

## **Preparing Students for Health-Related Professional Programs**

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### **Abstract**

Undergraduate students who are interested in health-related careers that require graduate clinical education such as those in medicine or dentistry must begin preparing for this pathway early in their academic career. Students seeking these programs must balance admission requirements with their major courses and personal development to become an ideal candidate. Many universities have a supporting structure in place for these students, such as pre-professional degrees and/or programs. Pre-professional program faculty and advisors can help support these students through guidance, mentorship, and effective programming.

### **Introduction**

Most professional programs are competitive with rigorous requirements. Undergraduate students pursuing these types of programs are often labeled as “pre-professional”, denoting those who are pursuing education beyond their undergraduate studies. This journey can be long and challenging for many, often requiring the balance of difficult coursework with a variety of extracurricular activities and a time-consuming application process in hopes of admission to a competitive program. This paper seeks to identify ways pre-professional programs and faculty can help support these students throughout this process by offering a variety of resources in an easily accessible manner. These resources should focus on addressing the academic requirements of professional programs, helping students gain experience beyond the classroom to demonstrate their growth and professionalism, and providing support for the application process.

### **Preparing for Graduate Clinical Education**

#### *Academic Requirements*

Freshmen who start college with dreams of pursuing post-graduate programming such as medical or dental school are typically initially concerned with their major. What major is “best”? Pre-professional advisors must inform students that there is no “magic” major. The Association of American Medical Colleges has found no meaningful correlation between major and admission (AAMC, 2023). Rather, it is important that a student chooses a major that will help them meet their goals in an area of interest to them. Certain majors, such as biology, chemistry, or health studies, may include the majority of prerequisites and offer an introduction to some of the content to be covered in the graduate program, but another major may highlight a more well-rounded applicant. With much of their pre-professional pathway remaining ahead of them, it is also important for students to consider what they may do with their major if their pathway changes.

While deciding on a major, it is important that students learn the common prerequisites for the desired graduate program they are pursuing. Requirements vary by discipline, but may also vary by school. As the student progresses, they can further research their programs of interest, but general prerequisites can begin early in their academic career. This includes general courses like English composition, psychology, sociology, economics, public speaking or interpersonal communication, and perhaps cultural and international studies. Most graduate clinical programs also require a strong foundation in science and mathematics that may include general biology and microbiology, anatomy and physiology, general and organic chemistry, precalculus and/or calculus, physics, and statistics. Some may require advanced courses like biochemistry, cell biology, genetics, and immunology as well. These courses are often sequential with associated prerequisites, so it is important that students begin on the right track of math and science courses to ensure they are able to complete them prior to their desired graduation date and are prepared for any required standardized entrance exams. (AAPA, 2023; ADEA, 2022; APTA, 2023; AAMC, 2023)

### *Demonstrating Experience and Professionalism*

Applying to professional programs goes far beyond passing prerequisite courses and is a complex selection process that considers academics, service, life experiences, ethics, interpersonal skills, and professionalism (Bingham et al., 2012). The process requires a willingness to sacrifice as it can be intensive and time consuming. Graduate programs are looking for applicants with curiosity and a dedication to learning, and most competitive applicants demonstrate a passion for science (Richardson & Latz, 2016). Many programs require or highly recommend research experience, desiring applicants who have been able to develop and demonstrate analytical skills (Mass-Hernandez et al., 2022). Students interested in pursuing professional programs need to seek out mentors, health professionals in their area(s) of interest who can help expose them to the discipline and guide them through their exploration of the career. Many programs require a certain number of shadowing hours, where participants can be directly exposed to the interactions of such health professionals (Richardson & Latz, 2016).

Although it is important to achieve high academic scores and complete all other requirements, professional programs are also looking for individuals with interpersonal skills who demonstrate a level of professionalism necessary for the discipline. According to Choudry et al. (2022), “medical professionalism encompasses professional attributes, values, beliefs, and behaviors expected from a healthcare professional in a given situation to ensure safe and efficient provision of healthcare services” (p. 31). The undergraduate curriculum should ensure opportunities for students to recognize and build these skills, helping students demonstrate compassion, a concern for others, and an awareness of the patient perspective (Leonard et al., 2022). Oral communication, empathy, shared decision making, and interprofessional collaboration are skills that are valued across health professions. Communication is essential to establishing rapport and developing trust with patients, particularly those who come from different backgrounds. As healthcare continues to move towards a prevention-focused patient-centered care model, professional programs will continue to look for individuals who are interested in promoting healthy lifestyles. This requires the ability to examine multiple determinants of health without judgment, see things from the patient’s point of view, and motivate others to change behavior (Leonard et al., 2022). Students need to consider these desired qualifications when choosing

courses and should reflect on their coursework and experiences to articulate their skills in these areas.

This shift to patient-centered care requires cultural competence, an understanding of the social determinants of health, and an appreciation of broader ethical and moral issues (Bingham et al., 2012). This is essential in preparing students to address health inequities with their patients and within their communities (Chowdhury & Madden, 2021). Students should be challenged to consider scientific racism and the impact it has on patient care. They should have an understanding of medical ethics and the application to controversial scenarios (Horkoff, 2014). Beyond cultural competency, students should consider structural competency which “emphasizes diagnostic recognition of the economic and political conditions that produce health inequities in the first place” (Metzl et al., 2018, p. 190). These types of skills are often assessed through the interview process, but even standardized exams like the MCAT now ask students to demonstrate aptitude in determinants of health, health behaviors, and health policy (Metzl et al., 2018).

### *Application Requirements*

Such standardized exams are required for a variety of graduate programs and are an essential step in the application process. Students and advisors should consider how the competencies for entrance exams align with academic coursework (Bingham et al., 2012). Students should also prepare for other parts of the application process, such as the personal statement and interview. These application elements help reviewers assess the interpersonal and communication skills described previously, and students should seek assistance and opportunities to practice. For example, medical schools require multiple mini-interviews (MMI) that assess applicant behavior and qualities such as communication skills, ability to cope with pressure, awareness, and maturity (Moshinsky et al., 2017). Students should use their undergraduate academic and extracurricular experiences to help them reflect on their personal assets and values when writing their personal statements (Leonard et al., 2022). Personal statements or essays often require multiple revisions and students should seek regular feedback from peers, family members, and mentors.

Although the pathway to a professional clinical program can be long and grueling, academic programs can assist and encourage students along the way by providing a variety of supportive tools and opportunities. Students should be mentored throughout the process and connected to appropriate resources. Recognizing the variety of program requirements and desired experiences beyond the classroom can help academic support centers create a holistic pre-professional studies program.

## **Pre-Professional Studies Program Support Strategies**

### *Academic Assistance*

Support begins as soon as the incoming student participates in orientation. During this time students should be encouraged to look at a variety of majors with guidance to balance their professional goals, prerequisites, and passions/interests (Richardson & Latz, 2016). Providing a recommended timeline for the course plan and application process can help students grasp the intensive nature of pursuing a professional program and help them begin the process early. Students should also be encouraged to consider and create a contingency plan (Hodgson & Bretherton, 2021). Prerequisites can vary widely for some disciplines, so students should be

encouraged early on to begin considering potential graduate schools to ensure they take all prerequisite courses. Timeliness may be important for some classes, particularly math and science courses that require a steady progression. In addition to required prerequisites, students should be encouraged to take courses that may help them in future classes, such as pathophysiology, pharmacology, or advanced science courses (Hodgson & Bretherton, 2021). Other courses that may help the student become a more well-rounded professional include courses in business, behavior change theory, motivational interviewing, and complementary and alternative medicine (Horkoff, 2014; Leonard et al., 2022). Academic programs preparing these students should consider applied and experiential learning opportunities, integrating case studies and simulation when possible. Advisors should reference the student's anticipated timeline during appointments to help the student stay on track and address any potential scheduling issues or delays. This timeline may need to be revised as the student progresses, adds extracurricular activities, and narrows down their programs of choice. This can be a good time to discuss time management and the importance of keeping a high GPA.

### *Beyond the Classroom*

As mentioned above, competitive applicants seek a variety of extracurricular activities, including research and shadowing. Unfortunately, many undergraduate students have challenges finding research opportunities. One study found that 81% of students were unaware of the research activities happening on their campus. Pre-professional programming should include initiatives to inform students about research opportunities, such as advertising research events, organizing lunch-and-learn meetings for faculty to share their research with students, developing an interactive research website, or creating a research newsletter (Mass-Hernandez et al., 2022). Universities may also consider funding and promoting student research through on-campus conferences and financial support for poster printing, travel, etc.

In addition to seeking a research mentor, students should be encouraged to seek a mentor in their chosen discipline. These relationships are often some of the most meaningful to the student experience and are powerful in student development (Richardson & Latz, 2016). This person can share their experiences, provide insights into the profession, and guide the student along their pre-professional path. They can also help the student gain shadowing hours, a common requirement for graduate programs. Service-learning opportunities are a good way to connect students with both the community and potential mentors, and international experiences offer a significant opportunity for personal growth and connection (Leonard et al., 2022; Richardson & Latz, 2016). Advisors and pre-professional faculty can help connect students with potential mentorship, service-learning, and international opportunities and guide students to consider the outcomes of such experiences. Simply clocking shadowing hours is not the intention of the requirement. Students should be encouraged to reflect on their experiences, considering what they learned and how that may have changed their view of the profession or themselves (Richardson & Latz, 2016).

This type of reflection is important in students gaining and better understanding their interpersonal skills, including their communication and collaboration skills and ability to empathize with others. Some classes may be helpful in this process, such as communication, management, leadership, and organizational behavior courses that support students in developing these skills and presenting their ideas in an effective manner (Horkoff, 2014). Service-learning

can also help students develop confidence and grow their professionalism, communication, teamwork, and leadership skills (Leonard et al., 2022). Pre-professional programs can guide students in reflective writing to help support their self-actualization and self-evaluation. This type of writing can be integrated into their personal statement.

Undergraduate programming should help students gain a broader perspective and begin building cultural competence. Social science courses can help expose students to different beliefs and attitudes and having discussions in the classroom about upstream determinants of health can help students recognize the social issues and structural factors that impact patients (Chowdhury & Madden, 2021). Students who come from an interdisciplinary curriculum can better identify and analyze relationships between structural factors and health outcomes (Metzl et al., 2018). In a study conducted at Vanderbilt University, researchers found that students who took courses emphasizing social issues were three times more likely to identify a structural factor as a primary force in explaining health disparities (Chowdhury & Madden, 2021). Integrating courses in economics, sociology, anthropology, critical race studies, urban planning, and genetics, among others, can help students explore the social and economic structures that contribute to health inequities (Metzl et al., 2018). Again, service-learning opportunities provide a connection to the community where students can further improve their compassion, empathy, cultural sensitivity, social responsibility, and open mindedness (Leonard et al., 2022).

#### *Application Assistance*

Support for application and standardized exam preparation can vary by program. It may include coaching courses, personal mentoring, joint preparatory groups with other students, and individual preparation via a variety of asynchronous materials. Pre-professional programs must recognize that this process can be difficult to navigate for students who need guidance on how to prioritize academics with extracurricular activities and the application process. Students may need to take a lighter course load or avoid summer classes during the time they plan to study for and take a standardized exam, such as the MCAT, and during the semester they complete the majority of the application process. Tools on time management can help students balance these various priorities while ensuring they meet all deadlines. Students should be encouraged to write and revise personal statements, and share them with others to help them reflect their aspirations and growth. Study aids and practice examinations are beneficial to applicants and may be provided by the pre-professional program, as well as opportunities for students to practice their interviewing skills by setting up mock MMIs or coordinating with their career center to offer interview training and feedback. (Moshinsky et al., 2017)

All of these resources and mentoring opportunities can be structured into a preparatory course or seminar for pre-professional students, either for credit or as an extracurricular offering. Such a course can outline the process, help students develop strategies for preparation and application, and build a community of support (Richardson & Latz, 2016). It can include tools such as timelines, course plans, shadowing hour logs, personal statement examples, study aids, and practice exams. It can be used to communicate upcoming course electives, research events, workshops, and shadowing, service-learning, and international opportunities. A pre-professional course can provide development resources such as case studies, time management tools, reflection questions, and publication recommendations. It can also serve as a community building tool connecting students with each other, with faculty, and with local mentors. Providing

these resources through a course or seminar helps centralize efforts and provides easy access to students.

## Conclusion

Pre-professional programs and faculty can offer a variety of resources to support students pursuing graduate programming in healthcare disciplines as they balance application requirements with their major undergraduate studies. Resources should help students choose prerequisite and elective courses, adhere to a recommended timeline, and develop a contingency plan. Programs can help students connect to research, mentoring, and shadowing opportunities and guide students in self-reflection around these experiences. As students approach graduation, support may be provided for standardized exam preparation and application. Pre-professional programs can offer this support by providing a variety of resources either within a mandatory or elective course, optional course site, or through document sharing. Supporting these students early with directed advising, connection to mentoring opportunities, and useful tools and resources helps set them up for success.

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