2013). The false belief that Black women have an innate hypersexuality has persisted in modern culture for over 500 years (West & Johnson, 2013).

Racism in Medical Education

Racism was also systemically codified into the medical institution as a whole, therefore, affecting perceptions of race at the level of the individual health professional. Landmark reports such as the 1910 Flexner report were held up as the gold standard for medical education, but effectively eviscerated Black and women's medical institutions and discouraged African Americans and women from pursuing a career in medicine (Steinecke & Terrell, 2010). This widely publicized report used science as a guideline to structure medical schools in the 20th century, but it was clearly influenced by racist beliefs and prevented many Black people from receiving a medical education. The Flexner Report essentially codified racism and sexism into the very structure of our medical education system. After the Flexner Report's publication in 1910, 5 of the 7 Black medical schools in existence were shut down, and we still see the consequences of this today--Black Americans are still underrepresented in the medical field (Laws, 2021).

The Birth of Eugenics

Racism continued to infiltrate medicine as America moved into a new era, with one of the most harmful developments being the rise of the eugenics movement in the late 19th and early 20th century. Eugenics is the scientific practice of selective breeding that encourages the reproduction of “fit” individuals and

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discourages the reproduction of “unfit” individuals (Kluchin, 2009). When put into practice, eugenics often manifested as government sanctioned sterilizations or the genocide of disabled individuals or minority groups to prevent them from reproducing; a dramatic example of this practice being the Holocaust (Farber, 2008). In the U.S., eugenics mainly took the form of forced sterilization, which rose to popularity in the early 20th century. Eugenic ideals were used by White people in positions of power to exert social control over poor, Black women. The stereotype of the hypersexual Black woman persisted into the 20th century, resulting in the belief that poor Black women, referred to as “welfare queens,” were intentionally producing large broods of children to benefit from welfare money (Kluchin, 2009, p. 19). Proponents of eugenics targeted lower class women of color for sterilization programs; in 1965, 14% of Black women had been surgically sterilized compared to 6% of White women (Kluchin, 2009). Once again, Black women’s autonomy over their own fertility was wrenched away from them, this time by state-sanctioned surgeons instead of by slave masters. This brief synopsis of the history of racism in obstetrics and gynecology is just one example of many instances of racism in medicine, but its lessons can be extrapolated to medicine as a whole. Understanding and remembering this fraught history provides valuable context to the reality of modern racial health disparities and ensures that future generations do not repeat the same injustices.

A Legacy of Distrust, Structural Racism, and Implicit Bias

Today, the undeniable facts about racial health disparities and the link to clinical decision-making, fueled by structural racism, is a call to action for healthcare and education leaders alike. For example, how physicians will be paid by the Centers for Medicare and Medicaid Services will increasingly be tied to performance on health equity measures (Centers for Medicare & Medicaid Services, 2021). On the education side, A.A. Bush of the Association of American Medical Colleges calls for “disrupting the status quo through understanding and action” (Bush, 2021, p. S6). A first step is recognizing that the history of the American experience has normalized perceptions, stereotypes, biases, behaviors, and systems surrounding race. A particularly concerning study found a large proportion of White medical students and residents held false beliefs about biological differences between the races, such as the myth Blacks have thicker skin, which correlated with racial bias towards pain perception (Hoffman et al., 2016). The stark reality is race itself is a product of “social thought and relations...not objective, inherent, or fixed” with “no biological or genetic reality” (Bush, 2021, p. S7). For health professionals, action needs to be lifelong and involves commitment to becoming antiracist to support individual action in everyday clinical decision-making and policies to reduce racial health inequities.

For pre-health students, this awareness and action can begin during undergraduate education to prepare them for the expectations during the admissions process to health professions schools. Students are unlikely to receive education on the history of medicine in their biology classes, but a proactive approach to studying race in social sciences courses (e.g., history, anthropology, sociology, geography, etc.) offers rich opportunities for learning about matters of race. Part of the normalization of racism is unconscious generalized beliefs about a certain group of individuals, called implicit bias (IOM, 2003). In this kind of bias, individuals may be unknowingly altering their decisions and interactions with people, based on unconscious (and often incorrect) beliefs.

Modern forms of racism are often more subtle in nature, making racism more difficult to detect and individuals less likely to recognize they are participating in racist beliefs or practices (Dovidio et al., 2008). This modern form of racism, coined “aversive racism”, is somewhat of a paradox. Aversive racists may

believe themselves to be unbiased and claim to endorse racial equality, but in reality these individuals hold negative beliefs about racial groups (Dovidio et al., 2008). These kinds of negative attitudes can be subconsciously activated very quickly during an interaction with an individual who falls into a certain minority group, and can result in discriminatory actions if the individual does not consciously address such a mindset (Dovidio et al., 2008). Therefore, to become antiracist, it is important that implicit biases are brought to light and consciously deconstructed before they become automated responses which could lead to unintended discrimination.

For clinicians, self-reflection is an important component in addressing implicit bias and creating self-awareness to enable unbiased clinical decisions (Fitzgerald, 2014). Self-awareness is a foil to implicit bias because it illuminates the existence of biased thinking and allows the individual to address it. Rather than assuming racial health-related disparities, such as differences in hypertension diagnoses, are the result of laziness or lifestyle choices, health professionals can consider the entire picture, while acknowledging the nuances racism can weave through patient relationships, engagement, and diagnosis.

Bias in Healthcare: What Does It Look Like?

So how does implicit bias manifest in healthcare? In one study, a group of physicians self-reported that they were not explicitly biased towards White or Black patients when it came to perceived cooperativeness (Green et al., 2007). Researchers used the Implicit Association Tests (IATs) to measure implicit bias in this group of physicians (Greenwald, McGhee, & Schwartz, 1998). Implicit Association Tests (IATs) attempt to measure implicit bias by recording how long an individual takes to match people belonging to social groups (e.g., race, gender, etc.) to character attributes (Greenwald, McGhee, & Schwartz, 1998). The IAT measure implicit bias by recording the speed at which people unconsciously generalize based on group status (Green et al., 2007). The results of the Green et al. study revealed that physicians associated Black patients with more negative traits, such as lack of cooperativeness, compared to their White counterparts, and were less likely to treat them with thrombolysis for a heart attack (Green et al., 2007). While demonstrating how implicit bias can directly affect treatment decisions, the same physicians who scored higher on the IATs responded positively to the notion that education on these biases could improve their patient interactions (Green et al., 2007).

Widespread beliefs about the perception of pain in Black patients is another example of clinician implicit bias. In one study, physicians who scored higher on measures of implicit bias were more likely to prescribe adequate pain medication for their White patients than for their Black ones. In some cases, they withheld pain medication from Black patients entirely (Sabin & Greenwald, 2012). According to the researchers, one explanation for this finding may be unconscious stereotypes held by some physicians, such as the notion that Black individuals are more likely to misuse opioids (Sabin & Greenwald, 2012). Research seems to support this explanation, with another study finding some physicians were more likely to believe their Black patients had a history of opioid abuse, when in reality this was not the case (Vijayaraghavan et al., 2011). Not only have discrepancies in pain management techniques been observed, but also there is data to suggest physicians are incorrectly perceiving the perception of pain in their Black patients. Primary care physicians in one study were shown to consistently underestimate the pain of their Black patients (Staton et al., 2007).

This type of bias has a direct impact on the quality of obstetric care, as childbirth often requires pain management. A common pain management technique for labor and childbirth is the epidural, which involves the injection of anesthesia into the spine for pain relief (National Health Service, n.d.). Even

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after controlling for differences in insurance coverage, demographics, and clinical manifestation, one study found that Black women were less likely to receive epidural analgesia than their White counterparts (Glance et al., 2007). Black mothers are also more likely to undergo medically unnecessary cesarean sections, which predisposes them to potentially fatal conditions such as anesthesia complications and infection (Roth & Henley, 2012). Another study found that Black mothers had higher odds of experiencing severe postpartum hemorrhage and peripartum infection, and were less likely to undergo labor induction, even when patient characteristics (such as age, BMI, SES, and insurance status) were accounted for (Grobman et al., 2016).

It is clear from studies like these that racism still plagues the current medical system. However, health professionals can be completely blind to this reality and their potential role in it. In February 2021, the editor-in-chief of a top medical journal, JAMA, resigned from his post after receiving backlash due to statements from one of his editors that denied the existence of structural racism and claimed physicians had no role in it (Mandavilli, 2021). What the JAMA incident elucidates is the reality that racial bias can still be found in medical discourse today, but the system is also changing to hold those participating in it accountable.

ANTIRACISM STRATEGIES AND ACTIONS FOR PRE-HEALTH

Armed with an awareness of the link between racism and health outcomes, pre-health advisors and faculty can play an important role in suggesting antiracist interventions at the course level and actions for pre-health undergraduates. An important step is for advisors and faculty to become aware of the background presented in this chapter, and then to understand the extent to which the students they advise may have misperceptions about race, specifically related to biology and the impact of systems. For example, in the study reported above, 40% of medical students and residents reported the belief that Black people have thicker skin (Hoffman et al., 2016). Where do these misperceptions come from? And what pre-health courses and activities at the institution could promote fact-based knowledge about the social construct of race?

The next step is for advisors to become self-aware of their own perception on issues of race, or natural implicit biases, by challenging their own normalized individual belief systems. One strategy is critical consciousness about race, a pedagogical concept that dates to the 1970s that signifies striving for a deeper level of understanding that is supported by facts and requires ongoing effort and mental work (Freire, 1970). Related to critical thinking and reflection, it is an opportunity for an individual to create a “habit of mind” about racism and health outcomes. As a pedagogy applied to racial health disparities, elements of critical consciousness could emphasize: appreciating context in education and healthcare practice; illuminating normalized system influences; enacting self-awareness and reflecting; and promoting everyday decision-making and behaviors to work toward equality of health outcomes based upon differences in groups (Halman et al., 2017). Critical consciousness involves challenging stereotypes about race, no matter what one’s own skin color is, while also taking an approach to examine self-created implicit and explicit biases as a result of societal influences. To begin the process of becoming more critically conscious every day, the authors offer a suggested learning guide (described below) that can be used by pre-health advisors and faculty, as well as pre-health undergraduate students in their undergraduate courses (see Appendix A).

The Implicit Association Test (IAT) is a valuable reflection tool that can be readily accessed online and used individually or in group discussions. Pre-health advisors and faculty members can use the tool to complement their critical reflection about race and their role in working with pre-health students. Students can take an IAT before, during, and after completing their undergraduate education to facilitate reflection and self-awareness of their own implicit biases (Sukhera & Watling, 2018). Taking the IAT before beginning a collegiate education may help students become aware of their biases about race as they prepare for a health career that will increasingly place emphasis on the impact of race on health disparities and the role of systems and individual clinical decision-making.

Next, advisors and faculty members can educate themselves on the evolving thinking and programming in medical, nursing, pharmacy, and other health professions schools that focuses on preparing health professionals to be aware of, knowledgeable about, and competent to address disparate health outcomes based on race. For example, health professions schools are broadening thinking about excellence beyond the basic sciences to suggest the paradigm might be shifting towards greater emphasis on communication, teamwork, and interpersonal skills (Jones et al., 2019). In medical education, the choice of undergraduate major has been shown to have no significant correlation with success in medical school, suggesting the traditional choice of a major in the natural sciences should not be held up as the gold standard for undergraduate pre-medical majors (Muller & Kase, 2010; Schwartz et al., 2009; Smith, 1998). Therefore, given the broadening understanding of the impact of systems on clinical decision-making and health outcomes, to prepare for the admission process, pre-health students should be encouraged to pursue coursework in social sciences and humanities alongside the traditional science prerequisites of organic chemistry and human anatomy. Social sciences and humanities coursework, which may also be referred to as the liberal arts, encapsulates fields such as literature, ethics, philosophy, anthropology, history, and sociology (Schwartz et al., 2009).

Professions such as nursing and social work have traditionally emphasized holistic and family-oriented care and service (NASEM 2019; NASEM 2021), and in recent years, medical schools have introduced programming to promote general skills such as compassionate care, humanism, and empathy (The Schwartz Center for Compassionate Care, n.d.). By recommending social science and humanities coursework, the goal is for future health professionals to develop empathy, perspective-taking skills, cultural humility, awareness of bias, and humanistic care practices (Jones et al., 2019). A background in the humanities and social sciences correlates with improved communication and interpersonal skills, which have been linked to better patient health outcomes (Hirshfield et al., 2019; Stewart, 1995). Humanistic physicians possess high levels of humility and curiosity, engage in self-reflection, and make an effort to connect with their patients (Chou et al., 2014).

While it is difficult to measure a concept as subjective as empathy, scales have been designed to attempt to measure the development of empathy in health professionals, such as the Jefferson Scale of Empathy (JSE) (Hojat et al., 2018). This scale was administered to medical students to measure empathy before and after a year of medical humanities coursework, which included content on the history of western medicine, cultural studies, and the interpretation of literature. The researchers found that the study of medical humanities correlated with increased empathy scores on the JSE (Graham et al., 2016). The JSE scale is available on Thomas Jefferson University's website for a fee. An additional resource is Wang's Scale of Ethnocultural Empathy, which measures empathetic feeling and awareness, empathetic perspective taking, and acceptance of different cultures (Wang et al, 2003).

Moreover, another application of the medical humanities includes the use of narrative medicine as a means of engendering empathy. The process of writing personal illness narratives involves undergoing a

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personal reflection on clinical experiences students themselves have experienced or challenges the author to put themselves in the shoes of a patient (DasGupta & Charon, 2004). The goal of this type of reflective writing is for students to explore their own relationship with illness, in order to prevent the clinical detachment from the concept of illness many physicians experience (DasGupta & Charon, 2004). By engaging in this process, students can improve their abilities to take the perspective of their patients, but it can also help them to explore their own biases and begin the process of deconstructing them (DasGupta & Charon, 2004). The practice of perspective-taking, or the ability to actively contemplate the mental experiences of others, has been correlated with decreased automatic expressions of implicit biases, as well as an increase in sensitivity towards racial inequalities (Todd et al., 2011).

The final recommendation for advisors, faculty, and pre-health students is to move beyond the mindset of “checking boxes” for admissions committees (Gross et al., 2008). By going deeper than a bulleted list of course suggestions, the goal is to modify pre-health preparation so it becomes a more active reflection process rather than a competition (Gross et al., 2008). The authors developed a learning guide as a start for advisors, faculty, and pre-health students to begin the journey of learning about race and the concepts presented in this chapter (see Appendix A). The learning guide is intended to support self-awareness of personal biases and misconceptions while striving to overcome them. Based upon evolving learning and awareness, advisors, faculty, and pre-health students are encouraged to adapt and add to it.

In summary, pre-health advisors and faculty can take the following steps for self-awareness, develop antiracist strategies, and act to support pre-health students in preparing for the admission process and their health careers.

- Understand the extent that their pre-health students have misconceptions about race and knowledge of systems impacting health outcomes
- Know the relationship of race, health outcomes, the impact of systems levels--especially intrapersonal and interpersonal--using this chapter as a starting point
- Use the IAT to strive for self-awareness of implicit bias and misperceptions regarding race
- Explore evolving thinking and programming in health professions schools regarding race, health disparities, compassionate care, humanism, and empathy to prepare pre-health students for expectations for admissions and future healthcare careers
- Use and contribute to the learning guide to support pre-health students as they select strategies and actions to gain a greater awareness and understanding about the impact of race, systems, and clinical decision-making on health outcomes.

PERSONAL REFLECTION AND CONCLUSION

Researching and writing an undergraduate *summa cum laude* honors thesis followed a four-year intentional selection of basic science, social science and humanities courses focused on race. The pre-health graduate author gained a rare 360° interdisciplinary view of race with implications for healthcare and health professionals' careers. The thesis also presented a unique experience for the chapter authors during a time period when racial inequities came roaring to the forefront as a result of the COVID-19 pandemic and the George Floyd murder. At times, the roles of the learner and the mentor were often indistinguishable. The world taught lessons that were unveiled in a never-ending series of new revelations that drove and accelerated personal critical consciousness of implicit biases: pandemic racial disparities, backyard

protests and riots, politicization of race and education, among other firsthand experiences. Whether a recent college graduate like Salato, or an established professional such as Brandt, the process of learning and reflecting never ends.

The aim of this book chapter is to raise awareness of maternal health disparities, provide historical context for them, and to make an argument for how social science and humanities coursework has the potential to lessen racism at the interpersonal level by facilitating the learning of important skills such as empathy, perspective-taking, and social awareness. An outcome of the authors' shared learning experience is the awareness that pre-health undergraduate education is the optimal time to prepare for future healthcare careers that will require addressing the myriad of issues of race detailed in this chapter. Simply taking courses is not enough. By introducing ideas such as implicit bias, SDOH, and the history of racism in health care, pre-health advisors can make a pivotal difference and accelerate learning in the trajectory of a future clinician's practice.

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KEY TERMS AND DEFINITIONS

Antiracism: Actively addressing practices and ideologies resulting from prejudice, discrimination and/or ideologies based upon race while promoting equity.

Critical Consciousness: Thinking and reflection.

Equality: Treatment of everyone the same, regardless of their status or identity in society.

Equity: Treatment of individual people or groups by providing support and/or resources needed to succeed, which may look different for each individual or group.

Health Disparity: An observed and/or evidence-based difference in health outcomes between members of different social or racial groups.

Implicit Bias: Unconscious, generalized beliefs about an individual or a group of people.

Racism: Conscious or unconscious prejudice or discrimination that is targeted towards individuals or group based on their membership in a certain racial group.

Social Determinants of Health: Social factors, such as socioeconomic status, education, transportation, environment, and technology, that influence health outcomes.

Stereotype: A generalized, oversimplified notion about a group of people that is widely believed by society.

APPENDIX 1: REFLECTIONS ON RACE AND HEALTH: LEARNING GUIDE

Answer the following questions related to race and health. The answers and associated literature for you to explore can be found in Table 1.

Table 1.

Statement #1 <i>True or False?</i> Black people have thicker skin than White people do.
Statement #2 <i>True or False?</i> White people are less likely to develop heart disease than Black people.
Statement #3 <i>True or False?</i> Black people have less sensitive nerve endings than Whites do.
Statement #4 <i>True or False?</i> Social factors have a greater impact on health than the clinical care provided by clinicians.
Statement #5 <i>True or False?</i> Most of the genetic variation that exists is within racial groups, not between them.

Busting Myths: Race Edition

Do these answers surprise you? If so, you are not alone. One study found that over 40% of 2nd year medical students believed that Black people had thicker skin than Whites when this is actually not the case (Hoffman et al., 2016). In this same study, medical students who endorsed false biological beliefs about the races were associated with displaying racial bias when giving pain treatment recommendations (Hoffman et al., 2016). What this study demonstrates is that harboring false beliefs about biological differences between the races can have negative effects on treatment recommendations for patients of color and can contribute to health disparities.

Statement #2 is true, but this is not due to physiological differences in the cardiovascular system between Blacks and Whites. Rather, disparities in cardiovascular disease have been correlated with

lower socioeconomic position, lower levels of education, and experiences of racism and discrimination (Havranek et al., 2015).

These factors are examples of the social determinants of health (SDOH), which are defined by the Centers for Disease Control and Prevention (CDC) as the “conditions in the places where people live, learn, work, and play that affect a wide range of health and quality-of-life risk and outcomes.” As demonstrated by statement #4, which is true, health outcomes can be primarily attributed to social factors such as the SDOH, rather than clinical care (Hood et al, 2016). Even factors you might not think about, such as geography and the physical environment, have histories of racism and prejudice that can affect health outcomes (University of Minnesota, 2020). Additionally, race itself is a product of society, and not of biology. This is demonstrated by statement #5, which is also true. Researchers from the Human Genome Project discovered that most of the genetic variation that exists in the world can be found within racial groups, instead of between them (National Human Genome Research Institute, n.d.). This finding means that genetic variation is not the basis for race, but it is instead a construct developed by members of society.

Why Should You Care?

As demonstrated above, social factors play a key role in understanding health outcomes and race-related disparities. However, traditional models of health professions education tend to focus on biomedical models of health rather than social ones (Hood et al., 2016). One way for you to fill this gap and educate yourself on these topics is to take courses in the social sciences and humanities. Courses in these areas can introduce you to concepts related to the social, historical, and cultural elements of healthcare. However, it is still up to you to make sure you’re getting the most out of the course content. Challenge yourself to go beyond what is discussed in class. Ask yourself whose voices might be missing from the narrative. “Question the status quo,” (Kumagai & Lypson, 2009). Is there another way these issues could be approached that is more inclusive or socially informed? Additionally, do your own research outside of class. Institutions such as the University of Minnesota have included lists of recommended literature as part of their Diversity, Equity, & Inclusion (DEI) programming.

Recommended Pre-Health Prerequisite Subject Areas in the Social Sciences and Humanities

- Sociology
- Public Health
- Anthropology
- Gender, Women, and Sexuality Studies
- History
- Geography
- Literature

Increasingly, health professions schools expect that students are knowledgeable and competent in matters of race and health. Coursework in liberal arts, social sciences, and humanities provides a framework to critically analyze statements about race in healthcare contexts. Moreover, learning about racism may also

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help you reflect on biases you may consciously and unconsciously hold. Expanding your awareness of racism at the interpersonal and intrapersonal level will help prepare you for health professions education, a career in healthcare, and life in general. Equipped with knowledge on the social determinants of health (e.g., socioeconomic status, education, transportation, environment, and technology) and the understanding of race as a social, not biological, construction, you have the potential to think about the statements listed at the beginning of this paper and debunk common medical myths. This is important because, as discussed above, false beliefs about race in healthcare contexts have been linked to health disparities. Coursework in liberal arts, social sciences, and the humanities has also been correlated with increased empathy scores, better communication and interpersonal skills, and development of perspective-taking skills (DasGupta & Charon, 2004; Graham et al., 2016; Hirshfield et al., 2019). Perspective-taking has also been shown to help prevent automatic bias responses and increase empathy (Todd et al., 2011). One way to test your empathy development is to utilize the Jefferson Scale of Empathy (JSE) or the Scale of Ethnocultural Empathy (SEE), which can both be accessed through links in the Resources section at the end of this guide (Thomas Jefferson University n.d.; Wang et al., 2003). The skills listed above are increasingly being used in the admissions process to health professions schools as well as demonstrating competence in education and training. These attributes make for health professionals who can recognize their own biases, understand the social context in which their patients live, consider “upstream factors” to clinical care, relate to patients from diverse backgrounds, and practice more compassionate care.

Activities to Promote Reflection

Visit implicit.harvard.edu to take an Implicit Association Test (IAT). Are you surprised by the results?

- Take the IAT again before applying to health professional school to see how implicit biases may have changed or disappeared over the course of your education.
- If you demonstrate any implicit preferences, understand that this does not necessarily mean you consciously support such beliefs, and that they may even completely go against your values (Project Implicit, n.d.).

After receiving your results, take your newfound knowledge and awareness as you consider the following questions.

Guided Learning Questions

1. Historically, federal, state, and local regulations, policies, and legislation have impacted Whites and People of Color differentially. For example, in the 1930s and 1940s, federal policies and legislation such as the New Deal, the Social Security Act, military service, and the GI Bill, significantly advantaged Whites over People of Color. These advantages have resulted in differential intergenerational wealth (Racial Equity Institute, n.d.; Racial Equity Tools, 2020). Often, the policy differences between groups are not in textbooks or mentioned in classes. Therefore, it is not surprising that you may be unaware of them. What strategies can you take to become aware of these realities that affect social and racial groups differently? Explore the ramifications of these today and for your future healthcare career.

2. Consider the social determinants of health (e.g., socioeconomic status, education, transportation, environment, technology, etc.) that play a role in health disparities. What is the impact of the level of systems (policies surrounding immigration, incarceration, financing, etc.)? What does this mean for you today and as a future health professional?
3. Conduct searches on the internet and at your own university and college. What is being investigated in basic, medical, and social science research in terms of racial health disparities? What areas are being discussed? What might be missing?
4. Reflect on and keep a journal about how your perceptions of people in different racial groups may be impacted by stereotypical or biased thinking (your own included). Use critical reflection strategies to explore these biases. In what ways might they be harmful (Kumagai & Lypson, 2009)?
5. While reading popular literature (e.g., news articles, books, or scientific articles), consider the racial or ethnic identity of the author(s). Do they write from the perspective of their own race? Can you tell? If so, what is being communicated? How might someone of another race have a differing perspective?
 - a. How does your own racial and cultural identity affect how you interpret this piece of literature (Sanford Inspire Program, 2017)?
6. How do you conceptualize race? Is it biological or more societal? How has this perception changed during your education?

Resources on Race, Health Outcomes, and the Benefits of the Humanities and Social Sciences for Health Professionals

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Chapter 16

Advising the High School Pre-Health Student: Filling the Gaps Between High School and College

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ABSTRACT

Each year thousands of high school students transition to college with the intent to enter the healthcare professions. Despite their intentions, most will be unsuccessful in meeting this educational and career goal. This chapter discusses some of the reasons why and offers suggestions for filling the gap between high school and college in order to improve students' chances of success. The intent is to highlight these and other gaps that can limit student familiarity with and preparation for college-level classes, as well as students' self-efficacy in career decision-making. Students from backgrounds underrepresented in the healthcare workforce often attend under-resourced high schools, reducing their understanding of and self-efficacy in career decision-making; and most high school students have a limited understanding of the preparation needed to be successful in college. The authors share observations from Virginia Commonwealth University's Health Sciences Academy to show how pre-health advisors can partner with high schools to assist high school pre-health students with their successful transitions to college.

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INTRODUCTION

Pre-health students transitioning from high school to college oftentimes are unsuccessful in meeting their educational and career goals. This is in part due to the reality that high school counselors are tasked with managing large numbers of students and are not always equipped with the resources to help high school students make informed career decisions. Additionally, students who lack access to advanced science courses in high school are at a disadvantage entering a rigorous, undergraduate premedical curriculum having little to no exposure to the scientific skills needed to endure these requirements. Now more than ever, colleges and universities are being held accountable to retain students and promote them onto graduation. Pre-health students entering college lacking self-efficacy in their career decisions results in low retention and student's not realizing their potential. Underrepresented students are most negatively impacted by a lack of self-efficacy in career decision-making. Many lack mentors and role models who have attended college and advanced onto careers in the health sciences. Traditionally, pre-health advisors have been focused on helping undergraduate pre-health students, however, the potential exists for the profession to have an even greater impact on high school-aged students. Using the self-directed search career inventory and challenging high school students to align choices with their interests, values, and skills is an effective approach. Successful partnerships with surrounding high schools can be created and maintained around filling gaps in students' experiences and exposures at the high school level.

ATTRITION IN PREMEDICAL STUDIES AND FACTORS LEADING TO DECLINES

With coursework in the biological and biomedical sciences dominating the medical school curriculum, it is critical for prospective medical school students to have a solid knowledge of and demonstrated competencies in these concentrations. It is not surprising then, that the majority of pre-medical students select majors in the Biological Sciences. According to the Association of American Medical Colleges (AAMC), for the 2020-21 medical school application cycle, applicants majoring in the Biological Sciences made up 58.30% of total applicants and 57.57% of matriculants to medical school (Figure 1).

Figure 1. AAMC matriculates to medical school data (2020-2021)



The table below displays MCAT scores and GPAs for applicants and matriculants to U.S. medical schools for 2020-2021 by primary undergraduate major. MCAT scores and GPAs are displayed by mean and standard deviation (SD). Please email daterequest@aamc.org if you need further assistance or have additional inquiries.

Applicants	MCAT CPBS		MCAT CARS		MCAT BBLs		MCAT PSBB		Total MCAT		GPA Science		GPA Non-Science		GPA Total		Total Applicants
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Biological Sciences	126.5	2.7	125.8	2.7	126.9	2.6	127.2	2.7	506.3	9.1	3.50	0.41	3.76	0.26	3.60	0.33	30,921
Humanities	126.7	2.7	127.0	2.6	126.9	2.6	127.8	2.6	508.4	8.8	3.47	0.44	3.72	0.29	3.60	0.32	1,738
Math and Statistics	128.0	2.5	126.8	2.6	127.7	2.4	128.0	2.5	510.5	8.4	3.58	0.41	3.72	0.28	3.63	0.34	342
Other	126.2	2.8	125.7	2.7	126.5	2.7	127.1	2.8	505.5	9.3	3.49	0.42	3.73	0.28	3.60	0.33	8,525
Physical Sciences	127.7	2.5	126.5	2.7	127.4	2.6	127.6	2.6	509.2	8.7	3.56	0.39	3.70	0.29	3.62	0.32	4,680
Social Sciences	126.0	2.8	126.1	2.7	126.2	2.8	127.5	2.7	505.8	9.4	3.39	0.47	3.66	0.32	3.54	0.35	4,810
Specialized Health Sciences	125.6	2.9	125.4	2.8	125.9	2.8	126.7	2.9	503.5	10.0	3.44	0.45	3.72	0.27	3.58	0.33	2,014
All Applicants	126.5	2.8	125.9	2.7	126.8	2.7	127.2	2.7	506.4	9.2	3.49	0.42	3.74	0.28	3.60	0.33	53,030

Matriculants	MCAT CPBS		MCAT CARS		MCAT BBLs		MCAT PSBB		Total MCAT		GPA Science		GPA Non-Science		GPA Total		Total Matriculants
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Biological Sciences	127.8	2.2	126.8	2.3	128.2	2.0	128.5	2.0	511.3	6.5	3.67	0.30	3.83	0.20	3.74	0.24	12,845
Humanities	127.9	2.1	127.9	2.1	128.1	2.0	128.9	1.9	512.8	6.0	3.63	0.33	3.81	0.22	3.72	0.24	832
Math and Statistics	129.1	2.0	127.8	2.4	128.6	2.0	128.9	2.0	514.3	6.5	3.73	0.26	3.82	0.19	3.76	0.22	156
Other	127.6	2.1	127.0	2.3	127.9	2.1	128.6	2.0	511.1	6.5	3.65	0.32	3.81	0.21	3.74	0.24	3,391
Physical Sciences	128.7	2.0	127.4	2.3	128.4	2.0	128.7	2.0	513.3	6.5	3.70	0.29	3.78	0.23	3.73	0.24	2,240
Social Sciences	127.5	2.2	127.4	2.2	127.7	2.0	129.0	1.9	511.6	6.3	3.60	0.34	3.76	0.26	3.68	0.26	1,991
Specialized Health Sciences	127.3	2.2	126.8	2.3	127.7	2.0	128.4	2.0	510.3	6.5	3.65	0.32	3.82	0.20	3.74	0.23	784
All Matriculants	127.8	2.2	127.0	2.3	128.1	2.0	128.6	2.0	511.5	6.5	3.66	0.31	3.82	0.21	3.73	0.24	22,239

Notes: In 2020, 53,030 individuals applied to U.S. medical schools. Among them, 52,744 provided UGPAs, and 52,022 applied with MCAT scores.

Among those who applied with MCAT scores, almost all applicants (i.e., 98.6%) applied with scores from the new MCAT exam version, launched in April 2015.

The means and SDs of MCAT scores are calculated based on data from applicants who applied with MCAT scores. Specifically, 51,996 applicants and 21,519 matriculants in 2020 were included in the calculations. Only the most recent MCAT score is used for individuals who took the exam more than once.

The means and SDs of UGPA are calculated based on data from applicants who applied with UGPAs. Specifically, 52,744 applicants and 22,050 matriculants in 2020 were included in the calculations.

Each academic year includes applicants and matriculants that applied to enter medical school in the fall of the given year. For example, academic year 2020-2021 represents the applicants and matriculants that applied to enter medical school during the 2020 application cycle.

Source: AAMC 10/27/2020

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Most pre-medical curriculums at the undergraduate level demand multiple semesters of biology, chemistry, physics, biochemistry, mathematics and behavioral science coursework. Obtaining top grades across all undergraduate-level science courses is critical for gaining acceptance into medical school, and students who do not perform well will watch their dreams of acceptance diminish. In 1910, the prerequisite coursework for pre-medical preparation was systematically organized by Carnegie foundation physician Dr. Abraham Flexner in the “Flexner Report,” an 846-page analysis of medical education. As is the case today, biomedical science coursework was identified as both the animating force and overarching theme in the life and work of physicians (Duffy, 2011).

Results from the 2019 AAMC Matriculating Student Questionnaire (MSQ) showed that whereas many respondents reported their intent to study medicine prior to college, a significant additional percentage (34.8%) decided during their undergraduate studies — particularly during their freshman and sophomore college years. A recent large-scale analysis across 102 schools showed that among 15,442 students who indicated initial pre-med interests, 2,555 (16.5%) completed the full set of medical school prerequisites; whereas a small proportion (7.7%) never completed any chemistry, biology, or physics courses (Zhang et al., 2020).

The high drop-out rate of pre-med hopefuls across institutions is largely a result of under-preparedness and ultimately underperformance in science classes; and this is particularly evident for members of

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underrepresented racial and ethnic minority groups (URM) as well as females (Zhang et al., 2020). An earlier, smaller-scale study by Barr et al. (2010) showed that 97% of underrepresented minority (URM) students identified at least one science course that discouraged their interest in medicine, with several students noting more than one such course. In contrast, only 65% non-URM students mentioned specific courses as reducing their interest in medical careers. A study examining the representation of students of color in medical school (Tavernier, 2018) showed that of black students who declared interest in STEM fields, an alarming 29.3% withdrew from studies without earning their degree. In addition, according to the U.S. Department of Education report that analyzed attrition rates in STEM (U.S. Department of Education, 2013), 36% of black students left college with no degree.

This achievement gap is also significant for women. Since the late 1970s (Carey, 2021) female high school students have earned better grades in high school and outnumbered men on college campuses. In addition, a 2015 Pew research Center report showed that women are more likely to express interest in health and medicine, whereas men are comparatively more inclined to express interest in science and technology. More than half of women surveyed (52%) declared interest in health and medical studies compared with only 22% among men (Pew Research Center, 2015). Unfortunately, although women express more interest in health professions upon entering college they are not following through. Their level of interest declines greatly by the time they finish their undergraduate studies and are ready to apply to medical school (Witherspoon et al., 2019). For example, Bauer-Wolf (2019) showed out of 5,550 women with the intention to pursue medicine during their first year in college, only 194 ended up actually taking the MCAT. For the 2,690 men who reported intentions to pursue medical studies, 262 ultimately took the MCAT. These gender gaps manifest as early as womens' sophomore year in college. The Bauer-Wolf study, in particular, underscored the importance of chemistry classes, with 96% of male students who earned an A in an organic chemistry I class going on to take organic chemistry II, whereas for women only 89% who earned As progressed onto organic chemistry II (Bauer-Wolf, 2019).

In sum, entering college as a pre-med hopeful without a solid understanding of biology, chemistry and physics often leads to significant challenges in these courses, and many students ultimately abandon their dreams of a medical career. Students' visions of the preparation needed to gain admission to medical school is inaccurate and, as discussed above, this can result in their being "weeded out" of the process through challenging science courses, such as organic chemistry. By contrast, entering college with advanced preparation in the sciences helps prepare students for the demands and rigor of undergraduate science courses; and this is where career and college advisors can make a difference. Pre-health advisors can help students understand what to expect in college pre-med tracks, preparing them for their undergraduate pre-health experience.

HIGH SCHOOL CURRICULUM GAPS, LACK OF ACCESS TO COURSES

In the past 20 years, the range and types of assistance pre-health advisors and counselors provide has increased. For students who are fortunate enough to attend elite private high schools in the United States, access to advanced curricula – particularly in the sciences – ensures their high school transcripts reflect preparation rarely seen from public high school students. In recent years, private preparatory schools have upped the ante, offering courses that introduce students to microbiology, molecular and cellular biology, college physics, advanced college chemistry and organic chemistry. In addition, students at-

tending private high schools may have the option to be part of a specially designed and organized high school pre-medical curriculum.

The American Heritage School in Southern Florida gives students the option to be part of such a sophisticated pre-medical curriculum (American Heritage, 2021). Advanced coursework is taught by board-certified physicians, and senior internships allow students to be exposed to over 35 different medical specialties. Students also are offered clinical rights to five area hospitals and they can join an official Pre-Medical Society – offering both increased socialization to the field as well as a strong sense of identity and belonging. This extraordinary degree of preparation at the high school level enables students to enter their undergraduate studies significantly ahead of the curve; with exposure to the advanced sciences, and a comprehensive understanding of medical specialties – not just simple pathways amongst the professions.

Obviously schools like American Heritage are the exception; as noted previously, most public high school students will walk into organic chemistry, physics or molecular biology college classes with limited preparation or previous exposure to the material based on the limited curriculums and programs public schools offer from limited funding. Public high school students are tethered to the restrictions of comprehensive science curriculums, which have little room for expanding scientific inquiry or skills. Many students do not have the option to take Advanced Placement (AP) lab sciences like Chemistry, Biology, or Physics because many school districts lack funding required for teacher certification in high school AP courses. According to a 2016 comparison of 50 states' financial support for AP course offerings/support, 30 states had no funding plan in place (Education Commission of the States [ECS], 2022). Therefore many public high school students who wish to take AP level courses may not have access. They are left seeking resources on their own. Some of these students opt for online courses or enroll in local college courses that extend the duration of their school days, require transportation, and can be quite costly.

SAMPLE PRIVATE HIGH SCHOOL VS. PUBLIC HIGH SCHOOL OFFERINGS

According to a 2020 C-Stem (Center for Integrated Computing and STEM Education) Report (Flowers, n.d.), the achievement gap in science performance between students attending high schools with high-poverty rates and those with low-poverty rates was 39 points as of 2015. These data show the structural challenges facing nearly all Black, Hispanic, and female students as they navigate STEM courses in high school and at the university level. The lack of resources available to these students' schools, families, and in their communities severely limits exposure to the advanced science concepts foundational experiences necessary for success at the undergraduate level. In contrast, students fortunate enough to have access to more advanced high school curriculums have many advantages, including familiarity with concepts presented in college-level science coursework.

A comparison of two randomly selected US high schools - one small, affluent, and private and the other large, underserved and public - shows vast differences between the two. Comparison of curricula drives this home. With the average requirement for high school science courses needed for graduation (usually biology, chemistry and physical/earth science) and as prerequisites for entry to college being 2-3 years, schools that go beyond the traditional lab science offerings are enabling students to be at more of an advantage in terms of science foundation. For example, Harvard Westlake high school in Los Angeles, CA (ranked 26th in the country for STEM and 9th overall for best private schools (NICHE, 2022) of-

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fers 25 science courses, with multiple AP-level classes and highly advanced specialty classes including organic chemistry, genetics and biotechnology, and molecular and cellular biology, documented on their official published School Profile (Harvard Westlake, 2022).

In contrast, Franklin D. Roosevelt High School in Brooklyn, NY offers only 14 science courses, with none of the advanced offerings available to students in more privileged districts or with the resources to attend private programs (Figure 2). The college readiness factor for FDR High School, according to U.S. News Reports (2022) is only 29.6%.

Figure 2. Sample comparison of science courses offered, private versus public schools

Harvard Westlake School (Los Angeles, CA, Private) (2020-21 most recent school profile) 876 upper students, 220 faculty Student-teacher ratio: 8:1	Franklin D. Roosevelt High School (NYC, Public) (2016-17 most recent school profile) 3257 students and 187 faculty Student-teacher ratio: 26:1
Integrated Science I	Earth Science
Integrated Science II	Living Environment
Biology	Concepts to Living Environment
Honors Biology	AP Biology
Genetics and Biotechnology	Forensics
Honors Topics in Molecular & Cellular Biology	Anatomy & Physiology
Oceanography & Marine Biology	Chemistry
Honors Topics in Evolution & Ecology	Chemistry Honors
Human Anatomy & Physiology	AP Chemistry
Honors Chemistry	Environmental Science
Chemistry	Physics
Organic Chemistry	Active Physics
AP Chemistry	Introduction to Scientific Research
Studies in Scientific Research	College Science
AP Environmental Science	
Geology	
Natural Disasters: Science & Social Impact	
Astronomy	
Physics I	
Honors Physics I	
AP Physics C: Mechanics	
AP Physics C: Electricity & Magnetism	
Sound & Acoustics	
Electronics	
Principles of Engineering	

The Center for American Progress' 2021 study "*Closing Advanced Coursework Equity Gaps for All Students*" points out that there is a direct correlation between advanced high school coursework and increased likelihood of undergraduate students taking laboratory science and mathematics courses in college (Chatterji et al., 2021). Yet all too often, high school students take science courses solely to fulfill requirements as opposed to expanding their skills. These decisions are magnified further when course offerings are limited and help with planning or preparation for college is limited or nonexistent.

As a result, these students enter undergraduate studies ill-prepared for the demands of traditional "weed out" courses like analytical and organic chemistry, which result in once hopeful pre-health students giving up on this path and taking another direction. Research shows negative experiences in chemistry courses, specifically, are a factor discouraging many students from following through with a pre-medical curriculum with former premedical students reporting that negative experiences in organic chemistry played a role in changing their career plans (Barr et al., 2008). This raises important questions: Would these premedical students be successful if they came from high schools offering rigorous, more advanced

science curriculums with dedicated career counselors? How do we level the playing field for students who do not have access to advanced science courses and specialized pre-health experiences? These disparities are commonly faced by students of color and others who hail from low-income families or who are first in their family to attend college.

SAMPLE SURVEY COMPLETED WITH CTE (CAREER AND TECHNICAL EDUCATION) HIGH SCHOOL STUDENTS

High schools offering specific health science pathways have a unique platform to expose students to health careers and prepare them for undergraduate studies in a pre-health curriculum. Many high schools also support health science pathways via career and technical education (CTE). According to the 2019 U.S. Department of Education report on CTE programs nationwide, health science reigns as one of the three most popular career clusters, making up 11% of all CTE concentrations. CTE curriculums in high schools are meant to connect with and lead to postsecondary programs of study or additional training post-graduation. Offering students unique opportunities to tailor their education based on career interests, CTE programs provide exposure to careers and information regarding required undergraduate coursework. Although CTE programs are specific in programming, like the health sciences, there also needs to be reinforcement guidance as students face academic challenges. Understanding a career title is one thing, but comprehending the pedagogy needed to earn a degree is quite another. For example, students in a CTE program in the health sciences may generally understand the difference between job titles of a nurse versus a medical doctor, they may not understand the different requirements for getting there. This gap in knowledge can result in high attrition rates of pre-health students at the undergraduate level.

Results from a September 2021 survey of 159 Rhode Island high school students, grades 9-12, enrolled in a CTE Medical Pathways Program demonstrate a variety of interests amongst students in terms of health careers (Golini, 2021). Overall, students declared interest in 10 specific occupations, including nursing and medicine (i.e., preparation to become physicians). The survey showed students' limited understanding of what is required to actually become a medical doctor. For example, over 77% of students surveyed believed "pre-med" was an actual undergraduate major. They seemed unaware the pre-medical track is a series of courses designed to facilitate entry into medical school (whereas biology or chemistry would be the majors). Moreover, when considering possible college majors, approximately 46% of students believed biology was the only major allowed in applying to medical school. When asked whether earning grades of "A" in undergraduate biology, chemistry, physics, and math courses was more critical than earning "As" in other courses, close to 40% stated this was not true for medical school applications. Finally, students were unaware of the amount of time it took to earn a medical degree. Fifty-seven percent (57%) of students believed they would make medical specialty choices (i.e., residency and ultimate career path decisions) during their undergraduate years.

Respondents did show familiarity with specific healthcare disciplines, such as nursing and physical therapy, but they did not seem to understand the competitiveness of the medical school acceptance process. Hence, results from this survey highlight the critical need for more pre-health information and advising. Students must learn the type of curriculum needed to be a competitive medical school candidate. They also need to develop an understanding of the academic skills involved in successful preparation for healthcare careers. Finally, they need assistance, early on, to explore whether they have the career-related

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interests (i.e., in investigative and scientific inquiry) that sustain motivation in the face of the academic challenges all aspiring physicians encounter.

When also asked what the average acceptance rates were to highly selective combined baccalaureate/MD programs, surprisingly only 7.5% of students understood the national acceptance rate average was 1-2%. In April, 2021, Brown University reported in a *Brown Daily Herald* article that the admissions rate for their Program in Liberal Medical Education (PLME), the only of its kind in the Ivy League, was 2.33%, admitting only 82 students out of 3,516 applicants to the program. With only 49 nationwide combined BS/MD programs, admission is intensely competitive, with applicants averaging above a 4.0 GPA, an ACT score above 34 and SAT scores above 1550 combined with numerous hours spent conducting medical or clinical research, volunteering, shadowing physicians and working with underserved communities (Moon, 2019). The high school student survey demonstrates the lack of knowledge of the competitiveness of such programs.

TUNNEL VISION FOR MEDICINE

In addition to students having unrealistic perceptions of the competition they will face to gain admission to professional school, they also declare interest in pre-medical studies without considering other career options in health care. Virginia Commonwealth University (VCU) is a large, urban research university with 23,639 undergraduate students. At VCU undergraduate students can declare an interest in 1 of 11 different pre-health tracks (i.e., pre-medicine, pre-dental, pre-pharmacy). During academic year 21-22, 6310 undergraduate students declared interest in one of these pathways and, out of this population, 3730 students (59%) declared tracks in pre-medicine. The remaining, 2580 pre-health students (41%) are dispersed among the other 10 tracks (VCU, 2021).

These data show the pre-health student population is narrowly focused on going to medical school, and far fewer students are choosing other possibilities. Many variables contribute to students' career decision-making in college; but given the low number of pre-medical students progressing to sit for the MCAT, students should be encouraged to consider other careers before making these declarations (Bauer-Wolf, 2019).

LACK OF COUNSELORS = LACK OF PRE-HEALTH ADVISING

We previously discussed the privileges of advanced coursework being offered at elite private high schools in the United States. Similarly, there is an enormous gap in the availability of counseling for college and career choices. According to the American School Counselor Association (ASCA, 2019), the average high school student-to-school-counselor ratio is 311 to 1. Only one in five high school students is enrolled in a school where there are enough school counselors are available. This translates to approximately 11 million enrolled high school students who are endeavoring to make important career choices without the help and support of counselors. In addition, a majority of public school counselors are not designated as college counselors or college advisors. Instead, many spend most of their time on scheduling and other administrative matters, as well as managing student crises. In schools where college counselors are available, caseloads can be so high counselors spend the bulk of their time on students' social and

emotional needs and college counseling takes a back seat to acute issues. The problem is compounded in high-poverty schools and the contrasts are stark.

For example, it is estimated counselors in private schools spend upwards of 50% of their time on college advising, whereas in the highest-poverty schools counselors spend less than 20% of their time on college and career planning (Gewertz, 2018). Several states, California included, have increased training in college and career counseling, requiring increased coursework for counselor certification. With a goal to help raise graduation rates and college matriculations, many school districts have also enhanced professional development opportunities for school counselors (West, 2021).

A lack of adequate college advising is directly linked with students' limited college and career readiness. School counselors can, if time allows, guide students toward choices that 'fit' for them. However, few public high school counselors are equipped (or expected to be equipped) with a full understanding of how to prepare students to be accepted into a pre-medical program. Although the AAMC Core competencies (AAMC, 2022) reveal characteristics of 'ideal' medical school applicants, school counselors may not have time to familiarize themselves with this information. With hundreds of students on counselors' caseloads, students who walk into an under-resourced public school counselor's office are unlikely to be seen as potential 'success stories.' In the absence of important conversations about science courses, preceptor experiences, shadowing and internships, these students miss out on understanding critical next steps.

Sadly, most graduate counseling preparation programs following a national curriculum designed under guidelines of the Council for the Accreditation of Counseling and Related Educational Programming (CACREP) embed little to no training in college advising and counseling. Graduate counseling programs generally do not offer specialty electives in college admissions; rather they gear curricula towards training for social and emotional counseling, aiming to prepare counselors for the increase in societal needs amongst teenagers (West, 2020). In addition, when there is preparation for career advising, these may not prepare future counselors to advise on the pre-professional tracks. In public schools where counselors are part of unionized teaching staff, they often spend a majority of their time fulfilling administrative obligations and attending meetings to support the special education needs of their caseloads.

On account of these issues, students experience gaps in terms of the college admissions advice available to them, particularly when assigned to counselors who service hundreds of students. Despite the reallocations of counselor duties in large public schools, the need for more help in college admissions advising has only increased over the years as college application numbers continue to rise. Tuition costs also have soared, raising the stakes for collaborative decisions about college and financial aid has intensified. Several states, including California, have begun requiring additional training in these areas, acknowledging that the pendulum has swung far from college and career counseling (West, 2020).

High school students often believe they know what they want in terms of careers in medicine or other health professions. However they may lack both the knowledge of what these pathways entail and self-efficacy to remain on this path once at the undergraduate level. Pipeline/pathways programs in conjunction offered to students in high school offer solutions to this problem; exposing students to science and to health professions. Early exposure can increase the likelihood students stay the course and follow through with a health career. For example, two pipeline programs designed to steer the interest of high school and college students towards health care professions are The Health and Science Enrichment Programs (HSEP) and the Center for Future Health Professionals (CFHP) at UC Irvine School of Medicine. These programs emphasize student involvement in research and pair participants with college students or medical students in mentoring relationships (Pediatrics, 2021). It is evident that both experiential learning and partnerships with higher education institutions supporting pathways programs can

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help students become more self-directed in their education and more knowledgeable when it comes to their individual strengths and abilities when choosing a career. Programs that support curricula beyond traditional textbooks and programming are critical in closing the achievement gap (Flowers, n.d.). Enhancing school-based career development from counselor to student can improve levels of college and career readiness. Career development activities allowing students the opportunity to explore the world of work and participate in the real-world applications of academic subject matter can engage students in their school work, motivating them to achieve their goals (Falco & Steen, 2018)

STUDENT-COUNSELOR CASE STUDY

To find out more about students' school counseling experiences, Nikolas, a sophomore enrolled in Brown University's Program in Liberal Medical Education (PLME), was interviewed. PLME is a combined baccalaureate/MD program in the Warren Alpert Medical School that combines students' undergraduate education and professional studies in medicine in a single eight-year program. Nikolas attended the same mid-size suburban public high school in Rhode Island as the students interviewed in the CTE Medical Pathways program, yet he was not enrolled in this particular health science pathway; rather, he chose a traditional high school curriculum for all four years (Montaquila, 2021).

At the onset of his freshman year of high school he met with his school counselor who guided him on the most appropriate science courses to achieve his career goals. Early on in high school, Nikolas had a strong desire to apply Early Decision into Brown's PLME program, despite being in a traditional course of study and not part of his high school's medical pathways curriculum. Having knowledge of what an undergraduate premedical curriculum would entail, his counselor suggested he take advanced level biology, chemistry, physics and mathematics courses. He was advised to spend time outside of school exploring his interest in public health by taking a college level course. His counselor also discussed the competitiveness of admittance to the PLME program, so he could take advantage of opportunities over the course of his four years to become a strong applicant.

With knowledge of the requirements needed to gain admittance outright to a medical school program, Nicholas' counselor made a plan with him to obtain and demonstrate proficiency in non-cognitive traits, including the necessary clinical, research, oral communication skills, and community engagement competencies needed for medical school admission. Over the course of his four years of high school, Nikolas expanded his profound interest in ophthalmology by shadowing surgeons, volunteering each summer at a camp for blind children, and seeking a professor/physician at a local university to work under to expand scientific research skills. He explored experiences outside of his comfort zone, such as traveling globally to volunteer with a medical team. At the end of his four years, Nikolas had a clear understanding of what it took to become a physician and what his premedical curriculum would look like at the undergraduate level. Had he not had the proper college advising and a counselor who possessed this premedical knowledge, Nikolas's future could have been drastically different.

Nikolas was an exceptional student who had a clear vision of what he wanted for his future. For most students, however, this is not the case, and many declare their interest in a health career at age 18 without any career exploration exercises or formal counseling. Many students choose nursing and medicine as careers because they are familiar: those are the healthcare workers with whom they interacted throughout childhood. However, they often have unrealistic expectations of what it takes to attain a degree in these careers, assuming the pathway to a health profession is going to be a lot less competitive than it

actually is. A student choosing a health career at such a young age often has no real exposure or career experience to back up their goals or has completed no career discovery to see if a health profession aligns with their personality or skill set.

Nikolas had the ideal school counseling experience and was successful because of it. Most students, however, don't receive this level of support, which is why they are unsuccessful in their postsecondary and career planning. Unfortunately, the majority of public high school students in the United States fall victim to being just another number on a large counseling caseload, and wind up being pigeonholed due to limited access to a variety of science courses.

HOW CAN ASSESSMENT OF CAREER INTERESTS HELP?

Earlier sections of this chapter note that large student caseloads, combined with increasing emphasis on retention and student success, and often mandates for associated success metrics, make providing career planning and career-related advising in public high schools challenging. This strain is further compounded by a documented increase in secondary students' health and mental health needs (Brown & Trusty, 2005) and other pressing social factors. However, research strongly suggests that career counseling in secondary schools is key to helping students understand the connection between staying in school and their future careers (Kenny et al., 2006; Symonds et al., 2011). Helping students identify and understand their career-related interests, knowledge, and abilities is a traditional role for counseling professionals, and health professions have long been a career destination for students seeking stable jobs with high pay.

However, as noted earlier in this chapter, the specialized knowledge required to gain admission to graduate healthcare training programs has intensified the advising picture and the scope of services offered by school counselors and pre-health advisors has expanded. In the past, perhaps the most important responsibility of high school advisors was helping students identify and decide upon their career goals, locating relevant job or educational opportunities, and then offering organized and efficient ways to complete the college application. For students specifically interested in health professions, mapping out the necessary coursework and locating relevant shadowing and/or research experiences also were key; along with orienting students to standardized admissions testing experiences; discussing and drafting polished personal, work, and activity essays, and the other components of applications; and, finally, preparing students for the in-person interview process. However, the range and types of assistance pre-health advisors and counselors provide has increased exponentially.

For example, Edwin and Hussman (2020) recently analyzed data from the National Center for Educational Statistics' High School Longitudinal Study of 2009 and showed in addition to caseload size, the following factors correlate with the amount of time school counselors spent on students' career planning concerns: school control (public or private), school locale (urban, suburban, town, or rural), school type (regular, magnet or charter), prioritized counseling goals (individualized achievement, personal growth/development, preparing for post-secondary education, preparing for work roles), violence (physical contact, physical abuse, bullying, racial tension, etc.), and school problems (absenteeism, dropping out, class cutting, etc.). Excepting, perhaps, prioritization of counseling goals – that is, whether counseling-related resources are directed more towards individual students' achievement, their personal growth and development, preparation for college, or preparation for broad work goals – such issues are systemic and largely out of the control of any counseling team.

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Despite these demands, considerable research evidence shows school counselors can and do make a difference through group-based interventions that address students' career aspirations (Poynton & Lapan, 2017) and self-efficacy (Falco & Summers, 2019; Glessner et al., 2017). Assuming it would be difficult for the average advisor to offer tailored career interventions for each of their pre-health students, we argue that one specific advising activity is critical: career-related assessment. At the Virginia Commonwealth University Health Services Academy, students complete the Self-Directed Search (SDS).

John Holland's SDS enjoys wide acceptance and use in career-related counseling. First published in 1970 and most recently revised in 2017, the SDS is a reliable and valid measure of career-related interests that is said to simulate the basic set of activities that occur during individual career advising meetings. The SDS is available in several formats (paper, online) for several groups (Form R, Form E, etc.) from the publisher, Psychological Assessment Resources Incorporated (PAR Inc.). There is an online version of the test (called the StudentSDS), used in the VCU Health Sciences Academy.

Major components of the StudentSDS are an *Assessment* booklet, which is what most people would call the career 'test,' and several materials (i.e., the *Career Finder*, and the *Educational Opportunities Finder*) that help students 'find' possible careers but connect the results of students' testing to real-world job titles. The process of testing and connecting approximates the key feature of nearly all career counseling: that is, helping individuals to find a 'fit' or a 'match' between their career interests and real-world labor market opportunities. Counselors can help people find their career 'fit,' through informal discussions and other activities. The SDS *systematically* walks students through a process of considering (1) their career aspirations, (2) their career interests, and (3) their career-related competencies, and (4) their career abilities. Hence the process is comprehensive and methodical, and the SDS has been validated by a great deal of academic research.

Holland created the *You and Your Career* booklet as an add-on "to make the SDS a more complete and self-directed experience" (Holland, 1985, p. 8). One purpose of the *You and Your Career* booklet was to explain, in a matter-of-fact way, Holland's career theory and the concept of person-environment fit or the idea that individuals will search for careers that match their work needs and interests. The *You and Your Career* booklet has evolved into the *You and Your Career Future Workbook*, which adds additional reflective activities and exercises specifically shown to increase career exploration.

Although the idea of career-related 'testing' or 'assessment' may sound highly specialized, counselors or classroom teachers can and do frequently use the SDS with their students to identify occupations of interest. Additional SDS-related options are available for well-resourced schools. A no-cost reliable and valid Holland-based assessment also is available from O*Net online (www.onetonline.org), a website developed by the U.S. Department of Labor, Employment and Training Administration. Regardless of the method used to help students assess their Holland Codes, this information is very useful in practice. A closer examination of Holland's RIASEC [Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C)] categories shows why.

The most critical information that emerges from administration of the SDS is a set of scores called a "Holland Code" which emanates from John Holland's theory of careers (1996). Holland proposed his theory which is sometimes called the RIASEC model, in 1959, and it has been the dominant way of conceptualizing career and occupational information for well over half a century. As such, the model captures "the fuel that drives people to direct knowledge, abilities and the force of personality to a particular set of activities" (Lowman, 2022, p. 28) - that is, career-related interests.

Holland's RIASEC types are said to describe both individuals' work personalities and occupational environments. This linkage is key, because once a person's Holland Code (their measured career inter-

ests) has been assessed, they can be matched to jobs, careers, and educational opportunities that exist in the real world. This is because jobs, also, can be assessed using RIASEC types. In essence, then, a person's Holland Code is not only a straightforward and highly useful way of capturing and ordering a specific individual's career preferences – but also a means to facilitate a good person-environment fit or job match in the real world. Holland initially proposed that individuals could best be described by their resemblance to only one of his categories. However, he later revised this notion, suggesting that two or three of the categories are necessary to transmit the dominant interest patterns of most individuals or of most vocational environments. Here are brief descriptions of Holland's occupational types:

- **Realistic Type:** describes individuals who prefer activities that entail the explicit, ordered or systematic manipulation of objects, tools, machines and animals; and who have an aversion to educational or therapeutic activities.
- **Investigative Type:** these people tend to prefer activities that entail the observational, symbolic, systematic, and creative investigation of physical, biological, and cultural phenomena in order to understand and control such phenomena; while having an aversion to persuasive, social, and repetitive activities.
- **Artistic Type:** this type prefers ambiguous, free, unsystematized activities that entail the manipulation of physical, verbal, or human materials to create art forms or products; and tend to have an aversion to explicit, systematic, and ordered activities.
- **Social Type:** describes those who prefer activities that entail the manipulation of others to inform, train, develop, cure, or enlighten them; and who dislike explicit, ordered, and systematic activities involving materials, tools, or machines.
- **Enterprising Type:** includes those who prefer activities that entail the manipulation of others to attain organizational goals or economic gain; and who have an aversion to observational, symbolic, and systematic activities.
- **Conventional Type:** describes individuals who prefer activities that entail the explicit, ordered, systematic manipulation of data, such as keeping records, filing materials, reproducing materials, organizing written and numerical data according to a prescribed plan, operating business machines and data processing machines to attain organizational or economic goals; and who hold an aversion to ambiguous, free, exploratory, or unsystematized activities.

Again, a key feature of the RIASEC typology is that it can help organize career-related information for both occupational environments (career, job, educational opportunity) and people. The central idea is making a 'match' between a given student's interests and the demands and offerings of their chosen career will lead to positive vocational outcomes.

In terms of both practice and research, there is a vast body of knowledge regarding how to help people with career concerns. Holland Codes have been associated both with college majors and close to 13,000 separate job titles. So, once students "know" their Holland Codes they can begin to consider the degree to which they 'match' with specific healthcare professions – as a starting point for refining aspirations. It is important to note having a 'match' (or not) with a specific profession in no way means students should enter a particular profession. These 'matches' are a starting place for further exploration. In addition, matching (or not matching) with a given career says nothing about students' capabilities, as the test does not measure objective abilities. Holland Code information (as obtained through the SDS or another means) can be a way to initiate critical career discussions.

Advising the High School Pre-Health Student

It turns out that many students have not fully considered how their interests relate to career decision-making. In high school students it is estimated that only about 10% of 11th graders envision themselves in STEM-related careers (Saw et al., 2018); whereas far more students have an interest in the helping professions. But herein lies a problem: most students do not realize graduate-level training for health professionals (physicians, dentists, physical therapists, pharmacists, nurse practitioners - all also high-status jobs) is heavily weighted towards science. In short, students confuse healthcare service - helping others - with healthcare/medical science.

Consider, for example, the Holland Code associated with nearly all physicians (MDs) leads with the *Investigative* theme, involving work with ideas, and requiring an extensive amount of thinking, searching for facts, and complex problem-solving. Although many people-facing physicians also have strong *Social* interests, which involve helping, teaching, communicating with and providing services to people – this interest set generally is secondary to *Investigative* (for medical doctors). And of course, the gateway to the profession of medicine is an extreme case of an *Investigative* environment requiring a great degree of commitment to medical science. It follows that the long process of earning a doctoral-level medical degree (i.e., M.D., D.O.) necessitates interest in science over service.

VCU HEALTH SCIENCES ACADEMY

To bridge the gap between high school and college, VCU offers high school students in the surrounding communities an intensive health careers exploration program, Health Sciences Academy (HSA). HSA's mission is to “help high school students make informed decisions about the health careers they want to pursue after high school.” (VCU Health Sciences Pipeline, 2021). HSA is a health careers pipeline program and serves the community by exposing pre-health, high school students to the professional training programs available on the Medical College of Virginia (MCV) campus. Since 2008, HSA has enrolled 1312 high school students interested in pursuing health careers after finishing high school. University/high school partnerships have been formulated to promote diversity in professional school program attendance. As a result, the majority of the high school participants are from minority groups, underrepresented in the healthcare workforce. All partnering high schools are public, one is a health sciences specialty center, and two are located in the high poverty, Richmond, city school district. Many of the high school participants are from lower socioeconomic backgrounds and are seeking to be the first in their family to attend college.

Health career exploration activities are delivered to high school sophomores as part of their high school curriculum throughout a 15-week period. The curriculum includes lectures from health care workers in different professions, field trips to professional program facilities, and one-on-one mentoring on career and major decision-making.

Use of the SDS in Health Sciences Academy

High school students start their journey in HSA by taking the SDS career inventory (Par, 2021). Prior to taking the SDS, students are told results help them evaluate careers they are exposed to throughout the 15-week period they are enrolled in the class. One 90-minute class session, a reflective writing assignment, and a capstone presentation assignment are dedicated to processing students' SDS results

For the class session, high school students and their mentors arrive with a summary of their SDS results. During the session, students are given an overview of the SDS. Each Holland (1997) code is described, and students are presented with examples of how tasks associated with specific health careers relate to each code. Students learn they can use their scores on Holland's Investigative code to determine if their interests, values, and skills align with aptitude for science courses and processes for diagnosing patient conditions.

Students are taught to interpret their summary scores and learn how they can apply strengths and weaknesses to making decisions about careers and college majors. Once students understand their summary scores, they are subdivided into six groups. Each group is composed of students who scored highest in one of the six codes. (i.e. one group for social, enterprising) Groups are prompted to discuss preferred academic and extracurricular activities and hobbies. Group members process results by making associations between tasks they most enjoy and their strongest code. For example, a student in the enterprising group typically reports enjoying the competitive nature of being an athlete and playing sports. Students are then tasked with grouping into their lowest scoring code. In this group activity, students look at the tasks identified by those who were highest-scoring and reflect on whether or not these are their preferred activities. For example, a student who scores low in the social code will reflect on whether he or she likes to be engaged in intensive team-based activities like soccer or basketball.

Once high school students learn to associate their strongest and weakest codes with their preferred and least preferred activities, they work with mentors to apply the SDS to making decisions about college majors and careers. This part of the career decision making process is done in the form of a written project. For the project, students research daily tasks of their chosen health career and make associations between these tasks and their strongest code. The SDS (PAR, 2021), O*NET (2021), and Occupational Outlook Handbook (Bureau of Labor Statistics, 2021) are resources to provide high school students depth of knowledge about tasks associated with specific health careers. The final part of the written project requires reflection relating to whether or not the tasks associated with their preferred health profession align with their strongest code identified by the SDS. Students also must align their choice of college majors with their strongest code identified by the SDS. If the students are unsure of their career or college major, they use the data from the SDS to explore possibilities that align with their strongest codes

In response to the written prompt for the SDS project, one student responds, *“My career goals are to become a Pediatrician or a Gynecologist and to own my own medical practice. I will need to have a strong social and investigative skill set for this career. I am a very introverted person so knowing that I need social skills opened my eyes and showed me I either need to build these skills or choose a different profession”* (Anonymous 1, 2021).

Another student responds, *“When I chose nursing as a career, I did so because I am highly social and love to interact with my teachers and friends at school. When we did the simulated patient activities at VCU School of Nursing, I realized a nurse must also be investigative to make a proper diagnosis and treatment plan. Investigative was my lowest score and I now realize I must explore this part of myself before I come to a final decision on the health career pathway I will pursue in college”* (Anonymous 2, 2021).

For the capstone portion of the course, high school students design and deliver a 10-minute presentation on their career trajectory after high school. For this project, students associate specific aspects of their college major and career choice with strengths identified by the SDS. In the final presentation, students also identify a process to reconcile any weaknesses between major and career ambitions and SDS results. The final presentation must link high impact exposures they have had in the lecture and field trip portions of the class with strengths identified in self-directed search results.

Career Decision-Making Self Efficacy

Self-efficacy beliefs, or an individual's belief that they can perform specific behaviors to achieve particular performance outcomes, are the most central mechanisms of personal agency (Bandura, 1989). Effective career decision making behavior is influenced by self-efficacy beliefs, outcome expectations, and personal goals (Lent et al., 1994, 1996). Research indicates (Alberta & Hird, 2011) significant differences by race and major (declared, undeclared), demonstrating that white college students have higher career decision-making self-efficacy and lower trait anxiety than their minority peers. Anxiety over not being accepted or allowed to participate in the world of work in ethnic minority populations results in lower levels of achievement. (Helms & Piper, 1994).

The Career Decision-Making Self Efficacy Survey (CDMSE; Betz & Taylor 1994). is used to measure the program impact on students' level of confidence in making career decisions. Each student takes the CDMSE survey at the beginning and conclusion of the program. Growth in CDMSE is determined if there are higher values on the post-test program survey results. An analysis of the results over the past few years demonstrates the program curriculum has a significant impact on the high school student's skills at goal selection, information gathering, career problem solving, self-appraisal, and career planning. Focus groups with HSA alumni and mentors reveal integration of the SDS into the curriculum increases levels of efficacy in career decision making, particularly in the planning and goal setting constructs. These findings are significant, given minority student populations enter college with lower levels of CDMSE (Albert & Hill, 2011).

The five constructs of the CDMSE (Betz & Taylor, 1994). are described in more detail below.

- **Goal Selection:** The ability to match one's own characteristics to the demands and rewards of careers so as to identify one or more majors or careers to pursue.
- **Information Gathering:** The ability to locate sources of information about college majors and occupations, including the ability to identify and talk with people employed in the occupations of interest.
- **Planning:** Knowing how to implement an educational or career choice, including enrolling in educational programs, job search, resume writing and job interviewing.
- **Problem Solving:** Being able to figure out alternative plans or coping strategies when plans do not go as intended.
- **Self-Appraisal:** The ability to accurately appraise one's own abilities, interests, and values as they relate to educational and career decisions.

Health Sciences Academy Tracking Data

In addition to building students' self-confidence with making decisions about college majors and careers, HSA students have been successful in navigating through the college environment and graduating onto professional programs. According to the most recent annual report from the VCU Health Sciences Pipeline 2020 Annual report (2021), 53.6% of program alumni enrolled in a health professions or health sciences related program. Student tracking data also indicates 95% of program alumni who enter VCU undergraduate programs, graduate from VCU in 4 years.

RECOMMENDATIONS FOR ADVISOR AND HIGH SCHOOL PARTNERSHIPS

There are many ways universities can assist in filling the gaps high school students experience in transitioning to college. Universities can provide shadowing experiences, mentorship from health care professionals, and better training for school counselors. HSA presents a model for high school to build career decision making self-efficacy skills. High schools need help from colleges and universities in their communities that have advising resources, professional training programs, and clinics. It is recommended that pre-health advisors or medical school faculty partner with local high schools to give pre-health students a more robust, intensive, and meaningful career exploration process. Essentially all high schools are in need of enhanced health career preparation; however, public schools and high schools with large populations of under-represented minority student populations are most in need of these services. Colleges and universities can forge high school partnerships based on community-identified needs and available resources.

NEED FOR PARTNERSHIPS BASED IN SCIENTIFIC COURSE CONTENT

Many pre-health students enter their undergraduate experience unaware they will be advancing the science curriculum they started in high school (Golini, 2021). Interventions to assist with career decision-making are crucial for student success in college. With that said, more work also needs to be done in bridging the gaps between the scientific coursework students are exposed to in high school in order to better prepare them for the rigor of college level coursework.

It is imperative college science departments invest in their local high schools. Both students and teachers need additional exposure to the material covered at the collegiate level. These partnerships can be formulated to provide high school students dual enrollment coursework, access to college level lectures, and/or visits to lab facilities.

CONCLUSION

There are significant gaps in the academic and school counseling experience high school students have in their process of preparing for and choosing a health career. An overwhelming majority of first year college students are choosing medicine without considering other health careers, and most who contemplate or attempt to take the prerequisite sciences never complete them (Bauer-Wolf, 2019). If these gaps are not filled, colleges and universities will continue to experience dramatic rates of attrition and the healthcare system will lose out on recruiting a diverse pool of talented practitioners. However, programs like VCU's HSA instill confidence in URM students by challenging them to integrate their interests, values, and skills into their career and major exploration processes.

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Chapter 17

The Playing Field Is Not Level: Advising Disadvantaged Students Through Undergraduate Education – Pre-Health Student Preparation for the Next Step

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ABSTRACT

Disadvantaged students face many obstacles and roadblocks on their journey to becoming a healthcare professional. Concepts such as the bachelor's hidden curriculum (BHC), imposter syndrome, and limited cognitive bandwidth provide a framework for pre-health advisors working with these students to understand the constraints under which disadvantaged students might navigate. Advisors familiar with these theoretical constructs can provide more pointed and relevant advice to these students as they work toward their goals. The COVID-19 pandemic and the increased racial unrest following the summer of 2020 add additional stresses and obstacles to aspiring health professionals. This chapter revisits the theoretical constructs while examining in greater depth the additional burdens of the pandemic and increased racial unrest. Case studies are also presented to further illuminate key points.

INTRODUCTION

The term disadvantaged student, for the purposes of this discussion, includes a wide array of student sub-populations. Students considered members of under-represented minorities, economically challenged, first-generation college students, from rural backgrounds, and others who identify outside of the majority mainstream culture fall within the disadvantaged student designation. Reichard-Brown, Wood-Hill and Watts (2020) discussed the impediments that disadvantaged college students encounter during their un-

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dergraduate education. While many of the ideas and conclusions featured in that work remain viable and important, the educational process changed drastically since that work was published in January 2020. The pandemic resulting from the COVID-19 virus altered the landscape of higher education, probably forever (Goldrick-Rab et al., 2021). In addition, the ongoing racial and social unrest and other social justice issues including the social determinants of health care further complicate these students' lives and impact their ability to become competitive applicants to health professions programs (Lui & Modir, 2020). The previous work focused on students applying to medical school, this chapter encompasses a broader focus on pre-health professions students pursuing a variety of health careers.

BACKGROUND

The COVID-19 pandemic altered the delivery of education and the processes of student learning. The 2021 #RealCollege Survey polled over 100,000 college students, (Goldrick-Rab et al., 2021) found that self-reported COVID-19 infection rates were higher among racial/ethnic minorities. One unique finding of these studies indicated that students self-reporting COVID-19 infections experienced significant food insecurity with an odds ratio of 1.7-1.8 depending on the method of analysis. This new finding concerning food insecurity compounded with under-represented minorities reporting significantly higher levels of COVID-19 infections suggests that the COVID-19 pandemic is putting disadvantaged students at further risk in ways not previously considered (Goldrick-Rab et al., 2021). The summer of 2020 fermented increased racial unrest and further emotional trauma and stress which remains ongoing (Clay et.al, 2021). This chapter discusses advising pre-health students from disadvantaged backgrounds with additional focus on the recent developments of the pandemic and racial unrest.

THE PLAYING FIELD IS NOT LEVEL

Even prior to the COVID-19 pandemic, disadvantaged students struggled with full participation in online classes. *The Chronicle of Higher Education: Focus on How to Help First-Generation Students Succeed* (The Chronicle of Higher Education, 2017) presented several articles which discussed that the playing field is not level, and students feel as though they do not fit within the college community. Often, they did not have the bandwidth, internet speed or Wi-Fi access to fully participate. Many relied on free Wi-Fi services available on campus or internet connections through commercial locations.

The Covid-19 Pandemic Had Greater Impact on Disadvantaged Students

With higher infection rates, disadvantaged students faced more severe consequences regarding mandated quarantine and the necessity of working from home in an isolated environment. Students and faculty needed to quickly learn how to use new online platforms and technology. (Round Table Report, 2021). Training for these new innovations required internet access with an appropriate level of bandwidth, leaving students experiencing technology issues without the most recent resources. It has been suggested that some of the technological changes adapted during the pandemic may become permanent features of college classes, potentially driving higher education further out of reach for underprivileged students experiencing technical issues.

The Playing Field Is Not Level

Online learning resulted in uneven education at best and non-existent education at its worst (McKenzie, 2021; Povich, 2020). From secondary school to college, disadvantaged students faced myriad problems associated with the pandemic. In addition to technological challenges, some students found the financial hardships generated by the pandemic required that they devote much more time to employment (Swenson & Ghertner, 2020). While many colleges and universities during Fall 2021 strove to return to in-person classroom learning, the classroom atmosphere did not match that prior to the pandemic. Students attending in-person classes would have been expected to adjust to sudden switches to remote learning, due to either individual quarantine, or colleges and universities returning to more limiting shelter in place restrictions. Faculty and staff experienced abrupt changes in policy or guidelines as situations evolved on campuses and many needed to literally change teaching modalities overnight. Ezarik (2021) reporting on the *Inside Higher Ed* College Pulse Survey discussed changes in learning and expectations during switches to remote learning. Issues included students reporting lack of engagement during remote lectures, lessening of workloads, and the replacement of exams with projects. Students felt, for the most part, that instructors seemed extremely flexible. This increased flexibility became a two-edged sword, however, with increased levels of academic procrastination resulting in students falling behind with their work. The article commented on how faculty struggled with finding the balance between fairness and rigor. Students whose course work involved three and probably four semesters of online instruction will have less experience with more traditional in-class instruction for the foreseeable future. These changes in student learning modalities necessitated during the COVID-19 pandemic could potentially become a permanent part of higher education. Instructors may continue to shift class materials and assessments to digital formats. Most certainly, incoming classes of students for the next four or five years, due to their pandemic learning experiences, will have adopted different learning styles. How these shifts in learning styles could impede student success in more traditional instructional settings remains to be determined.

The Pandemic, Racial Trauma, and Cultural Racism

In addition to the pandemic, the death of George Floyd in Minneapolis during Summer 2020, sparked increased levels of social protest and unrest. Racial inequality, health disparities, and massive unemployment focused a more intense light on the inequities faced among citizens in the US and abroad, leading to increased stress and cognitive dissonance for all. Johnson-Agbakwu et al. (2020) noted that the pandemic highlighted racial disparities in health care and structural racism. The emotional, physical, and financial toll continues to be felt most deeply by disadvantaged students, particularly students of color. Applewhite (2021) talks about how it feels to be a minoritized scientist a year after the George Floyd killing. Liu and Modir (2020) discuss not only the disproportionate impact the COVID-19 pandemic is having on communities of color but also how the pandemic exacerbates racial trauma and cultural racism which people experienced prior to the pandemic. Notes on History, Myth, and Race in US Medical Practice 1619-2020 (National Academy of Sciences, 2020) concisely outlines the impacts of racism on medical practice in the United States. The book chapter reviews many well-documented cases of racism in medical practice while highlighting issues occurring today such as the availability and use of ventilators for COVID-19 patients. All students who aspire to careers as health providers must not only process and understand centuries of medical racism including the barriers which remain present today. As advisors we should be asking ourselves how this might influence our students' choices.

Graduate programs in the health professions include a strong focus on the natural and social sciences. To be competitive, undergraduate students must excel in their STEM courses. Unfortunately,

unconscious biases of teachers, administrators and even fellow students starting as early as elementary school, can lead to gaps in student interest and performance in STEM prior to entering undergraduate education (Butrymowicz, 2017; Dee & Gershenson 2017). The participation of scholars of color in STEM remains stagnant for a multitude of reasons. Consequently, students of color continue to be much less likely to encounter faculty members who look like them or share a similar background (Miriti, 2020). Disadvantaged students struggling with STEM course work from their very first day of college may be reluctant to ask their instructor for help. In addition, racial bias may creep into letters of recommendation, or letters of reference written by majority members (Powers et al., 2020). Capers et al. (2107) looked at implicit bias testing results for all 140 members of the Ohio State Medical School Admissions team. They found overwhelming implicit bias favoring white applicants which seemed to be most prevalent in faculty members and in males. Cloutier (2021) argued that the MCAT and other standardized tests were a source of bias before the COVID-19 pandemic, with the pandemic compounding the problem. These current conditions will continue to impact the barriers and circumstances discussed below; Bachelor's Hidden Curriculum (BHC), cognitive bandwidth, and Imposter Syndrome. Advisors will need increased patience, understanding and empathy as we encourage our students to pursue the health care professions.

The Hidden Curriculum in Undergraduate Bachelor's Education

The Hidden Curriculum is a theoretical construct first put forward 50 years ago. The Hidden Curriculum includes values, intergroup relations and celebrations that enable students' socialization processes (Kentli, 2009, p. 83). The concept broadened to include the unspoken attitudes, behaviors, values, and institutional expectations that students must successfully navigate to ensure satisfactory progress through the formal education curriculum (Kentli, 2009; Margolis et al., 2001; Smith, 2013). The concept of the Hidden Curriculum sparked a great deal of educational research mostly focused on K-12 education. Unfortunately, limited research focused on higher education, particularly undergraduate, bachelor level education. White and Lowenthal (2019), Smith (2013), and Margolis et al. (2001) explored some areas specific to undergraduate education. Their works serve to illuminate the difficulties disadvantaged students encounter when trying to be successful within the educational system in general but specifically within higher education. The Hidden Curriculum in health professions education takes on a different meaning specific to the process of educating health professionals (Hafferty & O'Donnell, 2014). The term BHC used by Reichard-Brown et al. (2020) discussed Hidden Curriculum issues pertaining only to undergraduate education.

Undergraduate students are cognizant of the academic requirements to successfully fulfill their institution's formal curriculum. They may not know or understand the informal curriculum which encompasses co-curricular activities, student life expectations, work-study programs, and financial aid. The BHC includes unspoken messages and implied behaviors often specific to a particular institution. The BHC includes ongoing institutional behaviors, frequently labeled University "traditions". Students from diverse backgrounds may find that their institution, as well as many of their peers, subscribe to unfamiliar values, mores, and attitudes, including implicit bias (Elliot et al., 2016).

The BHC in most undergraduate colleges and universities ebbs and flows with changes found within individual educational institutions. An institution's BHC may also reflect changes in the dynamics of the student body. Expectations constantly evolve and shift, however, in some cases, the speed of permanent change can be glacial. At times the adjustments in an institution's BHC, while impactful, may address immediate concerns (i.e., recruitment and retention of disadvantaged students), but the foundational basis

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of the informal BHC can remain largely unchanged. Issues such as gender, race, and class will continue to shape hidden curricula (Esposito, 2011). Prior to the COVID-19 pandemic, students could become accustomed to the policies, procedures, and traditions of a specific college or university and learn to navigate its unique BHC. In March 2020 many campuses closed, and students were thrust into a learning environment with which very few had any previous experience. In this shift to remote and hybrid learning, disadvantaged students became even more disadvantaged (Goldrick-Rab et al., 2021, Povich, 2020). These students needed to learn the hidden curriculum of both in-person learning on campus as well as the hidden curriculum involving remote learning which continues to rapidly evolve and change.

Imposter Syndrome, Limited Cognitive Bandwidth and the BHC

Students from disadvantaged backgrounds often worry that one day everyone will see that they really do not belong in the college environment studying with peers they perceive to be smarter and more skilled. Imposter Syndrome includes this form of self-doubt and lack of confidence (Smith, 2013) which can influence many aspects of the student's undergraduate career. The effects of Imposter Syndrome can happen throughout the student's undergraduate career. It can result in students becoming disengaged during class. They may be reticent to ask for help or stand up for themselves when others appear to make untrue or stereotypical assumptions about them or their backgrounds. To quiet this form of cognitive dissonance, disadvantaged students respond by filling their time with activities that make them feel good, but unfortunately may not add to any needed academic skill sets. They are drawn to activities that connect them to like-minded students, all struggling to fit in as outsiders to their new culture (Tenhouse, n.d.; Verschelden, 2017). Imposter Syndrome may be present in every aspect of the college experience, as the chasm between the majority experience and that of the disadvantaged student grows with each new engagement. It seems that the farther the student travels from their familiar center, the greater the risk for increasing difficulties involving Imposter Syndrome (Peteet et al., 2015). For students aspiring to a career as a health professional, the very process of applying to highly competitive health career programs reinforces Imposter Syndrome. Students experiencing new or increased effects of Imposter Syndrome, at this stage in the process, may feel as if they are less prepared, less deserving, less able, and certainly a less competitive applicant than their peers. Advisors working with these applicants need to reassure the applicant, that they do indeed have the credentials necessary to submit a competitive application.

Similarly, the concept of cognitive bandwidth should be addressed. All of us have a finite amount of brainpower or cognitive resources. Students who experienced economic disadvantage, discrimination, housing insecurity, and many of the other ills connected to poverty or other forms of deprivation, need to use more of their cognitive bandwidth for surviving and processing what is around them. Consequently, even as very young children they had fewer mental and cognitive resources to devote to learning and intellectual growth (Verschelden, 2017). The reduction in cognitive bandwidth can last for years. Students starting their undergraduate college career need to quickly learn the fundamentals of the BHC. Their level of bandwidth available for learning new academic subjects could shrink while they learn to navigate their new college environment. It is plausible that the BHC can magnify issues of Imposter Syndrome and increase cognitive bandwidth reduction as the student adjusts to a new situation and culture. The COVID-19 pandemic created rapidly changing learning environments which, for many, required using increasing amounts of cognitive bandwidth to adjust, thereby, limiting the cognitive resources available for academics and learning.

The BHC and the Pre-Health Student

Undergraduate pre-health advisers are tasked with helping all aspiring health professionals navigate the health professions' preparation and admission process. For many pre-health students, this information is provided through formal advising coupled with other information gathering skills such as student networking and internet searching. In addition, family-based values, outside opportunities, and networking with health care providers can open avenues to required information and insights into the process. The level of confidence the student feels entering the application process can often be tied to the support provided by not only advisors, but also family members and other outside contacts (Reichard-Brown et al., 2020).

Unfortunately, disadvantaged college students may not enter the pre-health admissions process with equivalent levels of understanding and preparedness (Oyewole, 2001; The Chronicle of Higher Education, 2017). These students often find the route complicated and at times incomprehensible (Chatelain, 2018). Theirs is a journey rife with nuances they cannot see, and most importantly, for which they may not be prepared. Advisors may find that they are making assumptions about students' academic, social, and cultural norms which actually fall outside of the experiences of their disadvantaged students (Smith, 2013). Compounding the students' confusion and naïveté is that some advisors may be well versed in several health professions but not all. Their ability to guide students to find their best fit profession could be hampered by their limited knowledge in some areas.

Students and their families can perceive that only one road exists to a health professions career. This road involves a science-intensive, four-year, undergraduate career, followed by immediate matriculation into a professional graduate program. The BHC recognizes that balancing course loads to maintain a good GPA is a reasonable strategy. Studies indicate that the alternation of a semester with a heavy course load with one that provides an easier course load may lead to better graduation rates (Witteveen & Atewell, 2017). This strategy may be viewed as counterproductive. Disadvantaged students and their families become concerned that the student may not graduate in four years. Many believe that having a lot of difficult science courses on their transcript is enough regardless of the grade. Some may think that finishing a program early will make them more attractive to admissions officers. Well-meaning family members proffer well-intentioned but misguided advice putting students in the precarious situation of balancing professional advisor advice with familial advice (Reichard-Brown et al., 2020).

As stated above, the interpretation of the BHC and the sense of inadequacy derived from Impostor Syndrome drives some disadvantaged students to become over-involved in campus clubs and activities (Tenhouse, n.d.; Verschleden, 2017). An overcommitted student with a rigorous academic schedule may leave no room to weather even minor setbacks. For example, a common cold can academically derail an entire semester for some of these students. They live under the mistaken assumption that more is better, thinking that awards and accolades will make up for a mediocre GPA. Families invest so much into getting these students to college that the students feel pressured into taking advantage of every opportunity (Reichard-Brown et al., 2020).

Disadvantaged applicants may sometimes be too invested in their activities and personal story to hear the reality of a poorly crafted application. Poor test scores and a low GPA cannot be offset by the hardships of life (Aspiring Docs, n.d.). Getting students to understand that tough reality while remaining cognizant of their accomplishments is a delicate dance with which advisors struggle.

Cultural and Social Roadblocks - Compounded by the COVID-19 Pandemic and Social Justice Issues

The BHC and campus culture in general are largely driven by the majority experience (Smith, 2013). For students who grew up with different social, cultural, and academic norms, the higher education environment can feel like a totally foreign experience complete with its own special language. Students whose life experiences fall outside the majority experience will face additional challenges to planning and completing a successful academic undergraduate program. Their advisors and mentors need to consider the students' own life experiences when planning a successful academic program. On top of these challenges will be added the additional stresses of compiling credentials, which include non-academic components and requirements, for competitive applications to the health professions (Reichard-Brown et al., 2020).

The BHC can be especially difficult for students who are placed in situations of responsibility regarding their family structure. Family responsibilities, including caring for younger siblings or elderly family members can create logistical issues. African American males raised by single mothers can find themselves becoming the man of the house at an early age. They become the role model, mentor, and caretaker for the younger children in their homes and within the community at large, which can necessitate them needing to put aside their dreams and aspirations (Laurencin & Murray, 2017). Prior to the COVID-19 pandemic, the stagnation in the numbers of African American males entering medicine was alarming (AAMC, 2016). As seen in the case study below, other layers of complications arise.

Reichard-Brown et al. (2020) presented several case studies illustrating the ways in which the BHC creates roadblocks for disadvantaged students. Of utmost concern is that these issues may not be readily apparent to advisors and mentors. The case studies below are unique to this book chapter and highlight the ways in which the COVID-19 pandemic and social justice issues confound already difficult situations. They represent real student interactions. The identifying information has been changed to protect the advisee's privacy; however, the situations accurately represent advisor-advisee interactions as they unfolded. Students who may have experienced food insecurity, homelessness, or poor access to health care prior to the pandemic will most likely have experienced some of these issues on a more intense level during the pandemic.

***JJ**, an African American male, was married with two small children. The COVID-19 pandemic forced his wife to quit working, thus putting a strain on their finances and their relationship. He delayed his MCAT multiple times but finally took it, earning a competitive score. Ready to apply, the stresses of working, making time for his children, and being worried about money, resulted in he and his wife having a huge fight. Neighbors called the police, and he was arrested and held for three days. While the charges were eventually dropped, JJ missed the chance to apply early in the season and believed his chances for acceptance had been ruined. He reached out to say he would not be applying, and it took several talks over the next week to convince him that he was still worthy of consideration. This experience reinforced his feelings of Imposter Syndrome and grappling with his legal issues strained the cognitive bandwidth he needed to put forward a competitive application. But more importantly, here was a young Black man arrested and jailed for several days. Grappling with the legal system and being held for three days illustrated to him how he was different from others. The issues here highlight how difficult it is to fight against the barriers disadvantaged students face. Fortunately, he did finally apply and was offered several interviews and acceptances.*

During the COVID-19 Pandemic Family Responsibilities Take Priority

During the 2020-2021 academic year many colleges and universities switched to either fully remote education or hybrid learning. Students who may have opted to a return to campus for in-person classes could not because of family obligations even though they felt they learned better in person.

Keesha, a first-generation college student, could not return to campus when it re-opened for hybrid learning in the Fall 2020 semester. Her parents were both deemed essential workers, requiring them to continue to work outside the home. Keesha, as the oldest sibling and cousin, became the baby-sitter/nanny for her younger siblings and cousins whose schools offered remote learning only. As the only adult in the house during the daytime, she needed to monitor their online schooling and ensure they kept up with the work. Not only did this create Wi-Fi and internet access issues within the home, but it also meant that Keesha could not always be available for her own synchronous online classes. She would log in to the class with the video off and then hope to watch the recorded session later. She missed valuable in-class discussion and never felt completely vested in her own education that semester. Consequently, her grades suffered.

Students whose careers are put on hold can find it difficult to explain their situation in the relatively short space of a personal statement. The longer the time they spend away from an academic environment the greater the potential for poorer letters of recommendation from faculty and staff who knew them well as a student a few years earlier. In some situations, the domination of family responsibilities may last for years.

The first-generation student may be the only one in the family who speaks English. Problems with social services, utilities, or chronic illness, require their physical presence to translate. This level of responsibility contributes to the development of an emotionally mature person. However, it can also invoke fear and guilt as the student tries to balance school and family obligations. These difficulties may follow students into their professional training, often derailing their careers at a point when the stakes have become even higher.

Isabella worked hard and earned an impressive GPA. She planned on taking a year off to work and earn money to afford her applications. Isabella's family was an immigrant family, and everyone had a green card except her father. Her father received a notice of deportation while she was at home working. All of Isabella's resources and energy shifted to helping her father navigate the immigration legal system. The process took almost four years. Isabella's dreams were not only put on hold, but they changed as she and her family contemplated what would happen if her father were deported. The familial expectation for Isabella, the oldest child, was that she would work to provide income for the family while her younger siblings continued their education. Happily, Isabella's father did obtain his green card, but Isabella's future career path remains uncertain. The BHC assumes students put their career goals and aspirations as their utmost priority. A recent conversation with Isabella indicated that she was ready to move forward with her life and her career. However, her parents still expected her to help younger siblings with their college applications. She acknowledged this was unfair and vowed to put her career and goals first. However, she felt guilty about making what she referred to as a "selfish decision".

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Even prior to the COVID-19 pandemic, one wonders how many strong candidates become lost along the way or leave professional school because they could not balance family responsibilities and attitudes while trying to pursue their professional dreams.

Access to Experiential Learning Is Not Equivalent

Many students from an advantaged and/or majority background can comfortably approach their family's health care providers, relatives, or family friends for help arranging a learning opportunity. Disadvantaged students are more likely to come from a background that does not offer this kind of networking. (Thang et al., 2019). They may find it very difficult to approach a complete stranger and ask for a shadowing experience, or even for a half-hour of their time to ask a few questions. Imposter Syndrome can also come into play since they may feel they are not deserving of the needed help and attention.

People of color often find themselves living in marginalized neighborhoods which have limited access to healthcare (Anana & Hsu, 2020). Additionally, the health care provider may be of a different racial or ethnic background which complicates the students' already existing difficulties establishing networking and obtaining experiential learning (Tai et al., 2021). These factors make it difficult for students from those neighborhoods to engage in the networking and shadowing required for some health care professions. Rural students run into an additional problem, the lack of geographic density of providers (Jason et al., 2020). Often, rural health care practices are large with the providers seeing a maximum number of patients each day. Consequently, these providers may be justifiably reluctant to accommodate an observing student who could slow them down (Mueller et al., 2021). Well-intentioned mentors might suggest the student spend the summer in an urban area where many more opportunities exist. That advice, while sound from an application perspective, does not account for the student's financial situation, and the fact that they may need to make money over the summer to be able to go back to their undergraduate program in the fall. When people suggest that with hard work and determination the student will gain admission to their desired program, they can be doing the disadvantaged student a disservice. It discounts the difficulties these students must overcome and assumes that all applications operate from a level playing field (Rohr-Kirchgraber et al., 2021).

The COVID-19 Pandemic, BHC and the High Numbers Game

Statistics suggest that medical school admissions are biased toward academic achievement (GPA and MCAT) to levels beyond those that are needed to ensure successful graduation from the program and eventual licensure (Baugh & Baugh 2020). Successful program completion occurred 90% of the time even for matriculants with undergraduate GPAs ranging from 2.40-2.50. Similarly, matriculants presenting MCAT scores within the 20th-50th percentile exhibited a success rate of 80% which did not increase linearly as the scores increased. The BHC promotes the idea that GPA and high test scores serve as good indicators of later success in many of the health professions. This premise further undermines the confidence of disadvantaged students who may struggle more than their majority peers. The cohort of students who are under-represented in health care, rural, first-generation, and economically underserved, most likely come from a background where students take fewer standardized tests and may struggle with this type of assessment (Reichard-Brown et al., 2020).

Students need to be reminded that they are not defined by their MCAT score, followed by concrete advice and guidance on how to study and master online-standardized testing. The BHC assumes students

understand how to take advantage of the many available sources for test preparation materials. Ironically, almost all of the sources were online, even before the beginning of the COVID-19 pandemic, requiring good access to technology. The pandemic illuminated the disparities in access to technology (Swenson & Ghertner, 2020). The difficult logistics of arranging practice test-taking, and finding the time needed to prepare grew exponentially. The COVID-19 pandemic intensified financial difficulties for many pre-health students and their families, further impacting the high numbers game. The test days scheduled months in advance could be cancelled within 24-48 hours of the scheduled test time. Anecdotally, conversations with students and other pre-health advising colleagues suggest that some students may have been rescheduled as many as five times during the 2020 spring and summer testing season. Preparing for a high-stakes test to have it canceled even one time can be devastating (Corridon, 2021). Multiple times will interfere with the student's study plan and ability to be emotionally ready on the actual test day.

The Application Process - Yet Another Example of the BHC

When the time is right for the student to apply to a health professions graduate program, another set of new skills will need to be acquired. Students will be asked to supply private information about themselves and their families, which in their home culture they would never reveal to strangers. Even when the student can supply the necessary information, they can still encounter values and norms which seem incomprehensible. Many applications ask students if they consider themselves disadvantaged and explain in detail how this term may apply. The very term at best is inaccurate and at worst can be viewed pejoratively by the very candidates it presumes to help. Most candidates express pride in their family's accomplishments and bristle at being considered disadvantaged. First-generation college students see themselves as fortunate compared to their parents and grandparents. Since they don't understand the BHC, they surmise that the term "disadvantaged" applies to someone else (Reichard-Brown et al. 2020).

Levi grew up on the family farm as a member of one of the conservative religious sects found in Pennsylvania. Normally his education would have ended at eighth grade. He felt very fortunate that he was allowed to go to high school and then college. He was maybe a year older than his peers. However, he married within the age norms of that culture and became a father before graduating from college. Difficulties during the pregnancy and birth occurred while he was trying to study for the MCAT and he did not test as well as he would have liked. He would tell you he felt very fortunate to have a career choice other than farming and that despite his background and financial status he was not disadvantaged.

Students who are eligible and willing to accept financial help run into difficulties with the timeline associated with taking advantage of those programs. For example, applying for the AAMC Fee Assistance Program (FAP) before they schedule the MCAT mandates filling out the application well in advance of scheduling a test date (AAMC, n.d.). The application also requires access to both of their parent's financial information regardless of the students' emancipation or marital status up through age 26. Depending upon the student's cultural background, parents may be unwilling to release their financial records or be too proud to provide the documentation that their family lives in extreme economic need.

Other metrics used to document needs status can be problematic. One such metric is government subsidized school breakfast and lunch programs. In non-urban areas there can be difficulties with the programs being under-subscribed. Families in some of these areas will send the children to school with empty lunch bags or lunch boxes rather than admit they need food assistance. Consequently, the student

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adjusts to a level of need and does not find it exceptional. Rural students will experience increased expenses associated with the application process. In all likelihood, they will need access to a car since public transportation may not be available in the immediate area and will need to stay in a hotel the night before the required standardized exam or the interview day. If a rural student plans to use public transportation to travel to an interview city, they may still need to drive, sometimes for hundreds of miles, to get to an airport, train or bus station (Reichard-Brown et al., 2020).

The application process usually requires personalized letters of reference or recommendation evaluating the applicant's strengths and weaknesses. Many institutions, during the pandemic, require masking indoors at all times, making it more difficult to create the level of personal interaction needed for the student to become familiar to the letter writer. Classes taught remotely add further distancing even if they are taught in a synchronous fashion. Asynchronous remote learning provides no direct interaction. While these conditions affect all students, those who are disadvantaged will probably be less likely to pursue additional avenues of interaction. In addition, cultural disparities between the letter writer and the applicant will lead to less personal letters. Letter writers who do not understand the student's home culture may write very neutral letters which are of no real help. Students who belong to the majority group on campus may find the process of getting to know the faculty and staff much more comfortable and something for which they have been groomed (Smith, 2013).

The nature of the personal statement assumes the applicant is comfortable drawing attention to themselves or highlighting specific aspects of their lives. Some applicants freely share their personal stories in these essays and understand how to highlight their attributes in a compelling manner. Disadvantaged students may have stories that they do not want to be exposed in such a public way. Often their educational experiences included trying not to be noticed. They do not want to be perceived as different from their peers and, yet, when interacting with their peers it is clear they do not share the same kinds of experiences and opportunities. It does not occur to them that this makes them "special" or that their journey is remarkable for whatever obstacles they overcame or achievements they accomplished. They may feel that their lives are not noteworthy and should remain hidden (Reichard-Brown et al., 2020).

The BHC and the Interview - When Programs Require an Interview

The interview process changed with the advent of the pandemic. Most programs requiring interviews switched to a virtual interview paradigm. Again, while one might expect the playing field to become slightly more level with this development the converse could be true. Prior to the pandemic once applicants received at least one acceptance, they frequently declined or canceled an interview, making way for students who may have been further down the school's interview list. Financial and time constraints associated with in-person interviews often drove those decisions. Since applicants did not need to spend large sums of money or miss classes or work to attend interviews, many applicants took every interview they were offered, even if they did not rank the program highly on their list. This pivotal shift meant that applicants who might be good candidates on paper would not be offered an interview at all since there were no available spots. We want to reiterate the ways in which students had to learn to accommodate the virtual interview, including problem-solving technical issues such as Wi-Fi bandwidth, lighting, and finding a quiet place in a busy home for the interview to take place.

The initial joy of an interview offer can fade quickly and become a major source of stress and anxiety when the student begins to understand what will be needed and expected. The BHC expects students will have acquired certain social skill sets regardless of their background. A typical greeting usually requires

personal contact through handshaking, direct eye contact with the person with whom you are engaged in conversation, and the ability to make small talk. Handshaking and direct eye contact may not be part of the student's home culture or could even be viewed as a sign of disrespect. For students from alcohol prohibiting backgrounds, being in the proximity of alcohol even without pressure to imbibe at a cocktail party style meet and greet, can make them uncomfortable and reinforce their sense of Impostor Syndrome. Some programs will provide students with a student host to help save money. Staying with total strangers can fall completely out of the student's cultural norm and could be taboo (Reichard-Brown et al., 2020).

SOLUTIONS AND RECOMMENDATIONS FOR ADVISORS AND MENTORS

The COVID-19 pandemic changed the way we all interact with each other. Advisors, mentors, and faculty must work together and work even harder to facilitate the ability of disadvantaged students to access all available opportunities. In some respects, these opportunities widened to include a richer array of online resources. At the same time, they continue to contribute to the students' sense of isolation and feelings of not being a good fit for their chosen profession. Students who continue to deal with family and financial commitments, which may have escalated during the pandemic, must understand that they need to include these commitments in their time management plan along with their academic and other on-campus commitments. For some it will mean scaling back on things they feel are extremely important. Summer programs away from home, as well as other pressure valve solutions such as an extra year or summer semester, may not be possible for students who struggle with affording their educational costs. Helping them to find positions near home, creating a library of free materials, and developing peer study programs can work (Reichard-Brown et al., 2020). Likewise, the additional financial strain of the pandemic may not be relieved in the immediate future for some disadvantaged students. Test prep for any of the standardized tests is imperative but students who would benefit most from a structured test preparation program may not be able to afford one. Advisors should work with their Student Life, Development, and Career Planning Offices to create means for students to access not only content but practice tests as well. For students studying on campus these resources may be more readily available. For those studying remotely or undertaking a gap year, resources can be much slimmer. Advising students to make use of all the free resources offered by the health professions programs themselves can help to mitigate some of these expenses as well. Additionally, summer programs that feature test prep should be encouraged earlier, rather than later during the student undergraduate education (Reichard-Brown et al., 2020).

Sometimes, especially now, the best thing an advisor can do to support their student is to help them find the support services their families need. Most colleges have social services available for employees. Finding ways to access such support for students might be as easy as asking one's human resources department. Knowing their families have help will allow the student to expend more cognitive bandwidth on their academics and test study plans (Reichard-Brown et al., 2020).

Disadvantaged students often feel pressured to engage in "typical pre-health" experiences which for the last year and a half may not have been available to anyone. Now, with worker shortages in the health care industry and the service industries, students may need to rethink what those experiences might entail. Volunteer shadowing may still be difficult to access but working as a patient care technician or certified nurse assistant (CNA) may be obtainable. For those who may need more flexible schedules, working as waitstaff can provide valuable skills. It is not the same as treating a patient or working as a medical scribe, but skills such as organization, management, and the ability to pay attention to individual needs

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can successfully transfer to more patient-oriented environments. In terms of demonstrating a willingness to serve others, students may not grasp that this does not need to be volunteer services. Students who require a significant part-time job will not be free to spend 10 to 20 hours a week as a volunteer. Alternatives can include finding employment in areas that fall under the umbrella of community service (Reichard-Brown et al., 2020).

The BHC expects that students are college-ready the first day of classes regardless of how their educational environment may have changed in the last few years. Students coming from under-resourced, urban, or rural public-school districts may not have had access to any form of advanced work or even a high school biology or chemistry class. They are playing academic catch-up from the very first day of orientation (Butrymowicz, 2017). Frequently, these students are the best of the best in their under-resourced school. They arrive on campus thinking “I got this” and do not suspect that the playing field was not and is not level. They will need to work very hard to compensate for their educational deficiencies. College demands are unrelenting and academically escalate as the student progresses through their program. The unsuspecting disadvantaged student who spent the last few years learning online in a very relaxed environment can become overwhelmed, reinforcing the effects of Impostor Syndrome and reduced cognitive bandwidth. Their fragile self-confidence can vaporize quickly, especially when compounded by the unknowns of the pandemic, racial unrest, and of course the BHC. Identifying an advisor with some shared experiences can be an effective solution. They are in the position to offer realistic advice with knowledge of both worlds the student needs to exist within.

Financial literacy is a significant part of the BHC. Understanding and preparing for the costs involved in applying to medical school, in addition to the cost of attendance, is especially important to students who are disadvantaged and/or fall outside of the middle-class norms. Students need to know early in their college education that they must anticipate costs for the required standardized tests, the initial application, secondary applications, travel, and for deposits to hold their seats once accepted. They must also consider moving expenses and funding to hold them over until their monies become available through financial aid from their health profession program (Jayakumar et al., 2017). Planning for emergencies, at home, at school, and unforeseen equipment costs and books, will make their transition smoother. As advisors it is important to recognize the importance of supplying students with these essential details (Reichard-Brown et al., 2020).

Students may try to earn money before they apply, often resulting in an application that is exceedingly late. Missed school application deadlines or pushing the application back a year may discourage a worthwhile candidate. Attention to deadlines, shifting and increasing financial requirements and time priorities can be overwhelming for students as they prepare their application while studying. Raising these issues early in a disadvantaged student’s college experience will help them to meet these challenges successfully.

Advisors and mentors aware of the BHC, Impostor Syndrome and lost bandwidth can work to recognize the signs of a student struggling under the weight of expectations. The result of such feelings may lead disadvantaged students to fill their time with pledging, research, and a myriad of social activities that allow them to feel better about themselves. These activities, in and of themselves, are not problematic. However, using these time-consuming activities to avoid feelings of academic or social inadequacy can have disastrous results. Students avoid tutors, review of exams, and talking with advisors, hoping that somehow their other activities will fill the academic void. Advisors tuned into these defense mechanisms can gently nudge students and help them develop strategies for success. Enlisting the support of faculty and research mentors can assist with making sure such students stay on track.

As advisors it is also extraordinarily important, when talking with disadvantaged students, to make no assumptions about their responsibilities and family commitments outside of school. When the students have choices to make, guide them into realistic commitments. Help them not only understand the value of faculty connections but also facilitate those connections for students who may not be comfortable with making connections on their own. If the student has a solid relationship with another faculty or staff member on campus enlist that person as an ally. The goals are the same, the best possible outcome and future for the student. When appropriate, post success stories about previous disadvantaged students who successfully moved to the next level. Make connections with diversity officers and admissions officers at programs to which your students frequently apply. Talk to them regularly and ask for input at every step of your students' journey.

Students can be more fragile than they appear. Use positive language when talking with them i.e. "I see you got a C in first-semester biology. How can we work to improve that for the next semester?" "Yes, your GPA is not where you would like it right now, but you have plenty of semesters left to improve it." (Reichard-Brown et al., 2020).

CONCLUSION

The on-going COVID-19 pandemic and racial social unrest following Summer 2020 can contribute to even greater difficulties for disadvantaged students. These students work extremely hard to become successful health professions applicants. They understand the overt requirements needed for producing a competitive application. The application process itself produces a profound emotional effect on all who attempt admission. Even successful applicants might still question their suitability. Well-informed advisors and mentors working with disadvantaged students to mitigate the BHC and other associated issues, not only improve the application of their students, but perhaps, more importantly, help validate the students' acceptance into this new world of a health profession, thereby, potentially increasing the diversity of the health care workforce. Students entering a formal health professional curriculum with a stronger sense of self-confidence and self-worth will have more time, energy, and personal resources to put towards that training. We hope that these short discussions will increase the dialogue, awareness and understanding of what our most vulnerable students encounter on their journey and how to support their goals for careers in health care.

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Chapter 18

Pipeline Programs Supporting Underrepresented Pre-Health Students

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ABSTRACT

A diverse health professions workforce is critical to healthcare access and quality, but nurturing interest and recruiting students from underrepresented backgrounds into health science careers remain a challenge. Pipeline programs commonly target students who are underrepresented in health professions, including those from racially and ethnically minoritized groups as well as those from rural areas, low socioeconomic backgrounds, first-generation college students, and other marginalized subgroups. The work of a variety of institutions in developing pipeline programs provides many successful models for enhancing diversity in health professions programs. This chapter describes the roles institutions and pre-health advisors can play in connecting underrepresented pre-health students with well-designed pipeline programs.

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INTRODUCTION

A diverse workforce is critical to ensuring the delivery of high-quality healthcare (Association of American Medical Colleges [AAMC], 2019; Gomez & Bernet, 2019). A key component of a diverse healthcare workforce is inclusion of those who are considered underrepresented in healthcare professions. By definition, underrepresented status refers to those racial and ethnic populations that are underrepresented in a health profession relative to their numbers in the general population (AAMC, n.d.), and can be used to refer to students from other minoritized groups as well.

For decades, research has documented unequal access to and underrepresentation in health professions and other science, technology, engineering, and math (STEM) fields (Fry et al., 2021; Harley, 2006; Magnus & Mick, 2000; Marksbury, 2017; Mathers & Parry, 2009; National Science Board, 2018; Saha et al., 2008, Smith et al., 2009). Underrepresented students who aspire to enter health professions can face additional unique obstacles (Grace, 2017; Holley, 2013; Stephenson-Hunter et al., 2021). For many marginalized students, a lack of representation may influence career aspirations, as it can be hard to imagine oneself in a career with limited exposure to the field (Edelman, 2015; Southgate et al., 2015). Other barriers to health professions include insufficient academic preparedness, a lack of role models or mentorship from professionals of the potential student's race, ethnicity, or cultural background, insufficient access to advising, challenging and expensive admissions requirements and processes, and ultimately the high cost of professional school education (Agbonile, 2019; Marksbury, 2017; Roche et al., 2021).

A key strategy to enable more diverse students to enter health professions is the use of "pipeline" programs (Gardner, 2018). This term is used widely and can refer to efforts at any level of education, most frequently targeting high school or college students, to help members of underrepresented groups enter STEM fields (Katz et al., 2016). Undergraduate pre-health advisors can benefit from an awareness of pipeline programs, how institutions structure such programs, and how to help students identify potential programs which can be of benefit to them in career exploration and preparation. This chapter includes an overview of the concept of pipeline programs; a closer look at typical structures of institutional pipeline programs which are available to many undergraduates; and a guide to suggested factors for advisors and students to consider when identifying and selecting potential pipeline programs.

BACKGROUND

What Are Pipeline Programs?

The term "pipeline" is frequently used to denote a range of programs designed to diversify STEM fields, which continue to struggle to recruit underrepresented students (Fry et al., 2021). Some "pipeline" initiatives use terms like "enrichment" "preprofessional," or "diversity" in lieu of "pipeline" to describe their programs (Smith et al., 2009). While there is no universal agreement about exactly which careers belong under the STEM umbrella, health professions are typically included and thus a frequent target of pipeline programs (Fry et al., 2021). Like other STEM careers such as engineering and computer science, many health professions are not as diverse as the general population (Smith et al., 2009; Sullivan, 2007; Wilbur et al., 2020). In an effort to mitigate this problem, pipeline programs for pre-health students typically work to expose participants to professional school programs and their related careers, which underrepresented students may not otherwise consider or have equitable access to entering (Archer et

al., 2012). A primary goal is to recruit more underrepresented students into health professions (Smith et al., 2009), but a second key goal is to facilitate community-building and mentorship among underrepresented trainees (Roche et al., 2021).

Besides helping to demonstrate awareness of the need to increase diversity, pipeline initiatives provide evidence of efforts made to address disparities in the student population for higher education and professional institutions. In practice, pipeline programs can be valuable recruitment tools for institutions seeking to connect with underrepresented students, and they also serve as important information-sharing and mentorship opportunities for participants. Due to their broad range of formats, content, and approaches to data-gathering and evaluation, it can be challenging to gauge the effectiveness of pipeline programs (Hill et al., 2021); instead, evaluation is often linked to broader trends in institutional enrollment of underrepresented students (Katz et al., 2016). Many programs document how frequently their participants go on to successfully enter health professions (Stewart et al., 2020; UIC Urban Health Program, n.d). Others have been able to document improvements in underrepresented participants' sense of fit or well-being (Hill et al., 2021; Stephenson-Hunter et al., 2021).

Defining “Underrepresented” Participants

The composition of underrepresented groups can differ across professions, so a wide range of students may be eligible for pipeline programs targeting various subgroups of potential recruits. For example, in the field of medicine, the designation “URM” is often used to refer to students specifically underrepresented in medicine specifically. In medicine, Black or African-American and Hispanic or Latinx physicians are especially underrepresented, making up only 5.0% and 5.8% of active U.S. physicians despite accounting for 13.4% and 18.5% of the general population, respectively (AAMC, 2019; U.S. Census, 2019). The proportions of Black men and Native Americans in medical schools in the U.S. have fallen below their already-underrepresented levels since the turn of the twenty-first century, suggesting that current efforts to recruit and support racially diverse students are not sufficient (Laurencin & Murray, 2017; Morris et al., 2021). Across other STEM fields, programs frequently support racially or ethnically minoritized students, as they are underrepresented in many areas (National Science Board, 2018).

Diversity is constrained via other metrics as well, as evidenced by the low and decreasing rates of rural students in medical school relative to the population (Shipman et al., 2019). Alongside rural candidates, low-socioeconomic status (low-SES) students or first-generation college students are frequently included in pipeline initiatives (Brunson et al., 2010; Doerschuk et al., 2016; Saks et al., 2000). Some programs may also include LGBTQ or disabled students amidst concerns about inequitable access to STEM careers for these groups as well (Freeman, 2020). A group that is not generally underrepresented in higher education may still be targeted for recruitment into certain professions, like men in the historically female-dominated field of nursing (Patterson & Daniel, 2021) or women in male-dominated STEM fields like surgery (Mason et al., 2016). Thus, students may not know that they are considered underrepresented in a given profession and may not be aware of opportunities like pipeline programs to engage with and discover a potential career. Some students may also hesitate to seek help or identify with characteristics they perceive as deficit-based, such as first-generation or low-income status, further complicating efforts to support them (Harper, 2010; Sims & Ferrare, 2021; Yee, 2016). Advisors can play a crucial role in directing these students to best-fit pipeline programs that can help participants connect with, learn about, and potentially pave the way for entry into their profession of choice.

Stand-Alone vs. Multi-Stage Pipeline Programs

There are different entry points for pipeline programs, including pre-college options for young students. Such early pipeline programs may target elementary, middle, or high schoolers to facilitate initial STEM career interest and confidence. Some programs are “multi-stage,” meaning that they link initiatives together to connect with the same targeted students at several points in their educational trajectory (e.g., some combination of middle school; high school; early college; and pre-application for professional school). These systems can help participants navigate the entire journey into a given field. Others are “stand-alone” initiatives in which students participate once in a given program. While multi-stage programs are typically more labor-intensive and expensive than stand-alone initiatives, they can also engage more longitudinally with participants and can offer a range of progressively relevant content.

An example of a well-developed multi-stage pipeline is the University of Illinois Chicago (UIC) Urban Health Program (UHP; UIC Urban Health Program, n.d.). This collaborative endeavor has been operating since 1978 (and earlier for some of its health professions programs, such as the College of Medicine’s initiative dating back to 1969). The comprehensive approach of introducing the full range of UHP programs utilizes multi-stage initiatives organized by directors at each of the host institution’s health colleges: Applied Health Sciences, Dentistry, Medicine, Nursing, Pharmacy, Social Work and the School of Public Health. Elementary through high school students can participate in an Early Outreach Program with summer and Saturday experiences including content like SAT workshops and elective courses. Undergraduates can go on to participate in college-specific outreach focused on networking, mentoring and recruitment. Support continues throughout professional school training as well, exemplified by the UIC Urban Health Program, which offers underrepresented nursing students advising, mentoring, tutoring, and scholarship assistance. UHP programs also work within their communities by supporting efforts to improve health disparities and encouraging graduates to consider working in underserved areas (UIC Urban Health Program, n.d.).

While pipeline programs frequently focus on general STEM interest or recruitment into medicine or nursing, similar multi-stage, community-engaged health careers programs are also offered in other health professions such as dentistry (Brunson et al., 2010). Multi-stage programs can also be specific to specialties within a single profession; for example, one university’s radiology program built pipeline experiences at the high school, undergraduate, and medical school levels in order to encourage the eventual pursuit of a radiology specialty (Bucknor et al., 2019); another worked to recruit women and racially or ethnically underrepresented medical school students into procedure-based specialties (Mason et al., 2016). Multi-stage programs can be broad as well; in one example, the University of North Carolina at Chapel Hill’s Health Affairs Pipeline Initiative (HAPI) supports students from high school to college as they explore various health professions (Mitchell, 2014). Similarly, the University of Utah developed an in-depth, 4-year program that initially targets and then follows high school seniors interested in various health professions into college, focusing on providing peer mentorship and experiential learning opportunities to help students choose and apply to different professional schools (Bliss et al. 2020).

Developing multi-stage pipeline initiatives can be daunting, as they require a great deal of planning and collaboration and potentially significant funding and full-time staffing. As an alternative, institutional leadership may choose to link multiple independent pipeline programs (Saks et al., 2000). Morehouse School of Medicine, for example, has established an Office for Educational Outreach and Health Careers to oversee the many pipeline initiatives it supports (Morehouse School of Medicine, n.d.). Note that some

multi-stage collegiate programs are further embedded into an institution's formal curriculum (Davies et al., 2019; Doerschuk et al., 2016; McClain et al., 2013).

More commonly, advisors can direct students to stand-alone programs offered regionally or locally, in the summer between high school and college or before the professional school application stage (e.g., Salto et al., 2014). While time constraints can make stand-alone programs' goals narrower than multi-stage programs, the format can be more flexible and more accessible.

Underlying Concerns: The “Leaky” Pipeline Problem

Across contexts, both stand-alone and multi-stage pipeline programs support both recruitment and community-building among underrepresented candidates. Community-building is important both before and during health careers training (Dou et al., 2021; Lovell, 2015; Weaver et al., 2011), and thus can simultaneously support both undergraduate student participants, health professions students, and professionals who participate (Roberts, 2020; Vaughan et al., 2015). However, it remains crucial for students, advisors, and institutional leaders to know that simply participating in (or building) a pipeline program cannot mitigate the many root causes of the lack of diversity in health professions.

The “pipeline” analogy is popular because of persistent concerns about “leaky pipelines” (e.g., Bennett et al., 2021; Freeman et al., 2016) which compromise diversification outcomes by limiting underrepresented students' access to various STEM professions. A lack of diversity in the student populations entering pipeline programs can be rooted in overlapping, systemic issues like poverty, racism, sexism, or inequitable access to resources like high-quality STEM education (Archer et al., 2012; Blickenstaff, 2005; Smith et al., 2009). Leaky pipelines occur when an inadequate number of students initially enroll or persist in high school STEM courses or college preparatory programs, resulting in insufficient numbers of entrants and graduates from health professions programs. Geographic and economic factors like high school science course offerings and quality, for example, have long-term impacts on students' likelihood of entering STEM professions (Blustein et al., 2020; Saw & Agger, 2021).

Some scholars call for increased attention to such underlying problems, including those who argue for a “pathways” mindset for diversifying STEM professions (Cannady et al. 2014; Hill, 2019; Husbands Fealing & Myers, 2012; Santangelo et al., 2021). A pathways mindset emphasizes both supply-side changes (such as pipeline programs that encourage recruitment of underrepresented students) and demand-side changes (such as raising wages, increasing scholarships, and lowering student loan burdens). Nevertheless, as argued by Octavia Amaechi and colleagues in a 2021 call to action aimed at academic institutions, it remains feasible and important “for pipeline programs to address racism, isolation, low institutional expectations and privilege systems as they impact the success of [underrepresented] learners” (Amaechi et al., 2021, p. 729).

THE INSTITUTION'S ROLE

It is the responsibility of health professions schools to help recruit and support diverse applicants, in turn working to mitigate obstacles and enrich the diversity of their entering classes and of their fields (Bates et al., 2020; Hurtado, 2006; Smedley et al., 2001; The Society for Diversity, 2020). Professional schools can offer pipeline program participants direct exposure to potential peers, faculty mentors, admissions officers, or facilities, along with curricular insight, research, or clinical experiences which could other-

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wise be difficult to obtain (Stewart et al., 2020; Taylor, 2018). Factors like state or federal support for funding and program organization are key to an institution's approach to developing a pipeline program, while the participation of professional school students and faculty can be a central benefit to institutional involvement (Brunson et al., 2010).

State and Federal Support

Federal and state funding supports many pipeline initiatives, usually in collaboration with the professional schools which help organize them. Underrepresented students may also have the opportunity to participate in summer or year-long internships through the National Institutes of Health, some of which are open only to underrepresented applicants (National Institute of Health, n.d.). Nationwide, pipeline initiatives that are awarded federal grants typically participate in a data-gathering process that has yielded some of the most detailed reports of the benefits of such programs, and the federal government maintains lists of current grant recipients which students can review to determine which federally funded programs may be accessible to them (Health Resources & Services Administration, n.d.; U.S. Department of Education, n.d.a,b).

A key source of pipeline programs in rural and urban underserved communities is Area Health Education Centers (AHEC; Metcalfe et al., 2017; Mitchell, 2014). The United States currently has around 300 AHEC programs, created by Congress in 1971 and now operating in most states (Health Resources & Services Administration, n.d.). These programs work to improve access to healthcare in underserved areas, in particular by helping connect local pre-college students with health professionals through service learning, shadowing, and other educational opportunities. They can also collaborate with institutions to facilitate professional school students' interprofessional education (Moreno-Vasquez et al., 2021) and clinical placements in rural and urban underserved communities (Rural Health Information Hub, n.d.). A medical or nursing school in a state must apply for an AHEC grant to bring a center to its state, but the center then has flexibility to build programs and outreach to best suit local needs, often in collaboration with local secondary, postsecondary, and professional schools. All AHECs remain federally funded but many receive state funding or private funding as well (e.g., Doerschuk et al., 2016; Duke Endowment, n.d.; Focus Program, n.d.)—so local options vary significantly, and a few states have no AHECs.

The federal government also plays a role in supporting pipeline initiatives through its TRIO grants (originally named for a trio of programs that has since expanded to eight; U.S. Department of Education, n.d.a). TRIO grants fund programs which support underrepresented college or pre-college students, including low-SES, first-generation college, and disabled students. Some programs are specific to undergraduate contexts, such as Student Support Services, which provides grants to institutions which offer academic support to disadvantaged students. Others are offered to pre-college students, such as Upward Bound, to facilitate college entrance. Two programs, Upward Bound Math-Science and the MacNair program for doctoral students, may be of particular interest to pre-health students.

Another federal grant initiative, Health Careers Opportunity Programs (HCOP), develops pipelines for high school, undergraduate, and professional students from minoritized or disadvantaged backgrounds to enter a wide variety of health professions, including veterinary medicine, dentistry, optometry, and public health (Health Resources and Services Administration, 2021). HCOP programs currently exist in just 15 states. While there is demand for growth, funding of federal programs is not automatically assured; most recently, HCOP funding was at risk during 2020 federal budget negotiations (AAMC, 2020a; Nolen,

2019). Calls continue for greater state and federal funding of pipeline programs nationwide to better address healthcare worker shortages and inequitable access to healthcare (AAMC, 2020a; AAMC, 2021).

In contrast with grant-funded programs like AHEC and TRIO initiatives, many undergraduate-focused initiatives are organized, funded, and hosted entirely by the professional schools to which participants may ultimately apply, and undergraduates may only encounter such institutional pipeline opportunities. These programs can be stand-alone or multi-stage and can emphasize themes like experiential learning, networking, or recruitment into their own professional school. Emphasis is also often geographic, as underrepresented populations can be regionally or institutionally specific. In the absence of grant funding, institutional programs can be quickly modified, built, or closed year-to-year. Institutional programs can also seek private sponsorship to offset costs; in one example, a grant from ExxonMobil allowed Lamar University to extend its pipeline program after the initial five-year National Science Foundation (NSF) grant ended (Doerschuk et al., 2016).

Program Organization

Professional school pipeline programs which target undergraduate participants vary widely based on the mission, resources, priorities, and location of host institutions. Like any other pipeline initiatives, they can be as short as a day or weekend, summer-long, multi-stage, or take on a unique format altogether. One of the key challenges of designing pipeline programs is that prospective health professions students may have a wide range of needs or interests, but time and resources can limit what can be offered by a single initiative. Given such constraints, institutional organizers often choose to focus programs either on a certain profession, on a certain participant group, or on a specific academic skillset. Institutions can, however, offer multiple pipeline initiatives so that students can choose to attend more than one program or choose what suits them best (Collins et al., 2017; Diversity at Stanford Medicine, n.d.). For example, Western Carolina University offers one health education pipeline program for minoritized or educationally disadvantaged students interested in nursing and another for Native American and rural students interested in a range of health professions (Metcalf et al., 2017).

Some institutions host many separate recruitment efforts focused on diversifying individual health professions like medicine, nursing, or pharmacy, with each professional school overseeing its own pipeline initiative (Awuonda et al., 2021; Dewitty, 2021; Katz et al., 2016). These career-specific initiatives can focus on fostering interest in a profession in general or focus specifically on institutional recruitment, using the opportunity to show participants a professional school's facilities or introduce them to leadership, faculty, staff, and current students. A purposefully broad health sciences focus is also common, with an emphasis on the underrepresented group rather than one profession (Mitchell, 2014). This approach may be most appropriate for programs offered to incoming college students who are still considering various professions, or for institutions with limited funding or facilities which can instead combine resources and leaders from multiple professional schools. These initiatives may emphasize helping underrepresented students find their ideal health profession by prioritizing mentorship or hands-on learning experiences over recruitment efforts for specific fields (Salto et al., 2014).

Program organizers can also build their content around a skillset (or skillsets) which can help students enter professional school. For example, some programs prioritize improving students' study habits or academic skills, which can be especially effective for high school students as they begin the transition into college or matriculants as they enter professional school (Holley, 2013; Saks et al., 2000). Help with navigating the professional school admissions process is also common, as is research experience

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or other opportunities to increase competitiveness for professional school applications (Stewart et al., 2020). Greater awareness of financial barriers and the need for financial literacy have prompted some pipeline projects to include financial education as a core focus as well (Fritz et al., 2016).

Professional School Student and Faculty Involvement as Mentors

The institution's role in pipeline programs can ultimately be fulfilled by a variety of stakeholders who may participate in program development or implementation, including professional school leaders, admissions staff, advisors, faculty, or students. While program planning could be undertaken by any of these groups or even by full-time staff when possible, there are advantages in particular to involving underrepresented professional school students and faculty in pipeline program implementation (Muppala et al., 2021). Thus, the role of the institution can also entail ensuring that professional school students and faculty have the opportunity and support necessary to participate as leaders, hosts, or mentors for pipeline program attendees.

Centering a pipeline program around networking and mentorship yields benefits for both participants and health professions students and faculty and can help build a broader institutional culture of mentorship linking undergraduate and professional school stakeholders (Duda, 2004). The purposeful focus of some pipeline programs on connecting underrepresented participants with underrepresented peer or faculty mentors aligns with extensive research documenting the importance of building a sense of belonging (Ardoin, 2018; Bettencourt, 2021), especially in health professions (Roberts, 2020; Roche et al., 2021; Strayhorn, 2020). Engaging with underrepresented professional school students and faculty can help participants develop the "capacity to aspire" to a profession which they might otherwise not have felt confident entering (Appadurai, 2004; Holley, 2013; Southgate et al., 2015).

Importantly, some benefits specific to peer mentorship are distinct from faculty or professional mentorship or advising. Yosso (2005) argued that minoritized students benefit from accessing "navigational capital," such as the insight which peers can provide to help pre-health students navigate complex professional school preparation and admissions processes. Research across many professions has documented how peer mentor programs, buddy systems, and other opportunities to provide peer-to-peer connections can be highly beneficial to students in general and underrepresented students in particular (Haggins et al., 2018; Holley, 2013; Mohan & Mohan, 2007; Rumala & Cason, 2007). Practically, peers are often best situated to convey a sense of environment, including not just of their school but that of an institution's student body, the university culture, and the surrounding region. Meanwhile, faculty mentors can offer exposure, mentorship and insight beyond the educational trajectory (Brunson et al., 2010; Stewart et al., 2020; Taylor, 2018).

Ideally, pipeline programs can offer participants multiple forms of mentorship so that they can maximize advantages stemming from interactions with both peers and professionals. In one example, the University of Alabama's Rural Minority Scholars Program, part of its Rural Health Leaders Pipeline, connects students with peer mentors as well as rural physician mentors (Holley, 2013). Peer mentors provide a sense of community, while physicians expose participants more fully to the profession. Meanwhile, academic activities (such as lab experiences) help participants (entering college students) prepare for the demands of collegiate STEM courses. Ultimately, the University of Alabama's program involves collaboration between stakeholders both within and beyond the institution, including students, faculty, advisors, and community physicians. For programs like these, the institution becomes a powerful networking and information-sharing hub connecting underrepresented students with a range of sup-

port and, hopefully, increasing the likelihood that students will ultimately enter and succeed in a health profession (Taylor, 2018).

Finally, institutional pipeline programs can also be grassroots endeavors, in some cases created or led by underrepresented professional school students or faculty and quickly adapted to new institutional contexts. For example, the University of Kentucky Medical Education Development Program (UKMED), a student-driven program for potential applicants to medical school, was itself inspired by another pipeline initiative for a different STEM field (Achenjang & Elam, 2016). UKMED was based upon the Georgia Institute of Technology Focus Program, a weekend-long recruitment event designed to increase the number of graduate degrees awarded to underrepresented students (Focus Program, n.d.). Later, the UKMED program was re-adapted by a previous UKMED participant who developed the “Look at Larner” program at the University of Vermont Larner College of Medicine. (Bookless, 2021). These chains of inspiration show how readily pipeline programs can be developed, even if on a small scale or by students themselves, to suit the needs of any professional school.

SOLUTIONS AND RECOMMENDATIONS: THE ADVISOR’S ROLE

While undergraduate pre-health advisors may not often be involved in creation of new pipeline programs, they are in a unique position to connect participants with programs as well as to provide valuable support to help pipeline organizers who seek to enhance inclusion of underrepresented students. Advisors working to connect underrepresented students with opportunities like pipeline programs play an important role in the ultimate goal of diversifying health professions. and should consider the following questions: what are your students’ current needs that a pipeline program may be able to support? Are they predominantly low-SES, rural, or socially or culturally isolated from their profession of choice? Are they working while pursuing college degrees or coming from other careers? How familiar are they already with the expectations of their chosen health profession? What challenges do your students face as they seek to access health professions? Key strategies for helping students identify and consider potential pipeline program opportunities include:

- Awareness of local and regional pipeline programs (keeping in mind that these may be specific to certain professions, STEM-focused more generally, or even broader)
- Making students aware of potential opportunities and counseling students about their applications and choices
- Connecting current and graduated students into a peer network so that those who participated in pipeline programs in the past can speak to their specific advantages and disadvantages (as well as potentially mentoring current students)

Finally, advisors may also be called upon to offer advice on the development of a pipeline program related to STEM opportunities at their college or university.

Connecting Underrepresented Students With Pipeline Programs

Pre-health students may need direction from advisors to establish connections with potential pipeline programs, especially if they attend a large university where they may not know all of the opportunities

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available to students, or if they are considering attending professional school elsewhere or plan to apply to a range of institutions. Further complicating efforts to connect students with pipeline opportunities is the hesitancy that some underrepresented students feel with engaging in pre-health circles if they do not feel comfortable in those settings (Sims, 2021). In these contexts, students may miss “standard” pre-health program recruitment efforts entirely. As a result, both pre-health advisors and pipeline program organizers can help less-connected students by sharing information about potential programs as widely as possible. Program organizers will ideally participate in information-sharing with other institutions, student organizations, and individuals, promoting overlapping outreach strategies in order to maximize the likelihood that a potential participant will hear of a potential program. Multiple modes of online communication (e.g., newsletters, blast emails, blog, Facebook and Instagram posts, central website information) and formal and informal networking opportunities (e.g., club meetings, conferences, peer groups) can also maximize and diversify opportunity-sharing. In addition, current professional school students and faculty, especially those who are themselves underrepresented, can assist with recruitment through informal networks.

In one example (Achenjang & Elam, 2016), medical school pipeline program organizers sought undergraduate participants via the methods above, as well as through a range of minority-serving student organizations at their university including:

- Office of Diversity, Equity, and Inclusion.
- Student National Medical Association (SNMA)
- Latino Medical Student Association (LMSA)
- Minority Association of Pre-medical Students (MAPS)
- Black Student Union
- African Student Union
- Underground Perspectives (a diversity-focused club)
- Area Health Education Centers

While pre-health advisors may engage most with students in STEM majors, students can enter health professions from any background, and information-sharing with university departments should include students from less typical majors and those who may not be officially pre-health (Dou et al., 2021). In addition, individual outreach can be far more effective than mass emails, especially when facilitated via personal connections or social media outreach from current professional school students who are past participants of a pipeline program.

Keep in mind as well that not all forms of technology are equally accessible. Program organizers and advisors helping to connect students with opportunities should remain aware of how some types of outreach might target or exclude certain populations. In particular, students from low-SES backgrounds report less internet access (and therefore lower access to online recruitment and applications), and access to digital devices differs by race, ethnicity, and education (Villanti et al., 2017).

Identifying Components of a Well-Designed Pipeline Program

Given that students may have to choose only one program to attend, they should be aware of factors like a program’s size, timing, target participants, track record, and curriculum. Programs may be open to

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all applicants, somewhat selective, or highly selective, and advisors should be sure to know how these components in particular can apply to each potential applicant.

Listed below are some of the questions advisors can ask or encourage students to consider as they research potential programs:

- Participant Recruitment
 - *What groups of students are targeted for participation? Do they represent only your university or college or are participants recruited more broadly? How many participants are expected? Is the program selective (e.g., requiring test scores or letters of recommendation) or open to all? What is required for application, including fees, personal information, and other expectations or costs?*
- Program Focus
 - *Is the program's primary goal recruitment to its specific professional school; broader STEM exposure or mentorship, or something else? Is the focus on individual engagement or training or large-group information sharing? Ensure that the program's timing and focus suits your student's needs.*
- Student Involvement
 - *Are professional school students actively involved in planning and leading the program? Is there a balance of student involvement and administrative or faculty guidance? Do student leaders represent a variety of cohorts – for example, for a medical school program, are first through fourth year medical students as well as residents or fellows involved in leadership or participating as speakers or mentors? In addition, is the program thoughtfully scheduled to accommodate both student participants' and student leaders' academic and clinical and schedules?*
- Institutional Support
 - *Who are the organizers and what range of perspectives do they represent? Is there evidence of institutional involvement beyond the organizing department or program? Ask for a sample program or agenda from a prior year if the current year's is not available and note who and which offices were involved. Do they represent a variety of perspectives that could benefit your student, such as admissions staff, professional school students, faculty, and administration?*
- Equitable Access
 - *Does the program offer housing for participants? If housing is off campus, is there transportation assistance or guidance? Are meals provided? If there is a registration fee, is it reasonable or are there scholarship options? What support is available to ensure access for students with disabilities?*
- Data Tracking
 - *A robust pipeline program will have robust record-keeping. Can organizers point to the numbers of their past participants who have gone on to professional school in general, to the profession the program emphasizes, if applicable, and to the host professional school in particular? Do they share insight or contact information from any past participants?*

Typically, prospective student participants should be prepared to share some or all of the following information when applying to participate in a pipeline program:

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- Personal information including name, date of birth, home city and state, and long-term contact information such as a permanent email address.
- Demographic information such as age, gender identity, racial self-identifiers, rural background, etc.
- Academic information including current university or college attended and major; GPA; unofficial undergraduate transcript; anticipated graduation date; standardized test scores, extracurricular involvement, or resumes.

For selective programs, students may be asked to provide written statements or letters of recommendation to help organizers choose attendees. Students may need to be prepared to share or write about their backgrounds or how they could contribute to the program's diversity goals. They may be asked to reflect on why they wish to enter a profession or a given pipeline program. Advisors should again be aware that some students may not have experience opening up about their backgrounds and may not feel comfortable doing so; these students may need guidance on how to proceed in ways that feel authentic to them.

Program Content and Methods: Key Considerations

As noted in the list of questions for considering potential pipeline programs, a key factor is a program's focus and content, given that these can vary enormously. Even programs that target the same underrepresented groups at the same stage of education (e.g., undergraduate juniors about to embark on a professional school application process) can have entirely different focuses and thus may or may not suit the needs of all students. Timing also has an enormous influence on focus; a pipeline program targeting accepted professional school students, for example, may emphasize networking and academic preparation over recruitment (Awuonda et al., 2021).

Although no single opportunity can be all things to all students, below are some commonly included program components that students may wish to prioritize as they consider potential pipeline programs, depending upon their own needs and interests:

- *Student panels* or student networking opportunities can be especially helpful for community-building and information-gathering. Ideally, organizers create a non-judgmental, student-only space in which participants are able to ask current professional school students about real-world experiences, advice, or concerns. For undergraduate students, the opportunity to mingle with professional school students from similar backgrounds can open valuable lines of communication and provide inspiration and long-term mentorship opportunities.
- *High caliber learning tools or facilities* are another important selling point for some pipeline programs, especially if they can offer access to facilities that students have not yet been exposed to, such as a clinical simulation lab. While these may be one of the more labor-intensive components to organize, such experiences can be especially meaningful for students who have not had an opportunity to work, shadow, or volunteer in clinical settings or labs, which are not available at every institution. Thus, opportunities like a simulation experience can be especially valuable for disadvantaged students with few prior opportunities for clinical interactions.
- *Hands-on activities* in general are popular, especially for students without prior exposure to healthcare work environments. In many cases, participants ultimately want to know what it is really like to attend professional school, so it helps to give them as much hands-on experience as

possible. Note that hands-on can include an enormous range of activities, so again the focus of the program is important to discern. In one pre-medical program, for example, hands-on activities may emphasize clinical or surgical environments or some of both. They may also teach specific hands-on skills like suturing, ultrasound, intubation, or CPR (Achenjang & Elam, 2016).

- *Faculty involvement* can help underrepresented applicants to gain comfort and confidence before entering professional school (Stewart et al., 2020). In particular, mentorship, engagement, and support of underrepresented faculty, residents, and students also demonstrates the institutional environment and correlates with increased presence of underrepresented student applicants, matriculants, and graduates (Nunez-Smith et al., 2012; Xierali et al., 2016; Zhang et al., 2015).
- *Admissions insight* – when a program’s emphasis is on entering a specific school (typically the host institution), students can benefit from direct advice from admissions staff, ensuring that their own knowledge is up-to-date and complete. Even in more generally focused programs, organizers may provide advice sessions, hold mock interviews, or help students workshop or review personal statements. In addition, if the host institution wants to emphasize recruitment into its own program, clear insight into its curriculum, student demographics, support measures, and other opportunities can also be valuable to participants who may soon become applicants.
- *Financial planning* may not be as commonly included as other components, but students are increasingly concerned about the rising cost of attending health professions schools and are likely interested in better understanding expected costs and sources of institutional support, loans, and scholarships (AAMC, 2020b; Dabaja & Macki, 2018; Grayson et al., 2012; Nahvi, 2018). People from low-SES or first-generation college backgrounds in particular may benefit from financial guidance specific to their professional school goals, although financial education may be beneficial to virtually all students. Information sessions with financial aid officers or other experts in debt and financial planning can thus be of practical benefit to many students considering health professions.

Finally, advisors should ensure that students know the goal of pipeline program content is not intended to overwhelm or intimidate participants, but typically to share insider information and establish a supportive context, as underrepresented students in particular may not have sufficient pre-existing social ties in the field to facilitate knowledge-gathering and support on their own (Nicholson & Cleland, 2017; Saw, 2020).

FUTURE RESEARCH DIRECTIONS

A key focus for the future of pipeline programs both in practice and in related research should be the challenge of evaluation (Hill et al., 2021). A systemic review of best practices and desired outcomes across pipeline programs would be a worthwhile attention to the existing body of research on this subject. In practice, the complex causes of leaky pipelines are not easily tracked or corrected and efforts to do so can require intensive collaboration across fields, such as between secondary, post-secondary, and professional education leaders, school boards, and state leadership (Sullivan, 2007; Wilbur et al., 2020). Pipeline initiatives may or may not track or publicize data on their participants’ outcomes. They may struggle to find out whether former participants attended professional school at other institutions or at all, and data on intangible benefits such as to students’ sense of community can be even more dif-

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difficult to collect or evaluate, especially for small-scale programs operating without grant funding. While tracking participants can be both challenging and time-consuming, consistent and thorough efforts to engage with past participants yield insight to help shape the direction of any program, and of pipeline initiatives in general, for the better. Technological tools such as the National Student Clearinghouse's StudentTracker for Outreach Programs can help (National Student Clearinghouse, n.d.). As part of institutional accountability considerations as well as funding efforts, evaluation methods for program scope and effectiveness should be determined as part of initial planning and conception. In short, organizers should be prepared to document that their program has met its specified goals.

Broader goals for the future of research on pipeline programs could include continued conversation about the various definitions and scope of "pipeline" initiatives, given debate about when and how it is most crucial to engage with potential STEM students (Hill, 2019). More research and awareness on the overlapping purposes of pipeline programs would also be helpful for broad discussions of their value, especially given the difference between recruitment-focused work (e.g., to draw in more students) and community-building work (e.g., to help interested students feel at home even if they remain underrepresented). Finally, continued focus on the systemic barriers which necessitate pipeline programs are crucial, as these programs ultimately work only to counteract the disadvantages built into our society (Cannady et al., 2014; Lareau, 2003). For students underrepresented in health fields, research working to explore the long-term effects of income inequality, racism, and the "silo" effect which groups privileged students apart from less-connected peers (Armstrong & Hamilton, 2013; Jack, 2015, 2019), remains crucial to meaningful improvement in the diversity of health professions.

CONCLUSION

Pipeline programs can serve as versatile opportunities to engage and support underrepresented students. It is important to note that relatively late-stage, stand-alone recruitment-focused opportunities alone cannot erase deep-seated inequities that limit diversification of many STEM professions. These initiatives work to help participants make connections, learn about a profession or specific institution's programs, or gain guidance to facilitate academic success or professional school admission. Although the underlying problems which have led to unequal representation across many STEM professions extend far beyond the capabilities of single interventions (Blickenstaff, 2005; Santangelo et al., 2021), a carefully planned and supported diversity pipeline initiative can work to offset existing inequities and can have wide-ranging benefits for students and stakeholders, even for stand-alone or narrowly focused institutional programs. While the clear priority is encouraging and educating potential underrepresented professional school matriculants, there is also potential for positive impact on the existing underrepresented community within a profession or college and on the culture of an institution, as leaders are encouraged to be more attentive to ways of offering support and mentorship to underrepresented students.

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KEY TERMS AND DEFINITIONS

Low-SES: Refers in this context to students from low socioeconomic status backgrounds. Sometimes referred to as low income.

Pipeline Program: An initiative that seeks to improve diversity or recruitment for a specific program, profession, or area of study.

STEM: Refers collectively to science, technology, engineering, and mathematics fields.

URM: Officially refers to students who are Underrepresented in Medicine, including certain racial and ethnic populations. In some cases, this term is used more generally in reference to other often underrepresented groups, such as low-SES or rural students. Sometimes written as URiM. Note that URM is profession-specific, as underrepresented groups can vary by field, hence the use of the broader term “underrepresented” when this paper referred to other health professions or all health professions. Another caveat: in older research and some current research, “URM” can be used instead to designed “underrepresented minorities” in any field or context.

Chapter 19

How an Anti-Racist Organizational Change Model Can Build Capacity to Support Historically Excluded Students: A Guide for Advisors and Administrators of Pathway Programs

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ABSTRACT

Increasing diversity among the health workforce is not enough to address healthcare disparities. Advisors and administrators need to understand the role of justice, equity, diversity, and inclusion in the development of anti-racist organizations. This chapter considers the history and impact that the systemic exclusion of Black, Indigenous, People of Color (BIPOC) has on the healthcare system, provides an overview of modern efforts to attempt to resolve this problem through pipeline programs, considers one institution's efforts to make anti-racist change, and discusses how administrators and advisors in pre-health programs and pipeline programs can apply an antiracist organizational change model to build their capacity to support historically excluded students.

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INTRODUCTION

The United States (U.S.) has been investing in efforts to increase diversity in health professions through the use of pathway programs since the 1980s (Bouye et al., 2016). Historically, pathway programs were designed to address racial disparities in science, technology, engineering, and mathematics (STEM) fields. Through these programs, there has been a focus on developing pathways for medicine and the health sciences. Pathway programs are also designed to remediate the historic exclusion of people of color in the United States healthcare system and the poor access to affordable educational opportunities for young people interested in pursuing careers in health professions (Goode & Landefeld, 2020; Riley, 2012; Schultz et al., 2011). Despite these efforts, people of color remain significantly underrepresented in health sciences and medical professions.

By the end of this chapter, the reader will be able to explain the role of pathway programs in bridging the opportunity gaps in health professions for historically excluded communities, discuss effective models of pathway programs, and identify where their home institution is in the process of becoming anti-racist. Importantly, this chapter posits that pre-health advisors are critical in addressing systemic inequities and barriers for historically excluded students, but that meaningful change requires support from the entire institution. For this reason, this chapter primarily discusses the role of advisors within the context of institutional change. We argue that pre-health advisors can serve an integral role in the process of shifting culture and reshaping systems, but that no single person can change culture alone.

BACKGROUND

Throughout this chapter, we frame our discussion around pathway programs and anti-racist organization change through the lens of justice, equity, diversity, and inclusion (JEDI) over diversity alone (Ward, 2021). We argue that diversity alone is insufficient to make meaningful and long-term change within a program or institution because the sole focus of diversity is increasing the number of people without providing attention to the structural issues that impact their success. We also discuss various programs designed to invest in historically excluded communities using the broad term “pathway program.” We use the term pathway, as opposed to pathway program, to suggest that effective programs provide more flexibility to students in terms of where they enter these programs and when they choose to exit (e.g., entering the workforce after high school, completing a two- or four-year degree program, or pursuing graduate training) or return (e.g., enter the workforce after high school, get direct experience in a health profession, and pursue additional education after the “traditional” age of college enrollment). In other words, the term pathway suggests a single entry and exit point for all students, which may not be appropriate given each student’s unique goals. Investing in pathway programs that address all elements of JEDI is one way by which our institutions can become anti-racist.

Clinician Demographics

The U.S. has a persistent problem in educating and retaining clinicians. Despite the increased number of citizens with access to care, the United States has only 2.6 practicing doctors per 1,000 citizens. This number is significantly smaller than the average of 3.3 physicians per 1,000 people in peer countries

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(Dorning, 2016). The evolving demographics of the American population and increased access to basic care suggests that the need for medical practitioners will continue to grow (Quinton, 2017).

While there is a shortage in health care practitioners across the country, practitioners who represent the diversity of the American population are especially underrepresented. Today, the highest paying health professions such as physicians, pharmacists, and chiropractors are dominated by white men (Kang & Kaplan, 2019; Spector & Overholser, 2019; Valentine, 2020). A cross-sectional study of weighted 2019 American Community Survey (ACS) data found that Black, Indigenous, People of Color (BIPOC) were underrepresented in the following 10 health care occupations: advanced practice registered nurses, dentists, occupational therapists, pharmacists, physical therapists, physician assistants, physicians, registered nurses, respiratory therapists, and speech-language pathologists (Salsberg, et. al., 2021). Importantly, the U.S. Department of Health and Human Services found that between the years 2011-2015, the last period for which this data was available, BIPOC individuals are underrepresented in health diagnosis and treating occupations, as well as counseling and social services (2017). Across the health care system, approximately 65% of the workforce is made up of white people, 16% Black, 13% Latinx, 7% Asian, and the remaining population includes Native Americans, Alaskan Natives, and Pacific Islanders (Artiga et al., 2020). The highest percentages of Black, Latinx, and Native American practitioners are spread across the lowest income positions in the healthcare system, primarily in support roles (e.g., medical assistants, home health aides, etc.) and personal care services (e.g., personal care aides).

Disparity in Workforce Representation and Barriers to Accessing Care

This disparity in representation also impacts health outcomes for patients and can have a corresponding impact on the help-seeking tendencies of oppressed populations. Notably, current research suggests that patients have better health outcomes and are more likely to seek care when they can interact with practitioners who understand their unique sociocultural experiences and who share similar backgrounds (Goode & Landefeld, 2020; Riley, 2012; Smedley, et al., 2001). A persisting lack of representation keeps BIPOC and under-resourced populations from accessing care at rates equal to those in majority identity groups (Kirch & Nivet, 2013; Melderis, et al., 2015; Mitchell & Lassiter, 2006; O'Neill, et al., 2013; Schultz et al., 2011). Clinicians with a firm grounding in health equity, who can understand the needs of diverse patient populations, and who can meet patients in culturally humble ways, will be uniquely placed to support marginalized populations both through basic care and advocacy efforts (Johnson et al., 2016). While institutions are beginning to make improvements, change cannot be systematized until institutions address and dismantle the embedded barriers that keep historically excluded populations from accessing the educational opportunities necessary to enter the healthcare workforce.

In addition to the impact that a lack of diverse representation in health professions has on patient access to care, there are additional systemic barriers that pre-health advisors should understand to effectively counsel students interested in entering health care. The health care system in the U.S. is unique and complex. Unlike many peer countries in the global north, America does not have a uniform system of patient care, no universal health insurance, and little support for government-mandated patient coverage (Bauchner, 2017). While the landscape has changed since the implementation of the Patient Protection and Affordable Care Act, patients in America are not always guaranteed equitable care (Patient Protection and Affordable Care Act, 2010). As of 2018, approximately 90% of U.S. citizens were enrolled in an insurance program. Of this group, approximately 66% had coverage through private or employer-provided programs, with the remaining population receiving government-sponsored benefits such as

Medicare, Medicaid, or support through the Veterans Administration (United States Census Bureau, 2018). This still leaves 10% of the population either uninsured or underinsured, a status by which a person does not have adequate health insurance coverage to meet advanced care needs. This population disproportionately includes Black and Latinx Americans (Riley, 2012). This structural inequity leads to continued financial and health inequities between BIPOC and white individuals.

WHY PATHWAY PROGRAMS

Pathway programs can provide useful avenues to bridge existing opportunity gaps, support students during their undergraduate training, and ultimately increase diversity in health care professions (Mitchell & Lassiter, 2006; Schultz et al., 2011; Taylor et al., 2019). The earliest pathway programs were initially developed in 1985 following the release of the Secretary's Task Force on Black and Minority Health, which provided many recommendations for improving the health of minority communities, such as increasing diverse representation of the health care workforce (Bouye et al., 2016). These programs are typically developed when institutions of higher education, state or federal agencies, non-governmental organizations, or an interprofessional collaboration of these organizations come together in partnership with historically excluded communities to foster educational opportunities. In this way, pathway programs are designed to create cultures of inclusion and remediate the systemic injustices which created existing achievement gaps (Smith et al., 2009a). Pathway programs have been crucial in beginning to address the educational inequities that have caused low representation in the healthcare workforce (Smith et al., 2009b).

The History and Goal of Pathway Programs

There has been a nationwide focus on developing pathway programs to increase the populations of students exposed to, entering, and graduating from health profession programs. These programs specifically focus on students who self-identify as Black, brown, or indigenous and typically provide advising to students beginning in middle and secondary school (Wrensford, Stewart & Hurley, 2019). Given the intersectional nature of racism and poverty and their impacts on educational attainment, these programs also seek out first generation and low-income students.

Over the last decade, there has been an increase in federal funding and research to support the recruitment and retention of historically excluded students in various fields (Bouye et al., 2016). These efforts include offering and assessing co-curricular support mechanisms such as mentoring programs and cohort-based experiences alongside scholarships, advising, and internship opportunities. While these efforts are important, they have largely supported STEM careers alone, leaving many social work, public health, and other allied health profession programs underfunded. This is significant because public health and the allied health professions are the subfields widely dominated by Black and brown trainees. Pathway programs have historically supported STEM programs and careers but are increasingly adding attention to health care careers (Health Resources and Services Administration, 2018; Schultz et al., 2011). In fact, there is an increased focus on STEM-H programming, providing formal recognition to the role of health sciences in education and the thematic curricular similarities between these types of programs (Schultz et al. 2011).

Funding of Pathway Programs

There are many collaborative efforts between federal organizations, such as the Centers for Disease Control and Prevention (CDC), the Office of Minority Health and Health Equity (OMHHE) and the Health Resources and Services Administration (HRSA) through the Department of Health and Human Services (HHS), and state governments. These efforts are also often supported financially and administratively by non-governmental organizations (NGOs) and institutions of higher education. In all instances, regardless of the sponsoring organization, these programs bring funding to historically excluded communities (Bouye et al., 2016; Schultz et al., 2011; U.S. Department of Health and Human Services, Health Resources and Services Administration, 2018b).

For example, a critical element of the mission of HRSA's Bureau of Health Workforce is to support the training of students who wish to enter health professions. To meet this goal, HRSA sponsors several national pathway programs designed to increase recruitment, improve retention, and provide rigorous support to students from rural and medically underserved areas as well as disadvantaged and under-represented populations. Some of these programs include Centers of Excellence (COE), Health Careers Opportunity Programs (HCOP), Health Careers Opportunity Programs-Skills Training and Health Workforce Development of Paraprofessionals (HCOP: Skills), and Scholarships for Disadvantaged Students (SDS). Between 2017 and 2018, there were 168 COE-funded programs supporting over 5,045 students, 157 HCOP programs supporting 5,017 students, 11 HCOP: Skills programs serving 683 students, as well as numerous SDS programs awarding financial support to students from rural backgrounds and under-represented social identities (U.S. Department of Health and Human Services, Health Resources and Services Administration, 2018b). In all these instances, the federal government is financially supporting institutions of higher education as they develop programs to recruit and retain diverse students. While pathway programs are often funded through organizational partnerships, it is ultimately the advisors and administrators who manage the day-to-day support of students who wish to enter health professions.

Pre-health advisors play a central role in upending institutional racism. For BIPOC students who transition into predominantly white institutions (PWIs) through pathway programs, it is helpful to have advisors who not only plug them into academic resources and broader campus services but who also understand how race, class, and gender shape their academic experiences. Their social identities determine how they are received in classrooms by their peers; recognized by programs and departments for leadership and research positions and accepted by faculty preceptors for clinical rotations. The spiraling downhill effect of structural racism calls for pre-health advising models to be equally as culturally responsive as they are anti-racist. In this way, the advisee-advisor relationship will serve as a space for BIPOC and other historically excluded students to feel seen, welcomed, validated, and supported in tangible ways that contribute to their academic and professional success.

Opportunities for Improvement

The mounting challenge of pathway programs is not recruiting historically excluded students into health professions programs but retaining them. The pre-health advisor is an important resource towards this aim. Students meet with advisors to field questions about classes and degree requirements as well as co-curricular internship or research opportunities. It is incumbent on pre-health advisors to streamline processes that deter students who may already feel discomfort with being the only student of color in any given course or program or who do not see faculty and mentors who come from similar backgrounds

(Hausmann et al., 2009; Lane, 2016; Thurmond & Cregler, 1999). Advisors also need to consider what assumptions they make about why students withdraw or drop courses so that advising meetings are validating rather than evaluative. When advisors show compassion to the challenges that students disclose, a sense of trust and rapport can develop. Once students view their advisors as a caring adult in their academic life, they are more likely to decompartmentalize the social, mental, and personal parts of their lives that shape their academic identity. The ability to provide a humanistic advising model is not new to the academic advising literature- it is at the core of the culturally responsive pedagogy that has since extended it (Carneje, 2016).

CONTEXTUALIZING THE MOMENT AND ALIGNMENT TO ANTI-RACIST ORGANIZATIONAL CHANGE

Over the past several years, “anti-racism” has quickly become a part of an international lexicon. The urgency of the global Black Lives Matter movement was recognized in unprecedented ways. Following several high-profile incidents of police violence, a growing number of Americans awoke to the reality of systemic racism and state-sanctioned violence that Black Americans have experienced for generations—a legacy of chattel slavery, Jim Crow laws, scientific racism, and eugenics that continues to deny Black Americans many of the privileges and opportunities afforded to their white counterparts (Morse & Loscalzo, 2020). Local and national demonstrations went global— leading to transcontinental cries to address systemic racism and the colonial legacies that sustain them (Office of the United Nations High Commissioner for Human Rights [OHCHR], 2020). This incredible momentum is not lost on medical institutions such as academic medical center (AMCs).

AMCs serve as a space for practitioners, researchers, and teachers to provide patients with access to collaborative, interdisciplinary health care teams and the most recent medical breakthroughs (Capers et al., 2020). In an AMC, the hospital partners with teaching institutions to provide clinical care, education, and research (University Medical Center New Orleans [UMCNO], 2021). One of the most important contributions of an AMC is the training they provide to students in preparation for their future health careers (UMCNO, 2021).

Interrupting how racism is institutionalized into the research, clinical, and leadership training of health professions students is critical. This explains why AMC’s are not external to the systemic issues that the Black Lives Matter movement unveiled. In fact, patients often interact with AMC trainees and practitioners, “whom may have explicit and implicit biases that influence patient care” (Capers et al., 2020, p. 3). These biases can lead to health disparities and deepen mistrust between patients and their clinicians. Pre-health advisors play an important role in supporting BIPOC students and preparing them to enter an environment that is not wholly supportive or inclusive. As such, it is incumbent on AMCs and the pathway programs that feed them to address racism head-on by embracing anti-racist values.

Theorizing the Movement

Next, it is important to understand why theory is necessary to inform organizational change. A growing number of postsecondary institutions across the country have issued statements of solidarity in support of dismantling institutional racism. Equity and justice-based values espoused in these statements can be turned into action through an anti-racist institutional identity informed by centuries of the civic and

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scholarly contributions of BIPOC communities who theorize, teach, practice, and bring about social change. This effort necessitates an organizational change model that attends to power imbalances, historical inequities, and community partnerships in ways that have been unexplored and challenging, calling for the application and integration of Critical Race Theory (CRT).

CRT has been erroneously described as *anti-white* and therefore subject to political attack. In an attempt to deny America's legacy of racism, and therefore erase the lived experiences of marginalized populations in America. Former President Donald Trump issued an executive order instructing federal agencies to identify and eliminate any employee training in "critical race theory," "white privilege," or "[...] any other trainings or propaganda effort that teaches or suggests either that the United States is an inherently racist or evil country or that any race or ethnicity is inherently racist or evil" (Schwartz, 2020, para. 3; Writer et al., 2020). The White House's release of The 1776 Report, which is merely a manifestation of conservative curriculum reform, called for a "restoration of American education," that valorizes the founding fathers, dismisses slavery, and undermines any form of critical inquiry and analysis of history (Presidential Actions, 2021, p. 1).

With a change in administration, CRT has rightfully been characterized as *anti-whiteness* rather than *anti-white*. Whiteness is not the same as a racial identity as white. The aims of antiracist efforts are to disrupt the systems and structures of racism. Whiteness is one of those systems maintaining the customs and beliefs of white people as the example of humanity. On President Biden's first day in office, he disbanded the commission, rescinded the previous administration's diversity training order, launched a "whole-of-government initiative to advance racial equity," and directed all federal agencies to conduct internal reviews and devise plans to "address unequal barriers to opportunity in agency policies and programs" (Presidential Actions, 2021). However, even before efforts to address systemic racism were restored, CRT and the associated work was impossible to silence.

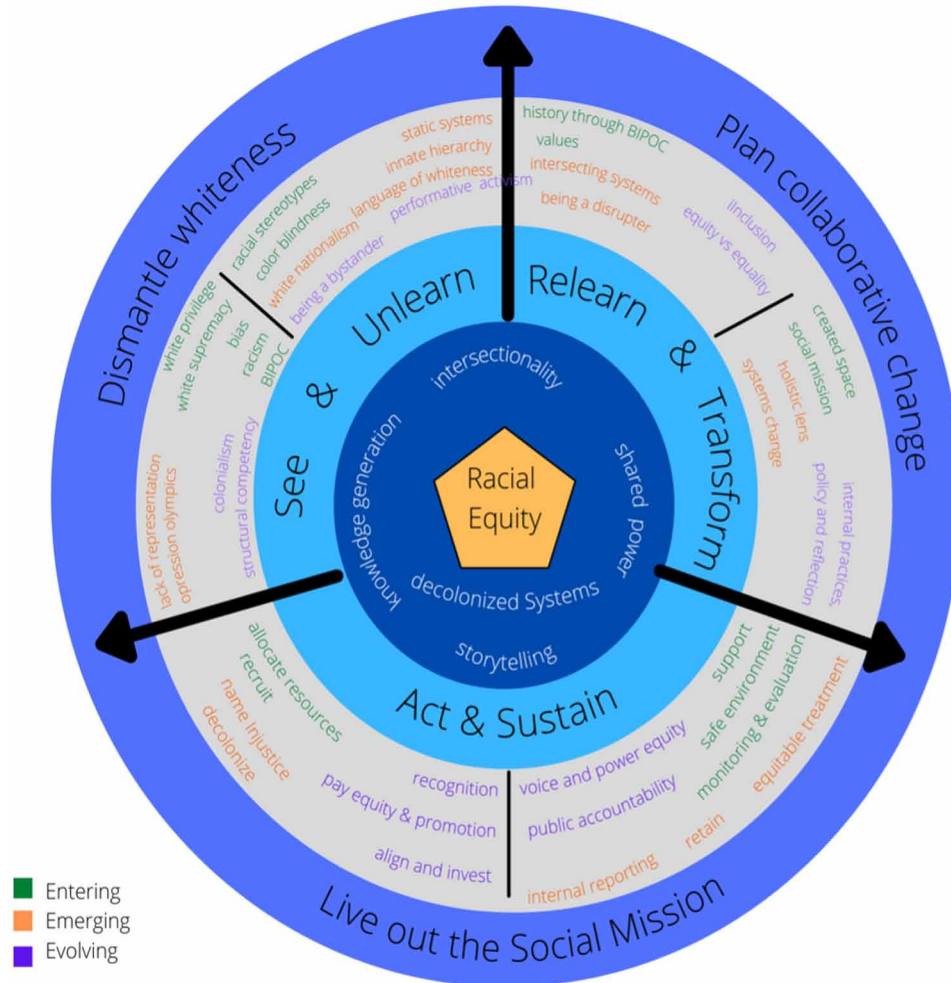
In fact, Black Lives Matter has brought systemic injustice to the fore which has drawn in an even broader public to begin looking at America with a critical lens. Amidst national conversations surrounding systemic racism, there is growing recognition that health practitioners have a responsibility to understand institutionalized racism, its history, and its implications for health disparities (Tsai et al., 2017). To move towards an anti-racist medical system, an organizational change model that utilizes a CRT lens is needed so that current and future health professionals can discuss and effectively treat racial inequities, in and outside of the clinic. It is this understanding that operates at the core of the anti-racist organizational change model we provide below. It is worth noting that any proposed institutional change will happen incrementally and therefore a long-term investment of time and resources is what will implement antiracist aims.

Understanding Our Model for Anti-Racist Transformation

In this section, we outline how our Model for Anti-Racist Transformation can guide the organizational change decisions and considerations made among health career pathway programs. Our model was created to guide the work of anti-racist curriculum and training at GW but it can be applied to any institutional efforts to bring about anti-racist change (see Figure 1).

Figure 1. Model for anti-racist transformation

Model for Antiracist Transformation



In the Center - Our Ultimate Goal

Achieving racial equity is the aim of anti-racist organizational change and is situated at the center of this model. It is both a process and an outcome. As a process, racial equity is used as a lens for designing programs and policies to reflect the interests and needs of those most disproportionately impacted by structural racism. As an outcome, racial equity is achieved when race is no longer used to negatively evaluate how people are perceived, valued, and treated. With racial equity, differences in education, wages, and health care will no longer be racialized.

There are several ideas that must be valued and held as priorities in the fight for racial equity. In this model, we adapt ideas of organizational change (Lewin, 1947) and community organizing principles within workplace cultures (Suarez, 2018) alongside the key ideas of CRT. CRT emerged as an outgrowth of legal studies but has since been applied across multiple disciplines from education to medicine through

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its founders: Derrick Bell, Richard Delgado, Allan Freeman, Patricia Williams, Mari Matsuda, and Kimberlé Crenshaw (Ladson-Billings, 1999; Lang, 2020). In our model, achieving racial equity relies on the following CRT tenets:

- **Knowledge Generation:** In the U.S., knowledge and history is told through a Westernized, Eurocentric, patriarchal and elitist perspective. CRT subverts this by privileging the lived experiences of historically excluded voices. Information about inequities should come from those who have first-hand experiences being racially and ethnically minoritized.
- **Intersectionality:** No one has a singular identity. The experience of racial identity is shaped by the other social positions and identities one has. This understanding is a valued and key component of CRT.
- **Shared Power:** The expertise of those most marginalized must be valued and respected for the power it holds. Power needs to be equitably distributed and shared.
- **Storytelling:** For the lived experiences of BIPOC individuals to be valued, understood, and addressed, they must first be heard. Their stories serve as counter narratives to the dominant and Eurocentric perspective operating as the norm for humanity.
- **Decolonized Systems:** Racism is rooted in colonialism and white supremacy. It becomes pervasive and normalized without intentional questioning and critiquing of the systems that have long gone unchecked.

RECOMMENDATIONS FOR ADVISORS AND ADMINISTRATORS TO ENGAGE ANTI-RACIST ORGANIZATIONAL CHANGE

With the truths of CRT in mind, programs or institutions can work towards racial equity. In this section, we present the iterative process of this model with specific recommendations for how pre-health advisors can rightfully shift their unit of analysis away from individual student abilities to the institutional conditions that either support or impede their ongoing success. There are three strategies we believe are useful to make progress toward racial equity, and those are highlighted in the outer rings of the model as **dismantling whiteness**, **planning for collaborative change**, and **living out our social mission**. These strategies are actualized through a series of iterative steps:

- **Dismantle whiteness:** by **seeing** whiteness and **unlearning** white supremacy
- **Plan for collaborative change:** by **relearning** history and **transforming** our systems
- **Live out our social mission:** by **acting** on injustice and **sustaining** our accountability

We realize that individual staff, programs, departments, and institutions exist at varied stages of capacity for antiracism. This is reflected by the color coded ‘entering’, ‘emerging’, and ‘evolving’ levels that may characterize the stage of readiness and perceived/real capacity where this work begins.

Step 1. Dismantle Whiteness

Whiteness is not the same as being white. The latter is a racialized identity. When it comes to whiteness, we are pointing to a system of power and must ask ourselves: whose perspectives and identities

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are being centered or advantaged? For instance, in speech, value judgments are made based on accent and word choice for those who don't speak English in the ways valued by the white elite. These Eurocentric preferences get coded as 'professional' and extend beyond speech to include dress, hairstyle, and work styles (Gray, 2019). It is also well documented how employers are more likely to offer a job interview to someone whose name "seems white" compared to a Black or Asian name (Kang, et. al., 2016). While these are the more overt examples of how whiteness operates, there are many ways that whiteness gets disguised as standards and norms within admissions criteria, hiring practices, grading/evaluation, and performance assessments. The first step is to 'see' whiteness and how it threatens our aim for racial equity. **The overall goal is to be able to dismantle whiteness as a narrative and place BIPOC voices in the forefront.**

Seeing Whiteness: To see whiteness, one is aware of the injustices caused by the culture of whiteness within our programs and institutions. A culture of whiteness establishes being white as the norm. The color-coded text below corresponds to the color-coded words in Figure 1.

Unlearning white supremacy: To unlearn white supremacy, individuals and institutions must recognize that the root of whiteness is white supremacy. This recognition helps identify how whiteness is disguised within society and universities. The color-coded text corresponds to the color-coded words in Figure 1.

Entering: An institution or program at this stage might recognize that there is a lack of diversity within their faculty and student body, but not know how to address it. The reason there may be difficulty in diversifying the program is not because it is not valued, but because of structural issues.

Examples: Advisors rely on the existing social networks of homogenous staff, faculty and alumni to recruit and hire new staff, faculty, and students or assume that any attempts to diversify programs will decrease the rigor of a program's recruitment process and competitiveness of a program's reputation.

In both instances, whiteness is operating. In the first example, the breadth and width of recruitment efforts are limited to the pool of applicants that exists within the social circles and networks of alumni, donors, and other key constituents of the program and institution. If these social networks are largely white, diversity efforts fall flat. In the second example, the idea that non-white students are inherently less qualified is a racist assumption. And, since the most homogenous programs have historically excluded students of color, these patterns reflect macro issues of systemic oppression as opposed to individual issues of merit.

→ Institutions and programs at this stage are learning to see: **white privilege, white supremacy, BIPOC voices, bias, racism**

Emerging: An institution or program at this stage may acknowledge the pervasiveness and harm of racism, but uses issues of class, disability, and gender to invalidate the impact of racism. When an institution values antiracism, all decisions, conversations, and policies apply a racial equity lens to understanding any other difference. As the CRT tenet of intersectionality implies, the impact of racism is cross-cutting across all other social identities.

Example: If advisors constantly undermine or de-emphasize the impact of racism with questions such as 'but, what about ____ (insert another form of oppression)?' is counterproductive. Playing oppression Olympics does not move anyone forward.

Being able to see the lack of racial diversity and the presence of racial oppression is central to the aim for racial equity.

→ Institutions and programs at this stage are learning to see: **lack of representation, oppression olympics**

Evolving: An institution or program at this stage may realize there are underlying practices embedded into institutions and the only way to change them is to uproot the structure of the system.

Example: Removing standardized test scores from the application process due to the cultural bias they represent. Yet, replacing these criteria with community service requirements that inadvertently excludes the most economically disadvantaged students who spend their free time working rather than volunteering.

There may exist honest discussions of how whiteness has historically shaped the hiring, promotion, and admissions practices at your institution. Still, your institution may feel challenged by the best approaches to dismantle these structures.

→ Institutions and programs at this stage are learning to see: **colonialism, structural competency**

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While more undergraduate degree programs and health professions training programs include content on socially disadvantaged populations, the ‘hidden curriculum’ reinforces whiteness and erroneously characterizes macro social conditions as individual risk behaviors (Tsai & Crawford-Roberts, 2017). It may be helpful to consider why historically excluded students are deemed ‘unprofessional’ or ‘unresponsive’ when they miss program deadlines without a careful consideration of the competing priorities and accessibility challenges, they face. Advisors should work closely with faculty and leadership to ensure that programs are designed to meet the needs of the least engaged student. The idea that Eurocentric education is the “great equalizer” is what gets erroneously recycled within the hidden curriculum of pathway programs. Pre-health professions curricula must critically examine the social and historical inequities that fundamentally oppress and stigmatize generations of BIPOC, and work to center the experiences and knowledge of the communities they serve.

Step 2. Plan Collaborative Change

Anti-racist organizational change does not happen in a silo and cannot be accomplished by advisors, or faculty, or singular divisions alone. There must be support from all key constituents - students, faculty, staff, and senior leadership. If institutional partners, volunteers, and donors do not embrace the same values then it is necessary to re-evaluate these relationships and their value. This type of organizational change takes a collaborative approach and will require time and effort to ensure that everyone understands and accepts the values of anti-racism. Pre-health advisors and other members of the institution’s community must work together to determine a fair and sustainable approach to meeting stated aims.

The overall goal is to begin planning collaborative change towards anti-racism.

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Relearning History: To relearn history, there is a commitment to actively learning about the impact that racism has within the institution. The color-coded text corresponds to the color-coded words in Figure 1.

<p>Entering: An institution or program at this stage is learning to value and include BIPOC experiences when designing programs, resources and other efforts that serve them.</p> <p>Example: Oftentimes, students who identify as BIPOC are expected to shrink, alter, and hide their true selves in white dominated spaces like the health career training programs they enter. These students are taught to engage in the age-old practice of code-switching. This twoness they feel is what W.E.B. Dubois (1903) described as double consciousness. The perceived need to acquiesce to how white people expect you to express yourself in classrooms, interviews, clinical rotations, and day to day interactions is not only exhausting, but also unfair.</p> <p>Just this experience alone is why diversity is not enough. Historically excluded BIPOC students must feel safe, seen, valued, and included as they are. Advisors are central to this inclusive practice.</p> <p>→ Institutions and programs at this stage are relearning: history through BIPOC values</p>
<p>Emerging: An institution or program at this stage understands that to disrupt racist culture and policies, they need to reflect on their personal and institutional values.</p> <p>Example: Consider if your students, faculty, and staff must endure the daily microaggression of having to see the name and image of people memorialized on buildings and with statues and paintings who have contributed to oppressing the very communities they represent.</p> <p>Disrupting the strategically crafted power structures and “regular” ways of operation within AMCs through anti-racist efforts is necessary for racial equity.</p> <p>→ Institutions and programs at this stage are relearning: intersecting systems, being a disruptor</p>
<p>Evolving: An institution or program at this stage may still be translating what equity looks like in their program design and policies.</p> <p>Example: Without an equity lens, programs and institutions might not consider how internal policies are classist, such as reimbursement policies for professional development or not offering suitable financial aid for students who are disproportionately burdened by the additional costs of textbooks, lab and test fees, and even eating on campus.</p> <p>Advisors can consider creating a medium for their BIPOC advisees to identify inequitable institutional conditions and brainstorm solutions alongside administrators to mitigate them. Race and class are inextricably linked. Therefore, the impact of racism has exacerbated poverty and threatened economic security across generations for communities of color.</p> <p>→ Institutions and programs at this stage are relearning: inclusion, equity vs. equality</p>

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Transforming Systems: To transform systems, programs and institutions must know how to codify and translate equity into strategic action. The color-coded text corresponds to the color-coded words in Figure 1.

<p>Entering: An institution or program at this stage will elicit BIPOC voices to draft a new or updated mission, vision, and plan.</p> <p>Example: Your institution or program may create a workgroup or taskforce to take on most of the work that comes from retreats and other large gatherings of constituents. In doing so, these committees should represent a range of perspectives, including advisees from historically excluded populations. Without burdening them with the tasks of undoing racism in their programs, selectively consider inviting BIPOC advisees to join these institutional efforts and consider compensating them for their time. There are a host of other considerations to be made when it comes to developing or restoring trust between socially disadvantaged populations and universities. The American Association of Medical College published a community toolkit on the principles of trustworthiness (AAMC, 2021) that will be useful to guide this work.</p> <p>→ Institutions and programs at this stage are transforming with: created space, social mission</p>
<p>Emerging: An institution or program at this stage will create training sessions to provide a more holistic lens on what justice looks like.</p> <p>Example: Advisors need to include antiracism training among the professional development trainings they attend. It is important that racial equity and antiracism trainings include content, materials and resources created by BIPOC. Advisors can proactively ask that deliberate attention be paid to decolonizing our training spaces to prevent white scholars from co-opting the work of BIPOC scholars/activists and go 'mainstream' with widespread funding (McFarling, 2021). This phenomenon is yet another form of structural inequity within the academy that limits the academic and scholarly capital that comes with promotion and tenure of BIPOC researchers.</p> <p>→ Institutions and programs at this stage are transforming with: holistic lens, systems change</p>
<p>Evolving: An institution or program at this stage has challenged their current practices and policies and reflected on whether it advanced racial equity or maintains racial inequity.</p> <p>Example: During the decision-making process, institutions can have careful and deliberate discussions of racial equity. Using the racial equity impact assessment (Race Forward, 2021), they can pose questions such as: Which racial/ethnic groups could be negatively affected? How could adverse impacts be prevented or minimized? In this way, advisors are involved in programs that are intentionally designed to advance racial equity and evidence is collected to document the impact of all policies, funding allocations, and program decisions.</p> <p>To be anti-racist requires consciously deciding to consistently make equitable choices daily while practicing self-reflection and self-awareness (NMAAHC, 2020).</p> <p>→ Institutions and programs at this stage are transforming with: internal practices, policy and reflection</p>

The innumerable barriers impacting the ability of historically excluded students to thrive in white spaces is very well studied. The literature identifies conceptual barriers such as stereotype threat (Bullock et al., 2020), model minority threat (Museus & Kiang, 2009), and imposter syndrome (Poon et al., 2016) as explanations for why BIPOC students may internalize racist, deficit-based, and unfair expectations. These theoretical concepts feed into the pervasive meritocracy narrative that suggests that one only needs to pull themselves up by their bootstraps when faced with challenges because it is their personal choices and self-efficacy that will allow them to attain their career goals and achieve the “American Dream.”

Step 3. Live Out Our Social Mission

Health careers are considered a helping profession. As such, the mission of our institutions coalesces around the needs of the most vulnerable and overlooked populations. To help U.S. medical, dental, and nursing schools develop and measure progress towards their social missions, the GW Fitzhugh Mullan Institute on Health Workforce Equity leads a Social Mission Metrics Initiative (SMMI) that allows eligible schools to assess their own performance across 80 indicators within 18 areas of six domains (SMMI, 2021). With these indicators, there is standardized performance data and public accountability to social mission aims. Even if an institution or program does not compare where they stand to peer schools, it is imperative that there is some concerted effort to track gains towards institutional values.

The goal is to live out the social mission developed by the institution.

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Act on Injustice: To act on injustice, advisors and other members of the institution must identify, understand, and deploy appropriate methods to make progress towards the steps outlined in its strategic plan. The color-coded text below corresponds to the color-coded words in Figure 1.

Entering: An institution or program at this stage states and prints anti-racist values but the values have yet to get reflected in the budget.

Example: anti-racist organizational change takes an institutional commitment. As such, the budget should allocate resources accordingly. Uprooting racism in its many forms cannot be limited to a diversity officer or even the Office on Diversity and Inclusion. Everyone at the institution must make a commitment to identifying how racism is maintained through their teaching, research, clinical practice, policy development, and program administration - including the advising team. This requires increased human capital and capacity building.

If you notice that the BIPOC students, faculty, and staff are largely the ones leading the charge against racism within your institution, you must recognize how this presents an undue burden and is not only unsustainable but unsuccessful in meeting stated anti-racist aims.

→ Institutions and programs at this stage will act by: **allocating resources, recruiting**

Emerging: An institution or program at this stage recognizes historical atrocities and generational trauma but does not identify its contemporary forms.

Example: There is no mention of the school shootings, police brutality, asylum seekers, and/or disproportionate COVID rates among the students, faculty, or staff in your programs. They are expected to compartmentalize these daily affronts to their well-being and expected to focus on their work and training.

A commitment to racial equity requires that we swiftly name injustice as it happens and carve out the requisite space to address both immediate and long-term consequences it has on BIPOC and everyone else.

→ Institutions and programs at this stage will act by: **naming injustice, decolonize**

Evolving: An institution or program at this stage needs to actively work on providing opportunities for promoting and investing in staff of color.

Example: Institutions or programs say that they value diversity and inclusion but the leadership is not racially diverse and there are huge and patterned salary and wage gaps among and between staff.

A commitment to racial equity includes opportunities for leadership, promotion and recognition for BIPOC staff. If the pathway programs we manage keep these structural inequities intact, they run counter to our aim to prepare the most racially and economically excluded students for their own leadership, promotion and career advancement.

→ Institutions and programs at this stage will act by: **ensuring pay equity and promotion, aligning and investing**

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Sustain our Accountability: To sustain our accountability means to create a system that will continuously improve on the efforts our institutions have already made. The color-coded text below corresponds to the color-coded words in Figure 1.

<p>Entering: An institution or program at this stage is solely focused on recruiting diverse applicants and hires but not on what it takes to retain and promote them.</p> <p>Example: An institution or program spends its time marketing to the most historically excluded students but has not considered the harm that is done to these students when they get into your programs and don't have mentors/faculty who look like or relate to them. Not having advising models that address the psychosocial needs of BIPOC students will only further marginalize and alienate them.</p> <p>It is important to hire staff and faculty with the background and/or lived experiences that reflect the very populations you serve. There must also be an internal quality improvement plan that will continually monitor the level of inclusion and support offered to students.</p> <p>→ Institutions and programs at this stage will sustain the following: supportive and safe environments, monitoring and evaluation</p>
<p>Emerging: An institution or program at this stage does not provide a system for adequate internal reporting on threats to justice, equity, diversity, and inclusion (JEDI).</p> <p>Example: Your pathway program can experience challenges in providing the type and extent of support that your students need - with or without your knowledge. If you are not aware of this, it is likely because there does not exist feedback loops for the most excluded and marginalized students to honestly share their experiences <i>while in the program</i>. If your program is aware of the challenges the next step is engaging the students in how best to support them.</p> <p>This stage may include expanding what counts as program success. Your program effectiveness should extend beyond test scores, placements, and graduation rates to include assessments of student burnout, coping skills, sense of belonging, and advocacy.</p> <p>→ Institutions and programs at this stage will sustain the following: internal reporting, retention rates, equitable treatment</p>
<p>Evolving: An institution or program at this stage does not yet feel comfortable taking public accountability for their actions, and there is not yet voice equity within the department or institution.</p> <p>Example: When the pathway program regresses (which is inevitable in this lifelong fight for equity), there may be a reluctance to share missteps and ownership of how a program decision was misaligned with anti-racist values or produced harmful consequences.</p> <p>It is important for institutional integrity to be just as public with mistakes as with successes so that the lessons learned can be shared. Modeling this transparency is necessary for accountability.</p> <p>→ Institutions and programs at this stage will sustain the following: voice and power equity, public accountability</p>

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In this stage of racial equity planning, your institution and/or program will need to ensure that it has rightfully shifted the unit of analysis for change from individual choices to institutional culture. Once we understand that the incessant barriers and threats that our students face are structural in nature, we can identify how our own policies, workplace cultures, and program expectations feed the ideologies that our students are up against.

For instance, many pathway programs focus on building resilience, self-determination, and capacity of individual students to defy the odds within their training programs. In other words, these training programs focus on preparing historically excluded students to integrate into programs designed around the values, interests, and needs of white, middle-class students. As such, these pathway programs are woefully unprepared to acknowledge or combat the systemic injustices that have caused BIPOC students to experience historical disadvantages while white students continue to benefit from unfair advantages, head starts, and privilege in their career preparation. Essentially, many pathway programs focus on building the “grit and perseverance” of historically excluded students which further marginalizes the varied social and professional identities of these students. Ultimately, these programs keep racist structural inequities intact. We can no longer describe the intent of our programs but instead their impact.

George Washington University, School of Medicine and Health Sciences Case Study

In this section, we provide a case study of the George Washington University (GW) School of Medicine and Health Sciences (SMHS) and its anti-racist organizational change efforts aligned with the model presented above. We focus specifically on a dual enrollment pathway program developed by a collaborative team of advisors, administrators, and faculty. As a note, we recognize the GW provides a unique case study since it is a large, private university with an AMC associated with the institution. Given this, GW has resources that may not be available to smaller institutions. We also provide examples as to how this model can be translated to other institutional contexts later in this chapter.

The Governor’s Health Sciences Academy at Alexandria City High School

Though GW has multiple pathway programs designed to recruit and retain historically excluded students in the health professions, we consider the two newest pathway programs through SMHS in the context of this case study: The Governor’s Health Sciences academy and the Health Careers Opportunity Program (HCOP). The Governor’s Health Sciences Academy (the Academy) at Alexandria City High School is a public-private partnership offering dual enrollment (DE) between GW SMHS and the Alexandria City Public School System (ACPS) in the Commonwealth of Virginia. DE programs, also known as concurrent enrollment programs, are one type of pathway program that allow high school students to complete college-level coursework and earn college credits while still completing secondary school (Ferreri, 2018). Importantly, students from economically disadvantaged backgrounds benefit significantly from dual enrollment programs, which have proven effectiveness in narrowing the achievement gap between low-income and middle-class students (An, 2013). Further research suggests that all credits earned through dual enrollment programs are positively correlated with course completion rates in postsecondary education (Phelps & Chan, 2017). Significantly, Phelps and Chan note that students in health-related fields of study tend to have higher course completion rates than students completing other dual enrollment coursework.

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The Governor's Health Sciences Academy was designed intentionally to allow students from diverse backgrounds and career interests to explore careers in health care and earn up to 18 college credits from GW, at no cost to them, while enrolled in high school. Students can also earn college credit from the Northern Virginia Community College system through another dual enrollment program with that high school. The Academy was established in 2018 in response to the region's urgent need to expand the health care workforce pathway, diversify representation among health care professionals, and provide hands-on experience for careers in STEM-focused health sciences (U.S. Department of Health and Human Services, Health Resources and Services Administration, 2018a). Though still a young program, the Academy has received state recognition, as well as state, federal, and philanthropic support. As of the 2021-22 academic year, the program includes 337 students across all four-years of high school. The Academy provides enrolled students the opportunity to pursue one of six career pathways: biomedical informatics, medical laboratory sciences, sports medicine, emergency medical services, nursing, and surgical technology. Pre-health advisors are crucial to the success of this pathway program as they provide direct support to students, support events designed to transition high school students to postsecondary education or the workforce and play an important role in educating early career high school students about the possible health professions they may pursue after graduating high school. Through this program, pre-health advisors guide high school students as they identify possible careers if they wish to enter the workforce immediately after high school and provide college counseling to those considering a two- or four-year institution.

The GW Health Career Opportunities Program

SMHS received separate funding through HRSA to launch a Health Careers Opportunity Program (HCOP). HCOP is designed to guide students from economically and/or educationally disadvantaged backgrounds through educational pathways into the health professions. During this program, students are connected to a network of professional mentors, case management, and individualized academic support services. Participants, called HCOP Ambassadors, also complete an intensive six-week summer enrichment program designed to introduce them to academic support skills, and take part in a longitudinal experiential learning and community service work with their peers. Importantly, both initiatives rely on engagement from school leadership, students, and the broader communities in the metropolitan Washington, DC area. Central to the success of the HCOP program is an advisor who serves as a case manager for all students admitted to each HCOP cohort, which is a role required by the funding agency. This advisor provides resources to students as they navigate high school, community college, or their undergraduate degrees and provide guidance related to academic success, student well-being, and professional planning.

While HCOP and the Academy both benefit from being embedded within an institution whose leaders have named anti-racism as one of its core values, each program is in a different stage of our model. For instance, when it comes to 'living out our social mission', both programs are in the *entering* stage of acting on and sustaining racial equity. HCOP has drawn interest from high school students of color who enter the pathway as biology majors but switch to public health majors. While scholarship funds are earmarked for health career degree paths, HCOP maintains a pool of funds and has access to additional philanthropic gifts to provide financial support to students who express a commitment to health and health equity. This commitment to funding and proactive advising support are what historically excluded students need the most.

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Ultimately, both the Academy and HCOP are well aligned with GW SMHS' strategic plan and mission statements, and both serve as a deliberate attempt to begin remediating the opportunity gaps that exist in the health professions. GW is a worthwhile case study into anti-racist organizational change. The GW clinical enterprise includes partnerships with the George Washington University Hospital, The GW Medical Faculty Associates, as well as an affiliation with Children's National Hospital. After the murders of George Floyd and Breonna Taylor sparked a national reckoning on the impact of racism, senior leaders across this academic medical center collectively committed to expanding strategic planning efforts to apply a racial equity lens to our long-term goals in preparing the health workforce to address the challenges of health equity. The school's updated mission statement reads as follows:

The mission of the GW SMHS and MFA is to enable every student, trainee and member of our staff and faculty to learn and contribute to discovery and translation of state-of-the art knowledge into practical and racially, socially and economically just actions to improve the health of our patients, families and communities of the Washington DC metropolitan area, our Nation and globally. (GW SMHS Strategic Plan, 2021-2024, p. 2)

Our racial equity planning began by extending stated values around diversity, equity, inclusion, and justice to include aims to be an anti-racist institution in our 2021-2024 strategic plan. The GW Coalition for Restructuring Education via Health Equity & Antiracism Leading to Human Justice (CORE HEALTH) multidisciplinary student research lab conducted an environmental scan of the many efforts underway to actualize these aims. It identified curriculum reform, pathway programs, and a council of diversity officers among the many initiatives underway to advance racial equity. This informal inquiry was the first attempt to collect a repository of existing efforts across several programs to identify the cross-cutting themes and synergies to use limited resources more efficiently. It was the development of the Antiracism Coalition (ARC) that aimed to coordinate efforts and standardize measurement to document progress towards our strategic aims. SMHS is committed to results driven by data and new mechanisms of accountability, which explains why they were selected as one of ten sites for the inaugural 3-year cohort for the *Anti-Racist Transformation in Medical Education Program* hosted by the Icahn School of Medicine at Mount Sinai.

Student Engagement

Senior leadership and staff are not solely responsible for the anti-racist change they seek. In fact, GW has a visibly active student body who advocate for inclusion, equity, and justice (See Table 1). Some are attached to local social justice organizations while others serve as affiliates of national movements.

Table 1. Other GW student groups in the School of Medicine and Health Sciences

American Medical Women's Association (AMWA)	Latino Medical Student Association (LMSA)
Asian Pacific American Student Association (APAMSA)	Medical Student Alliance for Illness, Disability, and Difference (MSAIDD)
Christian Medical & Dental Association (CMDA)	Social Justice Interest Group
GW Out for Health	South Asian Medical Student Association (SAMSA)
GW SALUD "Medicine en Español"	Student National Medical Association

Translating This Model to Other Contexts

Our proposed model can be applied to a range of health professions programs with some caveats. For one, the model presumes that an institution is ready to undergo self-study to interrogate the ways that racism has been disguised. This readiness includes an institutional capacity to pursue the herculean effort to both identify and change the practices and policies that have normalized racism. Secondly, identifying racism can present as a barrier in of itself. Questioning criteria, standards, and policies requires a critical and nuanced understanding of how racism gets obscured as merit and/or quality. Third, measuring tangible change is no easy feat. With any new strategic effort, there must be benchmarks of progress. With so much attention to JEDI efforts nationwide, there is mounting pressure to see marked increases in admission and recruitment numbers among students of color. We caution against the urge to create pathway programs to enter degree programs that have not been intentionally designed with anti-racist aims. It only brings harm to BIPOC students who enter programs with few mentors who look like them, curricula that reify stereotypes about their communities, or limited funding pools to keep them in school. Finally, providing a method to gauge where in the model your pathway program should begin is beyond the scope of this chapter. However, we invite you to contact the authors for details on the assessment we have drafted for internal training purposes.

CONCLUSION

Health professions training programs have a shared commitment to meeting the challenges of health equity - which includes preparing a diverse health workforce. Throughout this chapter, we recommend a model for how pre-health advisors and pathway programs can disrupt institutional racism that has proven to serve as an ongoing threat to actualizing JEDI aims. When health professions programs center the lived experiences of historically marginalized communities in its workplace cultures and didactic and applied training content, the graduates of their programs are more adequately prepared to address the unfair systemic barriers that disproportionately impact socially disadvantaged populations.

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KEY TERMS AND DEFINITIONS

Anti-Racist: One who expresses the idea that racial groups are equals and none needs developing, and supports policy that reduces racial inequity (Kendi, 2019).

Antiracism: Anti-racism is the active process of identifying and eliminating racism by changing systems, organizational structures, policies and practices and attitudes, so that power is redistributed and shared equitably” (National Antiracism Council International Perspectives: Women and Global Solidarity, n.d. as cited by Alberta Civil Liberties Research Centre, 2021)

Bias: The negative evaluation of one group and its members relative to another (Blair, Steiner, & Havranek, 2011).

Diversity: Ensuring representation of various perspectives and social identities within a space.

Equity: Providing a fair and constant redistribution of resources and power to ensure that no single social identity has priority or power over another.

Inclusion: Fostering a space where everyone feels safe, validated, included, and welcomed.

Justice: Dismantling systemic and historic barriers to equity (e.g., assessing internal policies that hinder the ability of historic communities to get ahead).

Privilege: Unearned advantages granted to members of a group by prejudicial and powerful social, institutional, and cultural systems that allocate resources and designate value (People’s Institute for Survival and Beyond, 1997).

Racism: A system of structuring opportunity and assigning value based on the social interpretation of how one looks that unfairly disadvantages some individuals and communities, unfairly advantages other individuals and communities, and saps the strength of the whole society through the waste of human resources (Jones as cited by Kaiser Permanente Institute for Health Policy, 2016).

Structural Racism: A system in which public policies, institutional practices, cultural representations, and other norms work in various, often reinforcing ways to perpetuate racial group inequity (Aspen Institute, 2016).

Whiteness: Whiteness refer[s] to the way that white people, their customs, culture, and beliefs operate as the standard by which all other groups are compared (National Museum of African American History and Culture, n.d.).

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Rohini Ganjoo has been an educator and researcher for more than 10 years. Dr. Ganjoo is a founding faculty member of the Post-Baccalaureate Pre-Medicine (PBPM) Program and is currently a director for the Translational Microbiology Program, the Immunohematology and Biotechnology Program, and Medical Laboratory Sciences (MSHS) Program in the Department of Biomedical Laboratory Sciences Department, where she is an assistant professor. Dr. Ganjoo's passion is student development. She developed the biology curriculum for the PBPM program and several graduate courses. Since joining The George Washington University (GW), she has mentored undergraduate and graduate students in education and clinical research, respectively. She is actively involved in GW committees and mentors faculty in conjunction with the university's Teaching and Learning Center. In addition to her experience in teaching and life sciences, Dr. Ganjoo previously served as operations director of Ziby Creations, a technology-driven services provider and was responsible for business development, support, and operational efficiency.

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* * *

Dana Powell Baker is an Assistant Professor in the Department of Clinical Laboratory Sciences at the University of Kansas Medical Center. As an ASCP-certified Medical Laboratory Scientist with over 18 years of career experience, her areas of expertise include: Immunohematology, Interprofessional Education, and Healthcare Simulation. In addition to her teaching responsibilities, she is an advocate for diversity, equity, and inclusion (DEI) in health science education. She is actively engaged in professional organizations including the American Society for Clinical Pathology (ASCP) and the American Society for Clinical Laboratory Science (ASCLS). Dana has been highlighted by other professional organizations, such as AABB, for her voluntary contributions in both service and leadership on various committees in

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Linda Cassar, has worked primarily with the maternal/child health patient population over her 30 years as a nurse, working in Labor and Delivery, Mother/Baby, High-Risk Antepartum, and Outpatient Community Perinatal Education. Currently, she teaches across all programs in The George Washington University School of Nursing, teaching OB and Women's Health, Nursing Leadership, and serving as a DNP project adviser. Dr. Cassar is the Interim Program Director of the Accelerated BSN program. Professionally, Dr. Cassar is active in The Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN). She is a member of the Virginia Section/Northern Virginia/DC chapter, currently serving as co-leader. In 2018, she was selected to participate in AWHONN's Emerging Leaders program. Since that time, she has served on the national level as a member of their Research Advisory Panel and their Membership Committee. She also serves as an item writer for the National Certification Corporation (NCC) for their core Inpatient Antepartum certification. Dr. Cassar's research includes evaluating nurses' support for newly delivered breastfeeding mothers and factors that contribute to compassion fatigue in Labor and Delivery nurses. In 2021, Dr. Cassar was awarded AWHONN Excellence in Education (Scholarly) award.

Amanda Chase is an Associate Professor of Medical Education with Nova Southeastern University College of Allopathic Medicine where she contributes to global course design for an integrated, case-based learning curriculum. She earned her Ph.D. in Cellular and Molecular Medicine at Johns Hopkins University School of Medicine and completed postdoctoral research on viral immunology at the Centers for Disease Control. Dr. Chase has collaborated with teams of educators to build innovative curricu-

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lum and assessment models for two new medical schools. Currently, she serves as the Cardiovascular, Pulmonary, and Renal Course Co-Director and Interprofessional Collaboration Thread Director. Her educational research focuses on enhancing strategic learning through the integration and assessment of communication skills, with a particular focus on role play to increase learner proficiency with the foundational and applied sciences. Dr. Chase is actively involved in faculty mentoring through the International Association of Medical Science Educators.

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Courtney Cross is an assistant professor in the Department of Microbiology, Immunology, & Genetics at the University of North Texas Health Science Center in Fort Worth, Texas. She completed her PhD in the Department of Preventive Medicine and her post-doctoral research in Maternal Fetal Medicine with a focus on genetic toxicology at UTMB Galveston. After a career as a medical educator, she joined UNTHSC to build a new pre-health professions education program using evidence-based best practices in learner-centered curricular design. Dr. Cross is a member of the Association of Professors of Human and Medical Genetics, the International Association of Medical Science Educators, and a former board member of the Joubert Syndrome and Related Disorders Foundation.

Anya Cruz (she/her) has worked in Pre-Health Advising at the University of Illinois Chicago since November of 2017. Prior to that, she worked as an Associate Director of College Admissions and a High School College Counselor. Anya is a first-generation college student originally from rural New Mexico. Having lived the experience of being one of a few students of color on a PWI campus, she has spent over 20 years working tirelessly to level the playing field for historically marginalized students in higher education.

Priyadarshini Dattathreya is a medical educator and an academic coach. Priya is a medical doctor by training and has earned a master's degree in medical education from the University of Dundee, Scotland. She has worked with medical students individually and in small groups to provide the kinds of learning tools and strategies that can help them reach their maximum potential. She has also facilitated several large group workshops for students focusing on developing the cognitive and metacognitive skills required for success in medical school. She has directed a remedial course that is geared toward

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Donnell Dawson received her MSHS in Integrative Medicine from the George Washington University School of Medicine and Health Sciences in 2020. She helped cofound milmindbody with MelMarie Yoga in 2018, the first yoga studio on a military installation bringing mind-body education to the military community focused on resilience and wellness. In 2019, Donnell founded a clinical nutrition and holistic education practice focused on women’s health and chronic illness through wellness coaching, nutrition, nutraceuticals, and evidence-based practices. She was hired as an Adjunct Instructor of Clinical Research and Leadership at the George Washington University School of Medicine and Health Sciences in 2020. Donnell is currently completing her Post-Master’s certificate (PMC) in Nutrition and Integrative Health from the Maryland University of Integrative Health and is a Clinical Nutrition Specialist Candidate (CNS-C). She writes, teaches, and collaborates with local health and wellness organizations providing research, guidance, and expertise in nutrition, mind-body practices, and wellness modalities.

Nancy Carter Dopke earned a Ph.D. in Inorganic Chemistry from University of Wisconsin-Madison after graduating with a Bachelor of Science degree from Millikin University in Decatur Illinois. She is currently an Associate Professor of Chemistry at Alma College. She has been involved in pre-health advising for almost 20 years, currently serving as a Co-Chair of the Pre-Health Professions Committee at Alma College where she has taught chemistry since Fall 2007.

Kirsti A. Dyer is a physician, health educator, professor, online instructor, and author. She received her medical and master’s degrees from the University of California, Davis and completed a residency in Internal Medicine. After having her two daughters, her professional focus shifted from clinical practice to education, nutrition, integrative medicine, health promotion and physician self-care. She has been teaching college and graduate courses, primarily online, for several institutions since 2005. In 2013 Dr. Dyer completed a fellowship in Integrative Medicine from Andrew Weil Center for Integrative Medicine with the University of Arizona. She joined the George Washington Integrative Medicine Program in 2019, as an Adjunct Associate Professor of Clinical Research and Leadership. At GWU, Dr. Dyer teaches Self-care Methods for Health Care Professionals, a course she would have immensely appreciated taking as a medical student or resident physician.

Ima Ebong received her Doctor of Medicine degree from the University of Kentucky College of Medicine (UKCOM). She is an Assistant Professor and the Director of Diversity and Inclusion for the UKCOM Department of Neurology. Her interest in equity, diversity and inclusion in medicine began as a medical student when she founded University of Kentucky Medical Education Development (UKMED), an annual recruitment program for prospective medical students from underrepresented backgrounds. In 2020, she was named one of “1000 Inspiring Black Scientists in America” published by Cell Mentor and The Community of Scholars.

Carol Elam served as the Admissions Dean for 29 years at the University of Kentucky College of Medicine and is a Professor in the Department of Behavioral Science. She has served as the Past National Chair of both the Group on Educational Affairs and the Group on Student Affairs of the Association of

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American Medical Colleges. Dr. Elam has published over 140 articles in the medical education literature and is a member of the Society of Directors of Research in Medical Education.

Jessica Evert straddles international education and the medical profession. She served as CFHI Executive Director from 2013-2021 and is currently CFHI's Global Medical Director. She oversees CFHI safety and risk management, thought leadership, publications, and advocacy. She has co-authored dozens of articles and texts focused on best practices for student and faculty engagement in global health. Dr. Evert is Faculty in the Department of Family and Community Medicine at the University of California, San Francisco, where she instructs in Global Health and community-based underserved care and helped develop, as well as completed, the Global Health Clinical Scholars residency track. Dr. Evert is a graduate of the Ohio State University College of Medicine and is a longtime advocate for health-related international education quality and ethical standards. She is author and editor of multiple chapters, articles and books in global health with a focus on education, ethics, and asset-based engagement, including the seminal texts, including *Global Health Experiential Education: From Theory to Practice*, *Developing Global Health Programming: A Guidebook for Medical and Professional Schools*, 2nd Ed, *Global Health Training in Graduate Medical Education*, 2nd Ed and *Reflection in Global Health: An Anthology*. She helped develop the Forum on Education Abroad's Standards for Health-Related Undergraduate Programs. She serves on Consortium of Universities for Global Health's Education Committee, as well as multiple other leadership bodies over 2 decades. Dr. Evert is a recipient of Global Health Education Consortium's prestigious Christopher Krogh Award for her dedication to underserved populations at home and abroad. Dr. Evert's research and advocacy areas of focus are the ethics of global educational engagement, competency-based international education, health disparities, asset-based programmatic and reflection. Dr. Evert is a practicing physician in the Western United States focusing on hospital medicine and palliative & supportive care.

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Amber J. Heck received her PhD in Biomedical Sciences from the University of North Texas Health Science Center (UNTHSC) in Fort Worth, Texas. She has over a decade of experience in undergraduate medical education and has served in multiple leadership roles in education, research, and faculty development. Dr. Heck has focused her professional efforts on creating novel interventions to promote learner success in early medical education. She is active within the medical education community, and contributes to scholarship and faculty development, internationally. In 2016, she became a Fellow of the International Association of Medical Science Educators (IAMSE), and in 2020 she was awarded the IAMSE Early Career Award for Excellence in Teaching and Innovation. Currently, Dr. Heck is the Director of Basic Science Curriculum at ScholarRx, where she contributes to the development of digital learning resources for medical education.

Joslyn Isaac is pursuing a Doctorate of Medicine at the University of Kentucky College of Medicine. Her research interests include qualitative research studying health disparities and barriers to education in underrepresented student groups.

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Carl Lam is a Senior Academic Advisor and Prehealth Committee Coordinator at the University at Buffalo, The State University of New York and has been working in the office since June of 2016. At UB, he also serves as a member on the Prehealth Committee. He currently serves on the Executive Board for the Northeast Association of Advisors for the Health Professions. Outside of advising, he is a professional violinist and broadcast meteorologist having worked in markets like Buffalo, Rochester, and Cleveland.

Seth L. Leibowitz is the Executive Director of Health Sciences Programs and Advising at Virginia Commonwealth University. His area of practice and teaching involve living-learning program development, service-learning courses, health professions advising, and implementation of pipeline programs to assist minority and disadvantaged students to enter health sciences training programs. His work in the Divisions of Health Sciences Diversity and Department of Kinesiology and Health Sciences include providing academic support services to pre-health students and building a Health Sciences Academy to prepare high school students to enter college and make career decisions.

Jane Mbeng Ako is pursuing a Doctorate of Medicine at the University of Kentucky College of Medicine. Her interest is in women's health focusing on elimination of racial and ethnic disparities in the health and health care of women.

Julie R. Nelson received her MA and Eds in Counseling and Human Development degrees from the George Washington University in 2002 and 2010, respectively. In 2000 she was hired as an academic advisor at the George Washington University and subsequently took advising positions at both North Carolina State University (2009 to 2013) and the University of Iowa (2013 to 2021). She currently serves as a pre-health advisor at the University of Michigan in Ann Arbor, MI. Julie writes and presents widely on issues related to counseling approaches, wellness, interpersonal communication, and valuing social justice in academic advising. She is the author of *Understanding Backwards: Using Counseling Strategies in Advising Pre-Health Students Who Do Not Make Progress* (Nelson, 2015).

Cynthia Ann Powell received her Master of Arts in Education and Human Development from The George Washington University in 2007. She has over fifteen years of leadership experience within education and health care settings, and recently served as Director of the Office of Student Professional Enrichment (formerly Office of Student Opportunities) within The George Washington University School of Medicine and Health Sciences. She is currently a Clinical Instructor with The George Washington University School of Medicine and Health Sciences, and Principal of Cynergy Wellness Group, LLC. Her research interests include the areas of self-care, mindfulness, resilience, and stress management.

Jan Reichard-Brown earned her PhD from the University of Cincinnati in 1982. She teaches and mentors undergraduate students as an Associate Professor of Biology and Health Care studies at Susquehanna University and serves as the past president, (2018-2020), of the Northeast Association of the Advisors of the Health Professions (NEAAHP). In 2004 she became the Pre-Health Professions Advisor in addition to her faculty duties, which triggered her interests in the barriers that disadvantaged students face when

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Virginia Rowthorn is assistant vice president for global engagement at the University of Maryland, Baltimore and executive director of the Center for Global Engagement (CGE). She also is a Associate Professor at the University of Maryland, Baltimore Graduate School, where she directs the Global Health Innovation Certificate program. Previously, Rowthorn was the Managing Director for the Law & Health Care Program at Maryland Carey Law for 10 years; a staff attorney at the Department of Health and Human Services; Associate at the law firm of DLA Piper; and a Peace Corps Volunteer in the Marshall Islands. She is on the Board of the Consortium of Universities for Global Health (CUGH). In her role as AVP, Rowthorn oversees the activities of CGE, a University-wide center that serves as the hub of inter-professional global health and education activities on the UMB campus. CGE provides University-wide leadership to build and sustain global education at UMB; nurtures strategic global partnerships through the center-run President's Global Impact Fund; creates and manages student, faculty, and staff mobility programs; promotes collaborative international research; develops curricula designed to build global competency through the GLOBALtime Fellows Program; and delivers educational and professional services that support sustainable global programs. Rowthorn obtained her BA in American Studies from Carleton College, JD from University of Maryland Carey School of Law, and LLM in Global Health Law from Georgetown Law.

Savannah Salato graduated summa cum laude with a BA in Biology, Society, & Environment from the University of Minnesota – Twin Cities in 2021. She currently works as a Research & Special Projects Assistant for the National Center for Interprofessional Practice and Education. In the fall of 2021, she hosted sessions on social science in interprofessional practice and education (IPE) at the Center's national conference, the Nexus Summit. She is currently working with the University of Minnesota archivists to preserve Dr. Bud Baldwin's historical IPE collection. She plans to pursue a PhD in medical sociology starting fall 2022. Her research interests include the socialization of pre-health students, maternal health disparities, and antiracist curricular reform for pre-health undergraduates.

Robin Arnsperger Selzer is an Associate Professor for undergraduate students exploring healthcare careers in the University of Cincinnati's Division of Experience-Based Learning & Career Education. Dr. Selzer complete her doctorate in Higher Education Administration from Loyola University Chicago in 2006 and has academic background in Sociology and Counseling. She has 26 years of experience in higher education which has led to broad knowledge of best practices for student engagement and strategic program management across university operations including Admissions, Academic Advising, Student and Academic Affairs, and Alumni Relations. She has consistently been promoted for excellent performance and is committed to institutional diversity, equity, and inclusion. You can find her on Linked in or reach her via www.RobinSelzer.com.

Michelle Sherman has worked at Boston University (BU) since Fall 2009. Michelle earned her MBA from Northeastern University while working in the Department of Biology at Boston University. She joined the Preprofessional Advising Office in February of 2015 as the Assistant Director of Pre-Health Programs and is now the Director of Pre-health Programs & Advising. Michelle is also the Co-Director of BU's Modular Medical/Dental Integrated Curriculum and Seven-Year Liberal Arts/Medical Education

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Program, a member of the Provost's Advising Network, and serves as the advisor for several pre-health oriented student groups on campus. Finally, she is a member of both the National Association of Advisors for the Health Professions and the Northeast Association of Advisors for the Health Professions (NEAAHP), and currently serves on the NEAAHP Executive Board.

Victoria A. Shivy is an associate professor in the Department of Psychology at Virginia Commonwealth University. Her academic research and professional service activities focus on helping individuals (most often from underserved populations) enter, adjust to, thrive in, and transition away from work and career. At VCU she teaches courses in career development and occupational health, industrial psychology, psychological assessment, and research methodology-- as well as specialty courses in career-decision making (careers in psychology and careers in the biomedical sciences). Finally, she is a licensed psychologist (VA & NY) with a small private psychology practice directed towards work and career-related concerns.

Mandy Siglin received her PhD in Molecular Pharmacology and Structural Biology from Thomas Jefferson University in 2010. Following a postdoctoral fellowship in virology, she was teaching faculty and administration in Thomas Jefferson University's Postbaccalaureate Pre-Professional Program. From 2014 through 2019 she was the Director of Juniata College's Health Professions Program. In 2020, she founded ThriveMed, a company dedicated to fostering the wellbeing of pre-health students. ThriveMed collaborates with institutions and works individually with students to help pre-health students implement practical wellbeing habits during particularly stressful points in their career path. Specifically, she uses strategic, evidence-based practices to help students increase their confidence and lower their stress and anxiety around standardized entrance exams for admission to professional school.

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Tricia Todd is the Director of the Pre-Health Student Resource Center at the University of Minnesota and an instructor in the School of Public Health. She is responsible for the Administrative oversight of the Center that serves the UM system and over 10,000 people a year. She leads the creation of new educational programming and was the lead designer for the Global Ambassadors for Patient Safety online educational module open access tool that gets used by over 7,000 users a year throughout the world. She has also developed multiple global experiences for students with a focus on ethical experiences in pre-health. With her guidance, the PHSRC has initiated a system-wide task force to identify, reduce and eliminate barriers for students historically under-represented in the health professions and to identify and deliver the support and resources they need for successful matriculation into a health profession.

Alison Warren received her Doctorate in Acupuncture and Oriental Medicine from Bastyr University in 2012. In 2017 she received her MSHS in Integrative Medicine from George Washington University and completed a Fellowship and board certification in Metabolic, Nutritional, and Functional Medicine from the American Academy of Antiaging Medicine. She is clinically active and holds a part-time faculty position as an Assistant Adjunct Professor in the School of Medicine and Health Sciences in the Department of Clinical Research and Leadership at George Washington University, where she teaches classes in Integrative Medicine. She is a member of the Cognitive Neuroscience Society, American

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Academy of Anti-aging Medicine, and the Academic Consortium for Integrative Medicine and Health. Her research interests primarily include neurocognitive disorders, brain injury, psychoneuroimmunology, psychoneuroendocrinology, and integrative medical interventions.

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