IMPROVING DIVERSITY AND INCLUSION FOR FIRST-GENERATION COLLEGE GRADUATES IN MEDICINE

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ABSTRACT

First-generation and low-income college graduates are an invisible minority within medicine that has gone largely unstudied. I explored their unique experiences to better understand how diversity and inclusion can be improved. Through gathering stories from students, residents, and attending physicians, I identified unique challenges that they face, and formulated strategies to address them. First-generation college graduates in medicine have a unique set of strengths, challenges, and opportunities that position them to be valuable physicians in the communities that they serve. The American Medical Association states that when minority students finish medical school and residency, they go on to serve society in a way that has not been done before. Furthermore, they are more likely to serve underserved and minority populations, in turn fostering justice and equity in medicine. Some of the qualities that most first-generation college graduates possess that make them well-suited to become successful physicians are resilience, self-motivation, and efficacy. Paving the path for future physicians is a tremendous pressure that can motivate or overwhelm them as they trailblaze their way through medicine. There is an accumulated disadvantage as they are more likely to be underprepared academically, to have less guidance, and to have more financial struggles. First-generation students have several traits that characterize them as an at-risk population in higher education; they take longer to complete their bachelor's degree and have lower degree aspirations when compared with their peers. They also face moral distress and a growing disconnect as they balance their familial obligations with academics and experience social mobility. Though these are factors that impact their success in college, they do not cease to pose issues when they

successfully enter medical school and have to navigate the culture and hierarchy of medicine, as well as the disparate allocation of resources in medical school as they are not deemed as underrepresented in medicine. By understanding these factors, administrators can strengthen pipeline programs and support systems. In supporting the next generation of first-generation physicians at all stages of their training, they can promote a workforce as diverse as the patients it serves.

This thesis is dedicated to my parents, friends, and mentors who have supported me and encouraged me in my aspirations. It is also dedicated to all of those who have shared their stories with me - the dreamers whose resilience, work ethic, and hope have catapaulted them to achieve more than they could have ever imagined. I am so proud of us FGLI students, and look forward to seeing what else is in store.

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CHAPTER 1

INTRODUCTION: A CALL TO ACTION – DIVERSITY, EQUITY AND INCLUSION MUST BE IMPROVED

Despite the fact that in 1997, the Association of American Medical Colleges (AAMC) proclaimed the need to "bridge the appalling diversity gap that separates medicine from the society it professes to serve," because "seeking diversity in the medical professions is imperative to achieve just and equitable access to rewarding careers in the medical profession," the demographics of medical school classes have only moderately changed in the last 20 years.[20] Many medical institutions still rely on an older definition of underrepresented in medicine (URM) status that includes Black, Mexican-American, Native American, and mainland Puerto Rican individuals. Although this definition considers the racial and ethnic aspects of diversity, it does not take into account socioeconomic class.[i] Despite efforts by medical institutions to recruit and to retain racially specific URM students, the current makeup of medical students and physicians does not mirror either the racial or socioeconomic demographics of either our country or those who staff hospitals.

First-generation college graduates and students represent another often-ignored dimension of underrepresented and marginalized communities in the medical field. Many colleges acknowledge that first-generation college students, those whose parents do not possess a bachelor's degree in the United States, experience marginalization in higher

[i] It is important to also acknowledge the other aspects of diversity, such as gender and sexual orientation. More research should be conducted for these subgroups, but due to the limited scope of this paper, I will not address it as thoroughly.

education, but often neglect to offer specialized resources to help them navigate their particular set of challenges. For some racial and ethnic URMs, these students face additional class-based obstacles which merit relevant resources and support, but few medical institutions have channeled their efforts into studying this subset of students. Additionally, the older definition of URM excludes underrepresented first-generation Asian Americans and white Americans who are also marginalized due to their socioeconomic status. As of 2021, statistics regarding the race, ethnicity, sex, and geographic origins of medical school applicants and matriculants are available, but public data regarding matriculants' socioeconomic class or whether they are first in their families to attend college or medical school is scarce.[1] In order to continue to promote equity in medicine, it is imperative that scholars also consider socioeconomic factors such as first-generation college student status when defining URM status and examining how it intersects with other dimensions of marginalization such as race and ethnicity.

In this paper, I will explore the unique and varied strengths and challenges of being a first-generation college graduate in medicine, and propose solutions to improve socioeconomic diversity and inclusion within medicine for these individuals. First, I will delve into the historical context surrounding the definition of URM status. I will then explore the invisible minority of first-generation college graduates within medicine, followed by the current state of socioeconomic diversity within medicine. In the following section, I will explain why representation matters within medical professions. Next, I will discuss the strengths and challenges faced by first-generation college graduates in medicine, as well as the existing resources for these students. Last, I will provide recommendations on how medical institutions can improve their support structures to better

recruit and retain this subset of individuals. I hope that this will encourage other academic and medical institutions to study this invisible minority of students in order to improve the healthcare workforce and quality of care that patients receive.

CHAPTER 2

WHAT IS UNDERREPRESENTED IN MEDICINE?

An Evolving Term

According to the AAMC, underrepresented in medicine is defined as the racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population.[29] This vague definition was adopted by the AAMC's Executive Council on June 26, 2003 in hopes of helping medical schools accomplish a few goals. Prior to this date, URM encompassed Black, Mexican-American, Native American, and mainland Puerto Rican individuals.

The first goal of the new definition adopted in 2003 was a shift from a fixed aggregation of four racial and ethnic groups listed above to a continually evolving underlying reality that reflects changing demographics of society and medicine. That being said, the AAMC remains committed to ensuring that there is access to medical education and careers in medicine for those from those historically underrepresented racial and ethnic groups. The four racial and ethnic groups listed above are still the definition of URM that is usually used today in medical schools, but new data has suggested that perhaps the definition needs to broaden. According to the AAMC in 2016, Southeast Asian subgroup (Vietnamese, Indonesian, Cambodian, and Laotian) applicants represent only 5% of all applicants and apply to medical schools at lower rates than Black or African American and Hispanic or Latinx students.[6] Despite these statistics, the Model Minority Myth has prevented this from garnering more attention. William Pettersen used the term “Model Minority” in 1966 to describe successful Japanese-Americans, but it has been generalized

to all Asians and fostered anti-Blackness and White Supremacy by driving a wedge between minority groups.[22] Because Southeast Asians fall under the category of being Asian, they are not considered underrepresented, and there are no initiatives to recruit them to address their lack of representation. The second goal of the new URM definition is a shift from a national perspective to a local or regional take on underrepresentation. Third is the promotion of data collection and reporting on the broad range of ethnic and racial self-descriptions.

This adoption of a new definition for URM was a major step for the AAMC - they have stated themselves that "the disaggregation of racial and ethnic minority subpopulations is pivotal to grasping a full view of barriers and challenges in professional and graduate education."[6] The AAMC has unsuccessfully tried to increase diversity in medicine for decades, and this kind of data is what is necessary in order to better target recruitment efforts. Though this definition aimed to be more open to reflect changing statistics in the American population and each school or region can have its unique definition, it does not consider other socioeconomic factors and it seems that most schools still currently consider URM to be those from the four racial and ethnic groups mentioned above.

A Failure To Achieve Racial And Ethnic Diversity Despite Decades Of Efforts

According to the 2000 U.S. Census, African Americans accounted for nearly 12.7% and Hispanic or Latinx individuals accounted for 12.6% of the United States population, but the current makeup of medical students and physicians mirrors neither the diversity of our country nor healthcare workers.[28] An overwhelming amount of people of color and

those from low-income families are filling the mid-tier and lower-tier jobs within medicine, such as medical assistant, nursing, technician, and custodian positions, among many others. As we move up the hierarchy, the statistics are staggering: "Only 4% of full-time faculty identify as Black or African American, Latino or Hispanic, Native American or Alaska Native, or Native Hawaiian or Pacific Islander females. This stark gender, racial and ethnic disparity among full-time faculty is mirrored at the department chair level, with women from those groups representing only 3% of department chairs in academic medicine."[6] Because a fair amount of people of color in medical school are from middle and upper socioeconomic classes, the number of women of color who identify as first-generation college students will be even lower than the aforementioned statistics. Faculty members in academic medicine and admissions departments are the faces that welcome and guide medical students. However, generally less than 17% of faculty members of color surveyed by the AAMC in 2016 were in professorship positions as compared to 26% of white faculty members.[28] Underrepresented minority faculty development is complicated by the effects of years of systematic segregation, tradition, discrimination, culture, and elitism in medicine. This impedes the augmentation of racial and ethnic diversity, as well as class-based diversity within institutions, as it plays a role in the recruitment and retention of first-generation college graduates. No rigorous data exist on the racial and ethnic breakdown of first-generation college students, but studies have suggested that 50% of undergraduates are first-generation college students. The Department of Education estimated that 25% of white and Asian-American, 41% of African-American, and 61% of Latinx undergraduates are first-generation college students.[7] Addressing these issues in diversity, equity and inclusion would lead to improved public health, an expanded contemporary medical

research agenda, and improved teaching of both underrepresented and non-minority students.[21]

Exploring Other Aspects Of Diversity Within Medicine

While medical institutions have tried to pay attention to race as a metric for diversity, they have failed to acknowledge additional factors influencing diversity, such as widespread class discrimination. Medicine has never been inclusive of those from low-income communities. Most schools do not consider one's socioeconomic status in defining URM status, and it is unclear whether gender identity is seriously considered in URM status. However, with the rising popularity and media coverage of the stories of Lesbian, Gay, Bisexual, Transgender, Queer and plus (LGBTQ+) community members and first-generation and low income (FGLI) students on college campuses, the AAMC has begun to study and to evaluate first-generation and low-income students' invisible minority status, as well as that of those with nonbinary gender identities. In 2017, the AAMC hosted a webinar to engage schools in conversation regarding effective practices for using new gender identity data. Titled "Creating a Welcoming Environment for Gender Diversity in Medical School Admissions," the 75-minute webinar consisted of representatives from AAMC member institutions discussing the steps they took to create safe, welcoming environments, and promising practices to improve the interview process and to create an inclusive learning environment.[4] It is interesting to note that no sessions were hosted on best practices for the inclusion of first-generation college students. As the AAMC considers other factors to adjust their Socio-Economic Status (SES) Disadvantaged Indicator, it would be interesting to see them continue hosting events similar to their webinar on gender

identities on topics regarding the addition of the FGLI and SES disadvantaged boxes to cultivate a culture of inclusion.

The evolution of the definition of URM status and its future directions mark a turning point in the approaches that the AAMC is taking to address the diversity gap that it has been trying to ameliorate for the past few decades. Now that I have summarized the history of URM status and the current efforts going into studying first-generation college graduates in medicine, I will proceed to talk about how this led to the invisibilization of these students.

CHAPTER 3

AN INVISIBLE MINORITY

According to Geoffrey Young, the AAMC Senior Director of Student Affairs and Programs, first-generation students "are in many ways a minority within medical school."[13] They are often a very small group of students within medical schools and little research exists on this subgroup of students. This invisible minority of students is rather diverse - these individuals span a variety of socioeconomic, racial, ethnic, cultural, religious, sex and gender identities. It is important to note the intersectionality in studies that suggest that first-generation college students are more likely to be African-American or Hispanic, older, married or have dependents, and from low-income families.[20] Nevertheless, one must not generalize those characteristics to all constituents of this group. Our country prides itself on meritocracy, but inequity is rampant and systemic factors are leading to failure to achieve justice for students from lower socioeconomic classes. Some first-generation college students may have parents who have associate degrees, but those degrees often have not helped those parents in securing jobs that would place them into the same category of privilege and access to resources as those whose parents have earned bachelor's degrees or beyond. Though not all first-generation college students and graduates come from low-income families, a large portion of them do and there is a strong correlation between first-generation college graduate status and lower incomes. It is thus important to note the difference between FGLI and first-generation college students. Much of the literature does not distinguish between the two, but there is a significant difference that augments the stress experienced by FGLI individuals compared to their non-low-income peers. This is

an unfortunate gap in knowledge that perpetuates inequity in medicine. Both experiences should be further studied in order to understand the intersectionality and multiple axes of oppression that exist for these two groups.

CHAPTER 4

THE CURRENT STATE OF SOCIOECONOMIC DIVERSITY

Like many other aspects of medicine's hierarchical structures, the composition of medical professionals has not changed very much in the past few decades. Higher-level positions in medicine are primarily filled by those from wealthy backgrounds. According to the AAMC, "the percentage of medical students from families in the highest quintile of household income has not dropped below 48 percent since 1987—half of students come from the richest 20 percent of the population—while the percentage of students from the lowest quintile has never risen above 5.5 percent."[15] A more recent study done in 2017 showed that from 1988 through 2017, the top two household income quintiles contributed between 73% and 79% of all matriculants each year. In fact, in Medical Student Questionnaire years 2007 through 2017, between 24% and 33% of entering medical students reported parental income in the top 5% of U.S. households. This data suggested that there was a larger proportion of first-generation college graduates in lower income brackets compared to their wealthier peers. Within the two lowest income quintiles, the proportion of medical school matriculants with parents who had less than a bachelor's degree, which I consider to be first-generation college graduates, was 62-66%, whereas for those from the two highest income quintiles, only 4-13% (fifth quintile) and 31% (fourth quintile) were considered first-generation college graduates.[30] Within the context of a country with continuously widening income inequality, these statistics are astounding.

One of the few studies conducted on the matriculation of first-generation college graduates to graduate and professional school lumped first-generation graduates and

graduates whose parents attended some college together. Researchers found that within four years of earning their bachelor's degree in 2007–08, 41% of both first-generation graduates and graduates whose parents attended some college had enrolled in a postsecondary degree program, compared to 46% of their peers whose parents held a bachelor's degree. While 10% of individuals whose parents had earned bachelor's degrees enrolled in doctoral or professional programs, only 4% of first-generation college graduates and 5% of those whose parents had some college education had done the same.[9] Though there are few studies out there with more robust statistics, it is not surprising that first-generation college graduates are far less likely to enroll in doctoral or professional school. The percentage in medical school is likely even lower when compared to other professional schools due to the extensive requirements and prioritization of activities more easily accessible by those who are more privileged in the admissions criteria for medical school.

It is uncertain whether schools actively keep track of how many students are first-generation college graduates. In 2018, the AAMC added a First-Generation College Student Indicator section in the American Medical Colleges Application Service (AMCAS) form for applicants to indicate whether they are first in their families to graduate from college in order to identify and to help them transition to medical school.[4] Because it is optional and self-reported, it is hence unreflective of everyone who responded to surveys. According to the AAMC, "despite their small numbers, first-generation medical students are increasingly visible as medical schools become more attuned to underrepresented student populations."[13] Regardless of these claims, Temple and many other schools do not collect specific first-generation college student data. Furthermore, few resources exist for

this population unless they have a first-generation interest group, because they do not qualify as underrepresented in medicine at most medical schools.

CHAPTER 5

REPRESENTATION MATTERS

Given the current social climate and increased efforts in anti-racism and diversity and inclusion within institutions, improving diversity within medicine should be a priority. It is one of the best investments that medical institutions can make towards improving quality of care for their patients, and for promoting sustainable healthcare systems that will keep up with their ever-growing list of patient needs. It leads to better patient care, and greater satisfaction for students and residents. Furthermore, given the increased diversification of the United States, augmenting diversity in medicine will better prepare health professionals for their interactions with those they serve.

One study from 2008 found that in a cohort of over 20,000 graduating medical students, white students attending more racially diverse medical schools rated themselves as better prepared than students at less diverse schools to care for racial and ethnic minority patients and had stronger attitudes towards inadequate access to health care. A threshold effect was suggested because these associations became apparent as the proportion of minority students increased above the 60th percentile (10% for URM proportion, 36% for all nonwhite students).[26] This makes sense, because students can learn from one another, and internalize a wider array of behaviors that they pick up from their more diverse peers. It is interesting to note that they also had stronger attitudes about inadequate access to health care. Perhaps interacting with diverse peers led them to think more about the grander scheme of healthcare within the context of biopsychosocial factors. It could also be that individuals from marginalized or underrepresented backgrounds are bringing these issues

up more often and fostering a culture among classmates that highlights these issues. Though white students benefited from increased diversity within their class, it is also important to acknowledge the fact that the URM students also reported feeling more prepared to care for racial and ethnic minority patients, as well as had stronger attitudes about inadequate access to health care. Even those who are diverse benefit from having other diverse individuals around them - this alludes to a synergism and need for a sense of community or solidarity to support each other through their training.

Besides better preparing medical students to care for diverse communities, increasing diversity has the ability to save lives and communities by alleviating the overloading of responsibilities that minority physicians face. The American Medical Association (AMA) states that minority physicians disproportionately care for minority populations.[5] A recent study in *JAMA* found that non-white physicians cared for 53.5% of minority and 70.4% of non-English-speaking patients. The study notes that there is an outsized role for minority physicians caring for the disadvantaged created by the coalescence of the preferences of physicians in choosing practice settings and of patients in choosing physicians.[17] Another study found that URM students were statistically significantly more likely than white and non-URM students to plan to serve the underserved (48.7% vs 16.2%, respectively).[26] Given the need for physicians in our health care force who will care for the underserved, it is important to have adequate representation among the future physician workforce. Though URM in this study did not specifically evaluate first-generation college graduates, the findings suggest that the sizable portion of first-generation college students who also identify as racially and ethnically URM could be planning to work with the underserved. The new definition of URM coined by the

AAMC in 2003 should include those from "disadvantaged backgrounds," such as those who are from low-income families or those who are first in their families to attend college. Though not all URM students will choose to pursue careers that will focus on caring for minorities, the fact that they are almost three times as likely as their peers to serve the underserved is significant enough that they are one of the best populations to help meet this demand. Studying the impact of socioeconomic class, such as first-generation college student status, on the populations that physicians choose to serve would likely show a higher propensity of FGLI physicians to care for marginalized communities. Consequently, it is important that URM status is refined, and that recruitment and retainment of URM individuals is improved within medical institutions.

CHAPTER 6

STRENGTHS OF FIRST-GENERATION COLLEGE GRADUATES IN MEDICINE

First-generation college graduates in medicine are an invisible minority that have a unique set of strengths, challenges, and opportunities that position them to be valuable physicians in the communities that they serve. Medical school deans agree that being a minority or being the first in your family to graduate from college is definitely an asset. Even the AMA is in consensus, stating that "when minority students finish medical school and residency, they will go on to serve society in a way that hasn't been done before."[5] As previously mentioned, they are more likely to serve underserved and minority populations, in turn, fostering justice and equity in medicine. Research shows that students of color are more likely to serve Medicaid patients and to be in primary care.[19]

Aside from their increased tendencies to serve these populations, first-generation students have often overcome significant barriers in order to get to medical school that instill in them qualities that will make them successful physicians. Some of the qualities that most first-generation college graduates I have met possess that make them well-suited to become successful physicians are resilience, self-motivation, resourcefulness, and efficacy. From early studies done in the 1980s on first-generation students who pursued doctoral degrees to recent books and articles, stories of first-generation students highlight their resilience, self-motivation, self-efficacy, and internalized locus of control to persist.[11] First-generation college graduates have learned to navigate institutions that ignore them, and to be resourceful with their sometimes-limited means so that they can build social capital upon their community cultural wealth. Indeed, many first-generation college

graduates that I have spoken to have high aspirations and expectations of themselves, often dreaming of making impactful changes in their communities. Students spoke of a sense of gratitude for being in medical school which helps to motivate them when they feel overwhelmed or struggle. The communities from which they come are very different from those that they join during their journeys through medicine. This experience of socio-economic mobility instills within them a feeling of empowerment and pride for their above-average efforts. Students even went as far as to say:

"I'm proud to be a first-generation medical student because it took significant effort to get where I am today. I feel quite proud to be the first in my family to pursue this field. I sometimes even feel a certain sense of superiority over classmates when I find out their family member is a physician."

They view their individual successes as part of a wider collective success, which paves the path for future generations of physicians. This mindset fosters motivation and a resilient work ethic that is an asset in surmounting obstacles and in addressing the complicated healthcare needs of their patients.

CHAPTER 7

CHALLENGES: ACCUMULATED DISADVANTAGE

Paving the path for future physicians is a tremendous pressure that can either motivate first-generation college graduates in medicine, or overwhelm them as they trailblaze their way through medicine. As daunting of a task it is though, it is very important work because the challenges that this community faces begin prior to medical school, and even college. In 1986, Clark and Corcoran coined the concept of "accumulated disadvantage": just as individuals can accumulate and compound wealth, they can also accumulate and compound advantage and disadvantage in their careers.[11] This can be used to describe the many barriers to accessing medical school that begin long before the application process. Having few or no mentors who can advise them on the steps to take, first-generation college students are more likely to be underprepared when they enter college because they have not taken higher-level math and science courses prior to entering college. Furthermore, they may experience challenges with the transition from high school to college because of financial struggles and lack of parental guidance. First-generation college students are also more likely to be African American or Hispanic and to come from low-income families.[20] Students also spoke of a disconnect between their own cultures and the culture of medicine. Take for example, this anecdote from a current medical student:

"Sometimes it feels like I can't keep up socially as both a first-generation American and college student. I remember a doctor I shadowed who came from Bangladesh told me, 'Our culture raises people to be more timid and supportive. That's good, but you need to

be more aggressive to get into medical school to keep up.' Now I see maybe it would be easier for me to be that way, but I don't want to lose who I am in the process."

Imposter syndrome, stereotype threat, and racism add a whole other set of challenges to the financial and social ones that first-generation college students already experience, demonstrating the impact of accumulated disadvantage on their college trajectories.[11]

Less Guidance

Once students manage the transition to college, they still have to be strategic about their coursework and pre-medical requirements to ensure that they fulfill them by the time that they intend to apply. Students remarked that they were not aware of how the choices they made early in their undergraduate careers would affect later choices in regard to graduate education. This was because they may not have had as much guidance throughout college and even less help through the application process. Even if they had little trouble transitioning to college because they had attended exclusive preparatory schools in the past, or because they just adapted well, it can still be difficult to ask for advice and find mentors when they do not feel that mentors have struggled in similar ways. First-generation college students tend to look at the grand scheme of things. This leads them to minimize their struggles. Sometimes, they do not even realize that they are encountering problems because they are so used to taking care of everything themselves. They can be independent to the point that they might not seek the help that they need early on. Furthermore, the concepts of office hours and networking with professors can be intimidating. Consequently, they may have chosen to major in something very different from medicine. When students do

that, they sometimes are unable to take prerequisite courses for medical school applications because they did not realize how limited spots were in these courses compared to the demand. Additionally, they may not have been prepared to study science in such an intensive way. With fewer connections, fewer shadowing opportunities, and less knowledge of the field, they have to do a lot of research to gain a better idea of what medicine is like, and to decide whether it is truly a good fit for them.

Assimilating Into A Different Culture

Another challenge echoed among medical students I have spoken to is the concept of assimilating into a whole different culture. As one student said, "we have to integrate ourselves into the culture of medicine and have to find out about the process of applying and getting through medical school." Aside from a more difficult transition to college and fewer advising opportunities, first-generation students often come from lower socioeconomic classes and face more challenges towards academic success. According to researchers, **"**first-generation students have been found to have several traits that characterize them as an at-risk population in higher education. Students from this population are more likely to grow up in low income families, receive less support from their family related to college enrollment, hold a full-time job during college, and spend less time interacting with faculty. First-generation students also take longer to complete their bachelor's degree and have lower degree aspirations when compared with their peers."[11] These factors impact their success in college and persist even when they successfully make it to graduate school. Though no research has been done on medical students, doctoral degree program candidates have been studied and the Council of

Graduate Schools claimed that "the characteristics of this population reflect those of students who are more likely to drop out of a doctoral degree program."[11]

The Path To Becoming A Physician Is Expensive

Financial pressure is a significant challenge that first-generation college graduates in medicine often face. It is unsurprising that so few medical students are from low-income families and that about three-fourths of medical matriculants are from the top two income quintiles for more than the past thirty years despite efforts to improve diversity. In addition to the challenges that first-generation college students face in getting to and succeeding in college, medical school admissions value activities that they may not have the luxury of doing, such as international service trips or global health experiences. More practically speaking, these students may not have had as much time to pursue certain extracurricular activities and research because they were working on-campus jobs or taking care of their families. Even the language surrounding applying to medical school emphasizes how unaffordable it is. A significant contributor to the disincentive for students from underrepresented groups and lower-income families is the financial messaging targeted at medical school applicants. The press, blogs, and materials from the AAMC stress the high cost of a medical education. For example, the website of the FIRST for Medical Education Program that provides information for students and families regarding student debt, financial aid, and money management emphasizes the cost of a medical education, interviewing and applications. It even goes as far as to include a subsection titled "Signs You Could Be Heading for Trouble."[15]

Because there is so much financial pressure in addition to the pressure to succeed, students may become stuck in a self-fulfilling prophecy. Often being hundreds of thousands of dollars in debt, they may feel pressured to proceed even if they discover that this is not what they want. Many students, residents, and attending physicians use this catastrophic debt burden to motivate them to keep pushing forward in medicine or try not to think about it too much:

"I think my debt, now that I'm getting closer to starting to pay it off, is on my mind more, but during medical school it was such a daunting large sum of money that I tried to stay blissfully ignorant."

There were mixed opinions from students, residents, and attendings on how much finances impacted the specialties that they chose. One statement seemed to encompass most thoughts though:

"Having a doctor's salary is more than my family's ever had. However, it would be nice to not have to worry about finances all the time. I'd like to have enough to give back to those who have supported me all this way, especially my parents."

During the course of the pandemic, medical schools, faculty interviewers during residency interviews, and students joked about the increased amount of time to study during the pandemic or the increased amount of vacation and time with their families from which they could benefit. However, the pandemic has certainly brought financial struggles to the forefront for many students, especially FGLI students, relying on loan disbursements:

"My internet connection at home is not always dependable. It has gone out for a week or more at times. So online learning can be interrupted if a signal is dropped.

Additionally, I worry about the next living allotment for medical students being delayed from being paid out because we most likely will still be under 'stay at home orders' when the date arrives for it to post to our accounts. With whether we can return to courses being up in the air, we might have our tuition held and thus our living allotment held. I cannot survive (pay for food and rent) without my loan living allotment."

Imposter Syndrome

A recurring challenge among first-generation college graduates in medicine at all stages of training is imposter syndrome and a lacking sense of belonging. The term "imposter syndrome" was coined by psychologists Pauline Rose Clance and Suzanne Imes in 1978 to describe a phenomenon among high-achieving women in which they believed that they had only succeeded due to luck rather than because of their talent and qualifications.[11] Decades later, it is often applied to those who are different from the perceived majority of an institution. Those experiencing imposter syndrome may not always experience an internal sense of success, and instead feel that they fooled anyone who thinks that they are intelligent and capable despite their credentials, qualifications and praise from their peers. As one resident so eloquently put it:

"It's hard. I experience tokenism and feel like I owe something to this institution for giving me scholarships and a job, even though I know I have had to work harder than my peers and earned it. Imposter syndrome still happens in residency. All the triggering moments in your life come to the surface and can stifle you. There's always a next step to work towards, and it's important to work through your FGLI identity."

Imposter syndrome can be particularly debilitating for individuals as they fear being discovered for their self-perceived intellectual phoniness, and struggle to integrate themselves into the culture of medicine to build social capital. In studying doctoral students, Gardner et al. state that "gatekeeping forms of capital may be challenging for first-generation students, including discursive capital, or legitimate academic language; aesthetic-cultural capital, or knowledge of the humanities and arts; cognitive capital, or a type of attitude that is similar to self-assurance; and temporal capital, or the amount of time the student is able to dedicate to scholarly pursuits."[11] There is no doubt that this also applies to medical students to further augment their feelings of otherness as they compare the world of their upbringing to that of higher education and medicine. When asked about a time during which they experienced this sense of imposter syndrome or otherness in medical school, students shared that it happened too frequently. It could range from a sense of discussions regarding class being taboo and looks and comments they received from their peers when they said their parents are not doctors, scientists, lawyers, or business executives, to more outright classism, such as one student's story:

"I live a little farther away from most of my classmates, and I live in a poorer neighborhood. I love my neighborhood, but sometimes I feel like classmates are a little rude about where I live. I also never take rideshares to save money and people make me feel uncomfortable about it."

Many students spoke of a pressure to know what unspoken "professionalism" entails:

"Mostly when thinking about my professional identity. Not having any form of doctor in my family, I didn't have the opportunity to really understand what it's like to think

and to behave like a doctor, and with all the pressure to conform, it's kind of disconcerting. It is also incredibly difficult to know what next steps you are supposed to be doing because it is as if the administration expects you to have this basic knowledge of how to navigate a career in medicine."

Many students echoed this lack of knowing what to do, and expressed frustration at medical schools for not assisting with it. That being said, imposter syndrome is extremely difficult to shake, and even non-first-generation college graduates may feel it. But in a minority population that is so different from their peers, they face deeper-rooted manifestations of it at higher rates than their non-first-generation college student peers. Even once they successfully graduate from medical school to enter residency or become attendings, the feeling persists.

Families Not Understanding

Another challenge that first-generation college graduates in medicine face is that their families may not always understand the intricacies of the lifestyles they lead, or the trajectories they must follow. Doctoral students shared that sometimes their parents understood why they would want to go to college but were considerably less supportive and understanding of their decision to pursue a graduate degree. In their quest to gain more social and cultural capital through the acquisition of a doctoral degree that their families may not have supported, they distance themselves physically and intellectually from their families.[11] As supportive as they try to be, family members can have difficulty grasping the path to becoming a physician and may end up placing a large burden on the individuals in medicine who may be unable to communicate their sentiments. As one student put it:

"It can be frustrating talking with my parents about my struggles and fears in medical school because they often don't understand, but they try. I feel like as the oldest daughter and as a first-gen med student, I carry extra responsibility in terms of providing therapy or counseling to my parents, and the holidays can be somewhat stressful. I feel scared for my future as a resident but I am very grateful that my family is loving and supportive."

Some families may just see medicine as a form of social mobility and a stable career. They may have misconceptions about it based on glamorized media portrayals, making it more difficult for them to understand why people pursue certain specialties that pay less or take longer to complete. A resident shared her story about the pressures she faced while switching specialties to one that required more training but about which she was more passionate:

"...it may be difficult for them to grasp the long hours, the seemingly endless number of years in training (such as in my case with already 11 years since college and with 3 more years to go), and the sacrifices required to achieve our goals. This is especially difficult if they see medicine as a means of income and not a passion, which may be the case for parents who never had the luxury of being able to choose a job based on their passion."

Students described cultural disconnects as well, when their families had bad experiences with medicine, and were skeptical of the things that they were learning or practicing at the hospital. Others described growing tensions at home whenever they visited because their families did not understand why they had to study so much, were worried about them, or often asked about when they would start earning money.

Familial Responsibilities

Though families may not always understand what is going on in the lives of those who are first in their families to be in medicine, most individuals felt a strong sense of commitment to their loved ones as well as the stress of familial responsibilities. When examining doctoral students, even those without dependents expressed the need to remain close to home to assist with their families' needs, especially those of aging parents. First-generation doctoral students were shown to be more likely than their non-first-generation peers to choose an educational institution based upon its proximity to their home; for example, one study found that these students stayed within 50 miles of their homes when choosing institutions of higher education.[10] Many medical students, residents, and attendings that I spoke to echoed this desire to be close to home so that they could take care of their family members as they balanced their academic and work responsibilities. One student told me of condescending assumptions and comments made by advisors telling this student to find other people to take care of one's parents when it came to stressful examination periods or licensing examinations:

"When you are in a low-income family, it's not like you can just drop money onto your family and expect them to be okay or push them off onto someone else. How could I just be expected to drop my responsibilities to the people who raised me to this point? When I told my family, they were enraged and questioned whether my medical degree was worth all of this suffering if we couldn't even be together in times of need. How could I help others when I couldn't even help my own family? They think you can just throw therapy or psychiatric medications at us but that doesn't take away the root of the problem."

Clearly, seeking help in unsupportive environments is already difficult. This kind of assumptive behavior can exacerbate feelings of imposter syndrome and make students ashamed or more reluctant to share their personal struggles. But it becomes even more challenging when the individual seeking guidance is being relied upon to take care of their own loved ones' wellbeing. A sense of guilt can build up within students as they learn to treat others, but have to neglect the wellbeing of their own family members to successfully learn to care for strangers. This is emotionally toiling, as demonstrated by one student's moving story:

"As much as I knew that I was at risk of failing and repeating the year, I knew the risks of uncontrolled diabetes and couldn't let that happen to my family and so I worked for a month in order to make enough money to cover the costs of a few months' worth of medication…I felt like I had done enough to at least pass. I failed by two points."

Even those who are geographically distant from their families may be expected to assist with things such as translating, helping with paperwork or job applications, calling insurance companies, and scheduling appointments, among other tasks. They may also support their families financially from afar. The pandemic has definitely brought a larger burden upon these individuals as their loved ones may be essential workers without spacious quarters to isolate from others in the household, or are struggling financially. As one student put it:

"I worry about my family working in COVID-positive environments because they need these jobs. I worry about the comorbidities that my immediate family members have that expose them to a higher risk for COVID. I am worried that my family isn't getting enough to eat because of increased food prices. I have family collecting unemployment. I

am lucky to have stability in my personal home to learn and to take tests, although medical schools' focus on productivity is disheartening and disappointing. But that doesn't erase all of the other factors that are always in the back of my mind. I would imagine that the majority of people in my class do not have these same concerns."

Gender Bias

In addition to familial responsibilities, female first-generation college graduates in medicine also expressed the pressures of gender bias from their families. Especially among immigrant families, there seemed to be a belief that they should not push themselves so hard, and that they should choose something easier. A resident spoke of how her family members gasped at her decision to pursue surgery because it was a longer, more toiling residency and they were concerned about marriage prospects. This could stem from a variety of factors, such as them having fewer women in positions of power to draw from, making the concept of an accomplished woman more intimidating. One student described this tension with her parents:

"There's always the fear that I am defying gender norms, that I don't need to and shouldn't push myself to succeed as much because at the end of the day they just expect women to be taken care of by their husbands and to have children. They did not understand why I put myself through this path when I can be paid to enter graduate school, or take comfier, safer jobs. Even when choosing specialties, they kept trying to steer me towards dermatology or family medicine or psychiatry so that I would have an easier life. They constantly told me I was too intimidating and that men would be scared off, or that I won't be able to have children at an earlier age."

This gender bias is an emotional stressor that may prevent these individuals from seeking support from their families. Given how many of the aforementioned challenges are intertwined with gender bias, they compound the stress that first-generation college students in medicine experience as they progress through their medical training.

CHAPTER 8

RESOURCES AND SUPPORT STRUCTURES IN MEDICAL SCHOOL

The journey through medicine is full of trials and tribulations. It is no wonder that it takes a village to produce a physician. From families to peers and faculty members, each individual plays a role in supporting trainees from the moment that they enter medical school. Even once they graduate, these trainees become teachers who are well-positioned to give back to younger generations due to the interactive hands-on learning style of medicine.

Mentorship

The mentorship and support provided by faculty, peers, and mentors in medicine are valuable, but oftentimes, these people are very unlike the first-generation college graduates they may be advising. Consequently, they may lack an understanding of the unique challenges faced by their mentees. According to a study done in 2011 by Susan Gardner studying the progression of first-generation students through doctoral education, "a crucial factor in students' pursuit of a graduate degree and persistence in spite of numerous challenges was the support they received from faculty, peers, and other mentors. Students frequently verbalized this encouragement as being from two families, one from each world."[11] Though that study evaluated those in doctoral education, I believe that its findings can be translated to first-generation college graduates in medical school. This is because the large socioeconomic gap between mentors and mentees persists, and those

experiences very much resemble the situations faced by those in medicine to whom I have spoken.

Family And Friends

Biological families are there for emotional support and for all things not pertaining to medicine, and communities in medicine are there for more career-oriented support in the workplace. They are both important in ensuring the mental wellbeing of first-generation college graduates as they go through their training. Every single person I have spoken to credited their family's support and sacrifices as the main reasons that they were able to embark on their journeys to medicine. As little as they know about medicine, "even when families were challenged to understand student choices, they provided encouragement in other ways, such as phone calls and stories of pride their families would share with others"[11] For those who were stressed by their families, or who do not have good relationships with family members, partners and friends played the biggest role in supporting them throughout their training, regardless of whether they are also in medicine. Though it was helpful to get advice from upperclassmen and figures further along in their training, individuals also expressed the sentiment that it is nice to have people who are not in the medical field in their support networks because they reminded them of life outside of medicine. This also serves to keep them grounded, and to remind them to look at the grand scheme of things when they face a challenge or setback.

First-Generation Interest Groups

With the rising number of constituents and increased media attention garnered by first-generation college students, first-generation interest groups have begun to be founded at medical schools across the nation. They seem to be a thing of the past two or three years, since most schools' websites for these groups and programs are rather recent. A quick Google search for me yields results from the University of California San Francisco, University of Albany, University of California Los Angeles, Georgetown, University of Southern California, and University of Pennsylvania, among a few others. These are interest groups that are voluntary. The University of North Carolina is the first result on the list to actually have a formalized pipeline program for students and advertises it to incoming medical students as well.[8] Session topics included a timeline of medical school to residency, finances and budgeting, study skills, finding mentorship and summer programs, interviewing and networking, and building one's social capital. Social outings were also interspersed throughout. The fact that they feature this on their programs and opportunities page is significant, because most other first-generation interest groups are tucked away and not largely advertised by schools. Having more visibility can contribute to physicians and residents acknowledging this portion of their identities and supporting those in these communities.

In an ideal situation, students would be matched with mentors who are also first-generation college graduates. Unfortunately, faculty and mentors oftentimes lack an understanding of the challenges faced by their mentees. This situation places an augmented stressor on minority mentors who are likely in short-supply but high-demand and who better understand those mentees' experiences with extra responsibilities in the name of

diversity. This phenomenon, termed the "Minority Tax," is a major source of inequity in academic medicine.[24] Though schools want to increase diversity, they also need to address retainment and inclusion at an institutional level for these diverse groups of people they are recruiting. This is important for increasing not just the output of diverse physicians, but also the number of diverse physicians who choose to pursue academic medicine and who become the faces of medicine to welcome and encourage a great environment for future generations.

Wellness Initiatives And Mental Health Services

Additional resources meant to support students are wellness initiatives and mental health services. Recent research on first-generation medical students have found that scores for physical, psychological, and social quality of life were lower, albeit non-significantly, among first-generation students than non-first-generation students, while scores for environmental quality of life and self-care were significantly lower among first-generation students. Furthermore, first-generation medical students reported lower levels of faculty role models engaging in self-care and lower levels of school support for family and personal responsibilities.[25] Clearly, the culture at various stages of medical training needs to improve structures for physician wellness. Residents and physicians are more likely than the general public to have major depressive episodes and suicidal ideation; this is without even exploring the statistics for minority physicians.[2,18] Slavin et al. have stated that "unfortunately, strong evidence supports that the seeds of these mental health problems are planted in medical school. Students enter medical school with mental health statuses very similar to those of their same-age peers, but their overall mental health declines soon after

they begin their medical studies."[27] Unfortunately, mental wellbeing continues to be problematic at medical schools despite efforts to address it.[23]

The efforts to address mental wellbeing and the other resources mentioned in this section have failed to ameliorate the challenges that students face and the diversity gap in medicine. In order to expand efforts to also promote socioeconomic diversity and inclusion for first-generation college graduates in medicine, the existing resources and support structures in medical schools must be improved. Studies must be conducted to better understand, develop new resources, and cater existing resources to their unique needs.

CHAPTER 9

ARE PEOPLE USING THESE RESOURCES?

Little is known about how often existing resources are being utilized by first-generation college graduates, and whether that has stifled the growth of the pool of resources availble to them. It seems that first-generation medical student interest groups may be relatively new, and not frequently advertised at the institutions at which they exist. Admittedly, it is difficult to find enough students within each school who fit the criteria of being first-generation college graduates, let alone FGLI college graduates. It is not a visible aspect of individuals' identities, and does not often come up in conversation, so people may not think much of this invisible minority. Consequently, fewer students and faculty than eligible may be involved. This problem is further compounded because if a group is too small, they may not qualify for funding and opportunities to have better events. People may consider expanding the first-generation status to be all of those who are first in their families to go to medical school, including those whose parents have other graduate or professional degrees. This was the approach that I took at Temple, because when I founded the first-generation medical student network in 2018, there were fewer than 10 people across all four years. When I expanded it to include all students who are the first in their families to attend medical school, that increased up to 35 students, as of March 2021.

Though those numbers are paltry, there are many reasons why it could be an inaccurate representation of how many students in medical school are actually first-generation college graduates in medicine. In addition to it not being outwardly visible, people may not want to disclose this information about themselves. Medical schools do not

comment on this, and given the immense privilege that exists in medicine, individuals may perhaps feel a sense of otherness in highlighting this. Having overcome so much to already get to this point where no one else talks about this aspect of their identity, individuals may not even think to acknowledge it, or may have minimized the importance of it. Perhaps everyone is just too busy to be able to attend gatherings for first-generation interest groups. As one resident said:

"Looking back, this is really meaningful work, and it's good to talk about it so that we can turn it into change. But I feel like we're all so focused on getting into a good residency program that we're not doing other things to improve inclusivity. I admit I haven't really explored this aspect of my identity much besides mentioning it on applications, but I wish I had. I'm glad that this is happening and want to become more involved."

Some students that I had spoken to expressed that though a sense of solidarity and support would be nice, they would rather spend their limited free time on more practical talks. At their schools, the first-generation interest group events tended to be more social than career-oriented talks. Some have mentorship components as well, but it may be difficult given the small membership to get these running. Furthermore, for faculty recruitment, the Minority Tax could potentially have tired them out - perhaps they think it is too large of a task to be adding onto their many other clinical and faculty development activities already within their departments.

But for the individuals that do engage in these groups, first-generation interest groups are a powerful source of solidarity in a schooling system that easily exacerbates feelings of isolation experienced by students. This is particularly salient during their

clinical years when they are sent far away from their peers. In the current context of a pandemic and social distancing, they also serve to maintain meaningful social connections. Students often express a feeling of comfort in this shared understanding of their experiences, even if they do not necessarily explicitly talk about these things. And when they do talk about these issues, it may be a very emotional experience for many. These spaces are the first times that some individuals have had a platform to reflect upon their experiences, and to be validated by others who have gone through the same thing. I have heard this sentiment echoed by many medical students, and saw it firsthand myself across all age groups when I hosted discussions on the topic. On May 11, 2020, I moderated a 75-minute discussion centered around the opportunities and challenges of being first-generation women in medicine for 60 Yale alumni and current students. Common themes of imposter syndrome, financial struggles, and stigma arose, but everyone left the conversation feeling inspired. Participants expressed having normalized that it is okay to struggle through with these issues, so to reflect upon them and to be validated was incredibly moving. Even participants who were not first-generation college students, but who were allies and interested in supporting these individuals, expressed appreciation for the event as well as an interest in attending further discussions.

Given the attendance and support, as well as requests for a series, I then hosted a panel for hundreds of first-generation pre-medical students, a Diversity Dialogues session at Temple, and two more sessions for medical students, and nontraditional students. People continue to leave these sessions feeling moved, and one attending physician who participated described it as similar to Cognitive Behavioral Therapy for a group that has

stifled this aspect of their identities as they conformed to the norms in medicine. Another attending shared his appreciation for such events:

"Back when I was a student, we didn't have all of these things. We couldn't just Google search 'how to find a mentor' or 'how to integrate into the culture of medicine.' We lived in this culture of invincibility and to be vulnerable was frowned upon. I am glad that younger generations have outlets like this. Make sure you learn how to invest your money, and don't go crazy with your new cars and doctor mansions once you start earning money. Learn the art of saying 'no,' and don't spread yourself too thin while caring for others financially. Learn to hold yourself against microaggressions until you are in enough power to speak back on it."

Hearing honest, thoughtful stories and advice like that from the attendings above and from people further ahead in their training has been a source of inspiration for trainees. It is a reminder that they can persevere through medicine, and that serves to diminish feelings of imposter syndrome. Mentorship and career-oriented advice are key - all individuals I have spoken with, in medical school, residency and beyond, agree that they would definitely utilize those resources if offered.

Beyond these kinds of discussions, some pipeline programs for medical students who identify as racially or ethnically underrepresented groups in medicine have been used for years. Through these programs, medical students can do away rotations at certain institutions and get paired with a mentor there who helps them with their residency applications. Med Twitter is another frequently used resource that allows individuals to connect with mentors outside of their institutions.

CHAPTER 10

RECOMMENDATIONS

Imposter syndrome, racism, microaggressions, racial battle fatigue, stereotype threat and other theories are used to provide language and to validate the experiences of first-generation and students of color, but we rarely see these theories used for first-generation college graduates in medicine, and there is a lack of conversations or spaces to deconstruct this aspect of people's identities. Given the unique qualities and life experiences of those who identify as being first-generation college graduates in medicine, it is important to be mindful of this intersectionality when formulating strategies to improve diversity and inclusion for these individuals. Anthony Abraham Jack defines "the privileged poor" as low-income students who have learned to navigate higher education earlier than their public school peers.[14] They assimilate but there is that awareness that the lives they lead now are different from their roots and the assumptions people make about them now can exacerbate those sentiments of otherness, guilt, or pressure. The experiences of first-generation college graduates in medicine are very different from those of first-generation college students, so it is important to further research the topic. Strategies that have worked for first-generation college students may provide a framework that can be adjusted to fit the needs of medical students. Though some may think that because they have made it this far that they do not need further support, the factors that impact their success in college and their decision to pursue medicine do not cease to pose issues when they successfully enter medical school and have to navigate the culture and hierarchy of

medicine, as well as the disparate allocation of resources in medical school since they are not deemed as URM.

Include First-Generation College Student Status And Socioeconomic Class In Discussions Surrounding Diversity, Equity, And Inclusion

One of the first things that can be done to make medicine more inclusive of these individuals is to validate their experiences. It is important to not assume that all first-generation medical students are people of color, low-income, or come from academically disadvantaged backgrounds - they are a diverse community with unique needs. Other interventions include making school more financially accessible, strengthening pipeline programs, better preparing faculty and administrators to work with these students, increasing support systems and mental health resources, creating first-generation interest groups, and providing financial support. By acknowledging the intersectionality of the multitude of identities and challenges that first-generation college graduates face, administrators can improve diversity and inclusion within medicine for this group through a variety of methods that I will proceed to describe in this section.

Make Medical School More Financially Accessible

Starting with addressing the dearth of first-generation medical students, medical school should be more financially accessible and pipeline programs should be strengthened. It is unsurprising that so few medical students are from low-income families. As mentioned in previous sections, in addition to the challenges that first-generation college students face in getting to and succeeding in college, medical school and residency

admissions value activities that they may not have the luxury of doing, such as international service trips or global health experiences. Practically speaking, these students may not have had as much time to pursue certain extracurricular activities and research because they were working on-campus jobs or taking care of their families. A significant contributor to the disincentive for students from underrepresented groups and lower-income families is the financial messaging to medical school applicants that emphasizes how unaffordable it is.

Change Admissions Policies

Admissions policies need to be changed to stop prioritizing achievements that are more available to the privileged, and more scholarships should be available to mitigate the astonishing price tag of medical education. A shift away from an emphasis on standardized test scores towards a more holistic evaluation of applicants' life experiences can also increase the pool of minority applicants who may have struggled at some point due to personal circumstances, but who have otherwise shown much academic promise and who demonstrate valuable qualities such as perseverance and resilience.

Strengthen Pipeline Programs

Pipeline programs can be strengthened, starting with high school interest programs and programs supporting pre-meds during college. Programs exposing students to health care disparities in the United States have been shown to increase the number of applications to medical schools from students from minority backgrounds.[15] The AMA Minority Affairs Section established a Doctors Back to School program that connects minority physicians

and medical students with local schools to introduce children to professional role models and strengthen the pipeline of future doctors.[5] However, I believe that we need to do more than just spend time with students and give them medicine-related programming. We need to re-examine the frameworks that exist when supporting students in order to achieve sociodemographic equity and inclusion in medicine. As Morgan et al. aptly state in their commentary on the importance of the premedical experience for diversifying the healthcare workforce, there is a "tendency to frame these matters as a 'mismatch' between underrepresented students in elite colleges and universities. Instead, leaders in academic medicine should be involved in 'matching' underprepared, underrepresented students with concrete college experiences that promote their success."[20] The University of Michigan Health Sciences Scholars Program (HSSP) described in their paper is an example of a program that strives to do so. Taking this a step further, I believe that in order to truly set these students up for success, pipeline programs should provide students with exposure and mentorship, but also instill in them valuable skills that will prepare them to succeed in college so that they will be able to pursue any careers that they want, whether or not they involve medicine. While working with the Healthcare Careers Collaborative pipeline program at Lincoln High School in Philadelphia, I developed a first-generation and low-income survival guide for students that explained how they could take advantage of high school opportunities to get into good colleges, what they needed to do during college to fulfill pre-medical requirements, strategies for scheduling courses, when to use pass-fail credits, how to approach office hours and finding mentors, and creative ways to balance financial and familial responsibilities with school. Programs should also de-emphasize typical academic milestones and instead coach students to develop talents independent of

their age or educational stage, and soft skills such as self-confidence, empathy, and public speaking skills. Chawla et al. presented data from Kaiser Permanente Los Angeles' partnership with the Hollywood STEM Academy, which showed that their high school and middle school participants, 84% of whom would be first in their families to attend college, reported increased comfort working with groups and with public speaking, a better understanding of evaluating community impact of a project, increased understanding of the social determinants of health, and increased self-esteem.[3] These skills will be vital to their success in medical school and beyond.

Improve Support Systems And Awareness Of Existing Resources To Recruit And Retain Minority Students, Residents, Faculty, And Administrators

Once students make it to medical school and to residency, they benefit from stronger support systems to improve retention. According to Dr. McDade of the AMA, one of the reasons that many students lose their passion for medicine is that they have to frequently fight discrimination. But if they feel supported and welcome, they are more likely to continue their medical careers and advance as physicians.[5] Studies by scholars have shown a need to create supportive environments for doctoral students of color, particularly those who exist in predominantly white institutions, to promote retention through the creation of university-wide student organizations, peer mentoring programs, and connections to scholars of color outside of their institutions.[10] One way in which medical schools, residency programs, and medical institutions can address this is to establish first-generation and low-income interest groups, underrepresented in medicine interest groups, and pipeline programs for faculty advancement. Doctoring classes and

residency didactics should include more topics pertaining to anti-racism, diversity, equity, and inclusion. Narrative medicine can be a means for people to process their stories and to inspire others. The mentorship and support provided by faculty, peers, and mentors in medicine is valuable, but oftentimes, these people are very unlike the first-generation college graduates they may be giving advice to, and they may lack an understanding of the unique challenges faced by their mentees. Consequently, it is important that minority faculty should also have increased support to alleviate the burden that is termed the Minority Tax propagated by the tokenism that comes with pipeline programs and minority scholarships. They are the people who can change the face of medicine and recruit and retain the next generation of health professionals, but their work needs to be recognized as valuable - they should be appropriately compensated and receive dedicated time for it. Administrators should help address this problem by sending out emails to ask faculty whether they are interested in mentoring first-generation college graduates in medical school, residency, or beyond.

Given instances such as the Kaiser Permanente Bernard J. Tyson School of Medicine suspending one of its minority faculty members for unknown reasons after asking her to give a lecture on racism and health disparities, institutions must do better when it comes to fostering safe spaces to have such discussions.[16] Better reporting systems should be established for reporting microaggressions. Minority residents and attendings may feel wary of openly sharing their thoughts and experiences due to the emotional trauma that they have to relive, as well as the professional repercussions when speaking on such topics. Moving beyond that, there should be more faculty recruitment and advancement opportunities for these individuals. Representation matters, and minority residents and

faculty should have a seat at the table when evaluating applicants for medical school, residency programs, and faculty positions.

Better Prepare People To Work With First-Generation College Graduates

Addressing the need to change the culture and environment of medicine, faculty and administrators at all stages of training should be better prepared to work with first-generation individuals and seek to further understand their individualized needs. Having more faculty and administrators who are comfortable working with this group of individuals would alleviate the Minority Tax placed on minority faculty members. In involving first-generation individuals in the process, they can avoid making assumptions and create resource guides or handbooks and programming for these populations, and connect them to counseling services. Something as simple as making office hours more accessible and letting students know how to benefit from office hours can be incredibly useful and open the door for important mentorship opportunities. Even though students may have attended office hours in college, it seems much less welcoming in medical school because professors are so busy. Putting a slide at the beginning of lectures or including one in syllabi describing how students can attend and spend office hours would be helpful for facilitating connections and success in blocks, rather than waiting until students struggle to contact them.

The AAMC has produced a handbook for diversity affairs officers (seasoned or new) with information guiding the selection, recruitment and retention of all students with expertise serving historically underrepresented populations in medical school: students representing the African American, Hispanic American, Native American, and LGBTQ+

communities, first-generation college students, and students from low-income backgrounds.[12] Though they include first-generation college students in the guide, it seems unlikely that most medical schools are using those guidelines given the lack of services for first-generation medical students, and the sometimes assumptive or un-empathetic responses that individuals at all stages of training have received from their school, residency program, or workplace administrators. Taking matters into my own hands, I created a First-Generation and Low-Income Survival Guide for Medical School to share with medical students, and proposed a career closet where students could donate and receive professional attire, or borrow suits for interviews. Some of the topics in the guide included a timeline of what to expect, strategies for studying, finding mentors, navigating financial and familial responsibilities with academics, and how to dress professionally for rotations. In the wake of the pandemic, George Floyd, and Black Lives Matter protests across the nation, I co-authored a petition to amend grading systems for that block because keeping the usual grading system would fail to consider the toil of the emotional trauma that minority students were going through as they tried to maintain their usual academic performance. Administrators should be prepared to perform actions like these in the interest of helping their students during such tumultuous times.

Increase Access To Mental Health Resources

Another way in which the culture of medicine can be changed to be more inclusive and supportive is through increased access to mental health resources. Given the evidence that medical school often precipitates a decline in mental health in students who began with similar wellbeing levels to their peers in the same age group, medical schools need to

address wellbeing earlier on. Institutions can connect individuals with counseling services as they struggle to find their place in the two worlds that they straddle with the pressures and stresses distinct to them. It is also important to normalize this experience and to carve out dedicated time for appointments in residents' and attendings' schedules. A resident I spoke to mentioned that individuals may feel a sense of tokenism or have never truly deconstructed this aspect of their identities, so perhaps even normalizing therapy or Balint groups for those in medicine would help them manage often deep-rooted imposter syndrome and a reluctance or lack of time to pursue counseling. An attending told me of how seeking help turned everything around when she was in a dark place and contemplated suicide during residency. One medical student shared a moving experience of the impact of therapy on his journey through medicine:

"Through regular therapy, I finally was able to genuinely explore my emotions. I started piecing together previously disparate events and reactions. I dug into my childhood trauma, the trauma of immigration, and the trauma of growing up in poverty along with much more. Most importantly, I learned what it truly meant to take care of myself. It meant being honest when processing my emotions, being compassionate enough to allow myself the time to sit and just breathe rather than forging ahead with solutions to problems, and it meant being kinder and not judging myself for the actions I decided to take in life...I share my experience to avoid contributing to a culture of only sharing successes and to normalize moments of failure in life. I share it to also normalize the exploration of therapy and psychiatry as potential supportive services, especially for men of color and folks from immigrant backgrounds. It is through these experiences where I gained an incredible patience for others, to better understand their own personal journeys without judgment.

Maybe I am fooling myself but I believe that this failure will ultimately allow me to not only better understand and be more caring for my future patients and those around me, but most importantly, to be a better person to myself."

Financial Support

Financial support is another means of improving retention for first-generation low-income students. Loans may not cover the full cost of attendance, which places a burden on students to take up jobs or search for scholarships in addition to a busy schedule. Rotations are already extremely demanding in terms of time, making conventional side jobs difficult to come by. When they cannot take up a job, they must live more frugally to save the money that they have to cover their expenses. This could lead to living in poorer conditions, or food insecurity, which has a tremendous impact on their well-being. Students told me of how they sometimes regretted their significantly longer commutes because they could not justify paying for a rideshare and how they would forego opportunities such as away rotations because they were unable to afford a car to get to a rotation site. Even smaller things can add up. For example, some lamented that they had a habit of looking up items and walking further to find a good deal on things they wanted to purchase, which resulted in small monetary savings and consumed more time than just walking to the nearest store and buying it.

Medical school has a lot of hidden costs. Needing a car for rotations at different sites not near the medical schools, moving and travel expenses incurred when students have to live at away rotation sites for core rotations, health insurance, childcare, and licensing examinations are just a few examples of that. There are significant expenses for students

that people do not warn them of in advance, and people may not always be accommodating. Take for example, the following anecdote:

"I chose to be at the main city campus because I did not have a license and thought that I would not need to drive, but found out close to my third year of medical school that we would actually have to travel or live in other cities for rotations. Administrators' responses included isolating and othering comments that did not acknowledge the privilege it requires to be able to afford a car such as 'well that is not fair to other students,' 'oh you are that student who cannot drive,' and 'that has never been an issue before; learning to drive is easy.' I ended up taking out extra loans to pay for expensive driving lessons in the city and car access."

Alerting students of hidden costs and providing them with support for that is a step that schools can take to alleviate these burdens. Residency programs often have a commuting or travel stipend, and some pay for licensing examination preparation materials and fees to help residents. Medical schools should follow suit by providing students with access to costly question banks and preparation materials, as well as paying for examination fees. Students often ask about which resources to use because they are concerned about spending too much, and there is an added financial pressure placed on the already tremendous pressure to do well on these examinations:

"I wish I could just spend as much money as I wanted on resources to do well on Step 1 because I know it basically determines my future, but it is just so much to justify. The Step exams already cost thousands of dollars - that's like my entire family's paycheck for a month. I'm crippling under the pressure of it all and really want to do well."

"It's not a great feeling. Having to pick and choose which resources I can invest in for my studying makes me very conscious of the disadvantage I have due to my financial status. My peers who have the means to invest in QBanks for longer periods of time have extended access to them which may increase their scores. Though I enjoy cooking, it does take up time. My peers who can afford to eat take-out for most of their meals can conveniently study without cleaning up or preparing their meals."

Another important form of financial assistance should be conference funding. Lack of conference funding may deter individuals from presenting their work and networking, but these are great educational and professional advancement opportunities. Given the current pandemic and virtual interviewing, providing individuals with interview and office spaces is also something that can be done to alleviate the bias that interviewers can have due to someone's lack of spacious, calm surroundings or poor internet strength, and to provide preclinical students with stable access to better learning environments.

Some schools such as New York University and Columbia have adopted free tuition or no loan policies to make medical school more accessible to prospective students. This also reduces the catastrophic debt burden on students, lessening their stress levels during medical school to promote success, and reducing the influence of finances on their choice of specialty.

There are myriad things that can be done to further understand the experiences of the invisible minority that is first-generation college graduates within medicine. Being such a diverse group of individuals that spans a wide array of races and socioeconomic status, it is important to appreciate that each individual will be different, and that their unique experiences are valid. Including them in discussions pertaining to diversity and inclusion

and URM status is an important task that will help to bridge the diversity gap that exists within medicine, and to promote true equity in the health professions. It is also important to establish policies to promote retention and growth for these individuals at all levels of their training, from a young age to when they are in college, medical school, residency, and as attendings.

CHAPTER 11

CONCLUSION

In conclusion, first-generation college graduates are an invisible minority within medicine about which little is known. The history of how URM status has been defined has not taken into consideration socioeconomic status, which has perpetuated the invisibilization of this group's needs. First-generation college graduates in medicine have a unique set of strengths and challenges that position them to be valuable physicians in the communities that they serve. They are more likely compared to their more privileged peers to foster justice and equity in medicine by caring for underserved populations. Their resilience, self-motivation, and efficacy make them well-suited to become successful physicians as they trailblaze their way through medicine. First-generation students are characterized as an at-risk population in higher education because of their accumulated disadvantage. These factors impact their success in college, and continue to pose and exacerbate issues when they successfully enter medical school and navigate the culture and hierarchy of medicine. While universities attempt to address some of these obstacles, the disparate allocation of resources in medical school fail to directly address first-generation specific needs and concerns because they are not deemed as a distinct underrepresented identity in medicine. In recognizing that first-generation college graduates are deserving of individualized resources and support, medical institutions can promote a workforce as diverse as the patients it serves and increase the quality of care that patients receive.

BIBLIOGRAPHY

1. 2020 FACTS: Applicants and Matriculants Data. AAMC. Published 2020. Accessed December 31, 2020. 2020 FACTS: Applicants and Matriculants Data

2. Center C, Davis M, Detre T, et al. Confronting Depression and Suicide in Physicians. *JAMA*. 2003;289(23). doi:10.1001/jama.289.23.3161

3. Chawla N, Awad J, Gamino A, Ziko M. *Targeted, Continuous Medical Resident Mentorship Changes Student Educational Outcomes*.

4. Creating a Welcoming Environment for Gender Identity in Admissions. AAMC. Published 2017. Accessed March 30, 2019. https://www.aamc.org/admissions/highlights/478862/creatingawelcomingenvironmentforgenderidentityinadmissions.html

5. Debunking 5 myths about diversity in medical education. American Medical Association. Published April 9, 2015. Accessed December 31, 2020. https://www.ama-assn.org/education/medical-school-diversity/debunking-5-myths-about-diversity-medical-education

6. Eliason J, Zhang K, Wilson C, et al. *The 2016 Facts and Figures Report*.; 2016. Accessed February 28, 2021. http://www.aamcdiversityfactsandfigures2016.org/report-section/section-2/

7. Fact Sheets: First Generation Students. Postsecondary National Policy Institute. Published February 1, 2021. Accessed February 3, 2021. https://pnpi.org/first-generation-students/

8. First Generation Medical Students. UNC. Accessed December 31, 2019. https://www.med.unc.edu/ori/programs-opportunites/pipeline-program-and-mentorship/first-generation-medical-students/

9. Forrest Cataldi E, Bennett C, Chen X. First-Generation Students: College Access, Persistence, and Postbachelor's Outcomes.; 2018. Accessed December 30, 2020. https://nces.ed.gov/pubs2018/2018421.pdf

10. Gardner SK. The Challenges of First-Generation Doctoral Students. New Directions for Higher Education. 2013;2013(163). doi:10.1002/he.20064

11. Gardner SK, Holley KA. "Those invisible barriers are real": The Progression of First-Generation Students Through Doctoral Education. Equity and Excellence in Education. 2011;44(1). doi:10.1080/10665684.2011.529791

12. GSA Handbook. AAMC Accessed March 30, 2020. https://www.aamc.org/media/21701/download

13. Haskins J. Finding success as a first-generation medical student. Association of American Medical Colleges. Published July 2, 2019. Accessed December 31, 2020. https://www.aamc.org/news-insights/finding-success-first-generation-medical-student

14. Jack AA. The Privileged Poor: How Elite Colleges Are Failing Disadvantaged Students. Harvard University Press; 2019.

15. Kahn MJ, Sneed EJ. Promoting the affordability of medical education to groups underrepresented in the profession: The other side of the equation. AMA Journal of Ethics. 2015;17(2). doi:10.1001/virtualmentor.2015.17.2.oped1-1502

16. Khoury A. Aysha Khoury's Twitter Thread On Suspension Without Due Process.

17. Marrast LM, Zallman L, Woolhandler S, Bor DH, McCormick D. Minority physicians' role in the care of underserved patients: Diversifying the physician workforce may be key in addressing health disparities. JAMA Internal Medicine. 2014;174(2). doi:10.1001/jamainternmed.2013.12756

18. Mata DA, Ramos MA, Bansal N, et al. Prevalence of Depression and Depressive Symptoms Among Resident Physicians. JAMA. 2015;314(22). doi:10.1001/jama.2015.15845

19. Mensah MO, Sommers BD. The Policy Argument for Healthcare Workforce Diversity. Journal of General Internal Medicine. 2016;31(11). doi:10.1007/s11606-016-3784-1

20. Morgan HK, Haggins A, Lypson ML, Ross P. The Importance of the Premedical Experience in Diversifying the Health Care Workforce. Academic Medicine. 2016;91(11). doi:10.1097/ACM.0000000000001404

21. Nivet MA, Taylor VS, Butts GC, et al. Diversity in academic medicine no. 1 case for minority faculty development today. Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine. 2008;75(6). doi:10.1002/msj.20079

22. Pettersen W. Success Story, Japanese-American Style. The New York Times. https://www.nytimes.com/1966/01/09/archives/success-story-japaneseamerican-style-success-story-japaneseamerican.html. Published January 9, 1966. Accessed March 28, 2021.

23. Rajapuram N, Langness S, Marshall MR, Sammann A. Medical students in distress: The impact of gender, race, debt, and disability. PLOS ONE. 2020;15(12). doi:10.1371/journal.pone.0243250

24. Rodríguez JE, Campbell KM, Pololi LH. Addressing disparities in academic medicine: What of the minority tax? BMC Medical Education. 2015;15(1). doi:10.1186/s12909-015-0290-9

25. Romero R, Miotto K, Casillas A, Sanford J. Understanding the Experiences of First-Generation Medical Students: Implications for a Diverse Physician Workforce. Academic Psychiatry. 2020;44(4). doi:10.1007/s40596-020-01235-8

26. Saha S, Guiton G, Wimmers PF, Wilkerson LA. Student body racial and ethnic composition and diversity-related outcomes in US medical schools. JAMA - Journal of the American Medical Association. 2008;300(10). doi:10.1001/jama.300.10.1135

27. Slavin SJ, Schindler DL, Chibnall JT. Medical Student Mental Health 3.0. Academic Medicine. 2014;89(4). doi:10.1097/ACM.0000000000000166

28. Table 3: U.S. Medical School Faculty by Rank and Race/Ethnicity, 2019. AAMC Faculty Roster. AAMC. Published December 31, 2019. Accessed December 31, 2020. https://www.aamc.org/media/8481/download

29. Underrepresented in Medicine Definition. AAMC. Accessed December 31, 2018. https://www.aamc.org/what-we-do/diversity-inclusion/underrepresented-in-medicine

30. Youngclaus J, Roskovensky L. *Analysis in Brief: An Updated Look at the Economic Diversity of U.S. Medical Students*.; 2018. Accessed January 30, 2020. https://www.aamc.org/media/9596/download