

# Addressing the Challenges to a Diverse Physician Workforce

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### We welcome comments and suggestions for future editions of this report.

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"There is a lot ofpower in seeing someone who looks like you doing what you dream of doing"

# **Executive Summary**

**ISSUE:** Despite an increasingly diverse U.S. population, healthcare has been relatively slow to diversify its workforce. Research clearly demonstrates, however, that health outcomes improve when the race and ethnicity of the patient are the same as that of the physician.

**GOAL:** To identify barriers facing students who are underrepresented in medicine (URIM) seeking careers in medicine and propose solutions for increasing physician diversity, including increased investment in existing programs.

### THE IMPORTANCE OF A DIVERSE PHYSICIAN WORKFORCE

The Association of American Medical Colleges (AAMC), defines URIM as those "racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population" (AAMC URIM).

Doctors who are fluent in their patients' languages and the broader cultural context of gender, religious beliefs, sexual orientation and socioeconomic conditions are better equipped to address the needs and health disparities among specific populations. Further, physicians from racial or ethnic backgrounds underrepresented in medicine are more likely to practice primary care and practice in underserved communities.

This report focuses on the prevalence of Hispanics/Latinos, Blacks/African Americans, and Native Americans/American Indians in medical school. These groups remain persistently underrepresented in medicine compared to the U.S. population. In particular, despite an overall increase in the number of Black and African American students matriculating to medical school, fewer black men graduated from medical school in 2015 than in 1968 (AAMC Diversity Facts and Figures).

### THE LEAKY PIPELINE TO MEDICAL SCHOOL

In order to address the attrition of URIM students from the pipeline into medicine, it is important to identify the junctures at which students make decisions whether or not to apply to medical school and to develop targeted solutions.

### Undergraduate Degree

URIM students often face significant barriers while pursuing undergraduate degrees. Many are first-generation minority and lowincome students facing myriad financial, academic and social barriers to entering and completing college. (PNPI). Further, URIM students may not receive proper guidance and advising at their undergraduate institutions when deciding whether to apply to medical school.

### Applying to Medical School

A 2017 study of URIM students about the medical school admissions process cited the application process itself as the most challenging part, calling it "overwhelming, difficult and expensive" (Hadinger, 2017). Medical school applicants are recommended to budget \$5,000 to \$15,000 for the application process alone (USNEWS). There are resources, such as fee assistance and advisors, but these resources are inadequate and difficult to access.

### **Attending Medical School**

Some reasons URIMs struggle in medical school or leave include:

- Lack of exposure to similarly underrepresented faculty mentors
- Feelings of isolation and imposter syndrome
- Racially charged climates
  within institutions
- Financial concerns

### **COST OF ATTENDANCE**

More than three guarters of American medical students are from predominantly high-income and, typically, White households (Youngclaus and Roskovensky, 2018). The average medical student without scholarships can expect to graduate with \$250,000 or more in federal loans and may pay up two or three times the original loan amount (AAMC Diversity Facts and Figures). The prohibitive costs associated with medical school, especially for students from underrepresented backgrounds, limit physician workforce diversity within specialty and geographic locations (Greysen, 2011).

### RECOMMENDATIONS

- Pre-Health Advisor Training
- Physician-Student Interactions
- Application Preparatory Classes
- Post-Baccalaureate Programs
- Mentoring/Peer Groups
- Medical School Early Assurance
  Programs
- BS/MD Programs / Direct Medical Programs (DMP)



# Introduction

ationally, there is a critical need to increase the number of underrepresented people in medicine. According to the Association of American Medical Colleges (AAMC), the term underrepresented in medicine (URIM) can be defined as those "racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population" (AAMC URIM). This definition evolved after Supreme Court cases regarding the use of race in admissions. It shifted the focus from "a national perspective to regional or local perspective on underrepresentation" and allowed for enhanced data collection as well as more flexible approaches to changing demographics in the profession and patient populations (AAMC URIM).

This report focuses specifically on the prevalence of Hispanics/Latinos, Blacks/ African Americans, and Native Americans/ American Indians among medical students. The representation deficit is due in part to the many systemic barriers that exist for students of color interested in pursuing careers in medicine. In New York, individuals who are Black/African American and/or Hispanic/Latino comprise 31.1% of the state's population but are only 12.1% of the physician workforce. Closing this gap is essential to the health of our country, as a diverse physician workforce is better equipped to address the myriad health disparities as well as to change the systemic racial inequities that exist in our healthcare system. It is therefore vital to identify the steps along the path to medical school where students choose alternative academic trajectories and to determine why underrepresented students choose not to pursue degrees in medicine. Only then can solutions be implemented that address these "leaks" in the pipeline and that ensure more equal access to opportunities, which will in turn expand the pool of students pursuing careers in medicine and ultimately becoming physicians.

# The Need for Increased Diversity in the Physician Workforce

s racial and ethnic diversity in the United States (U.S.) population continues to increase, the physician workforce has been slow to follow (Xierali et al, 2018). The evidence is increasingly incontrovertible, however, that a diverse workforce will improve the nation's health disparities and, as such, the nation's health (Jackson, 2014). Doctors who understand their patients' languages and also understand the larger context of culture, gender, religious beliefs, sexual orientation and socioeconomic conditions are better equipped to address the needs of specific populations and the health disparities among them.



The AAMC estimates that by 2032, the U.S. will see a physician shortage of nearly 122,000 doctors. The U.S. population continues to expand and, more importantly, continues to age; the medical needs of

Attending college in Massachusetts, Virginia Ramos often found herself the only Spanish-speaking person in the room, including the hospital where she shadowed physicians. "I saw Spanish-speaking patients frustrated with the care they received, and I wanted to improve it," she said. "I chose medicine because I want to help people who encounter health problems...return to a normal life, and provide care that gets them back on their feet as quickly as possible."

Dr. Ramos wants to make a difference in underserved communities where addressing mental health issues may considered taboo by educating and treating patients in a culturally competent way. "When patients identify with a doctor," Dr. Ramos said, "it goes a long way to improve healthcare by leading to better adherence to treatment and better outcomes."

Virginia Ramos, MD Class of 2018 New York Medical College the nation are therefore growing at the same time that a large cohort of physicians over age 65 are retiring (AAMC Physician Shortages). These shortages will be felt most acutely in underserved areas (AAMC Physician Shortages). One key way this looming crisis can be addressed is by increasing the number of underrepresented physicians entering the workforce. Previous studies demonstrate that physicians from racial or ethnic backgrounds underrepresented in medicine are more likely to practice primary care and practice in underserved areas while treating a larger number of minority patients, irrespective of income. Furthermore, when given a choice, racial and ethnic minority patients are more likely to select physicians who share their racial/ethnic backgrounds and report greater satisfaction with reports of receiving higher quality care (Kington, 2001).



This increased satisfaction and treatment adherence can be attributed to a range of factors, many of which are still being explored. A recent study in Oakland, California randomly assigned Black male patients to Black or non-Black medical doctors (Alsan, 2019). The findings demonstrate that individuals who met with racially concordant doctors were more likely to select preventive care services, particularly invasive services (Alsan, 2019). Those who were treated by racially concordant physicians were 49% more likely to consent to diabetes screening and 71% more likely to allow cholesterol screening (Alsan, 2019). These same patients were more likely to raise issues and seek advice from black doctors. This and similar studies suggest that Black doctors could reduce the Black-White male gap in cardiovascular mortality by 19%, but a more diverse physician workforce is necessary to realize these gains (Alsan, 2019).

### THE ROAD AHEAD

Beginning with the zip code into which a child is born, the pathway to medical school is punctuated with significant obstacles that discourage and prevent students from pursuing careers in medicine. Financial barriers, underresourced elementary

### **Black Men In Medicine**

ALTHOUGH BLACKS AND AFRICAN AMERICANS represent 13% of the U.S. population, they comprise less than seven percent of recent medical graduates and less than four percent of practicing physicians (AAMC Diversity Facts and Figures). Black or African Americans are accepted to medical school at a rate of 34% compared to 42% for both Hispanic/Latino and Asian individuals and 44% for White students (AAMC Diversity Facts and Figures). While the overall proportion of Black medical students has slowly increased over time, these gains are entirely attributable to the increased prevalence of Black women matriculating into medical school. In contrast, the rate of Black men has actually been decreasing; fewer black men graduated from medical school in 2015 than in 1968 (AAMC Diversity Facts and Figures). This disparity is particularly important given that Black men have the lowest life expectancies of any racial group in the United States (Bond).





Note: Data shown are for individuals who identified as Black and did not identify as any other race or ethnicity. Before 2002, race and Hispanic ethnicity were asked as two separate questions; applicants could select only one category. Starting in 2002, applicants could select multiple race categories. Since 2013, applicants report their race ethnicity under a single question about how applicants self-identify. Because of these changes, data over these years are not directly comparable. Source: PAM Data Warehouse: Student Data and Applicant and Matriculant Files, as of July 11, 2016.

and high schools and lack of visible representation among practitioners cause many URIM students to abandon their dreams of becoming doctors. There are many factors that influence students' career trajectories, including elementary and high school science classes, college readiness and early exposure to medicine and healthcare. There are many programs focused on preparing URIM students to pursue careers

in healthcare, but there is a critical juncture at which students make the decision whether or not to apply to medical school. Unfortunately, fewer URIM students are choosing this path and many are less prepared to excel than their non-URIM peers when they do. This report focuses specifically on the barriers and solutions for those students in college and those applying to medical school and how to address them.



### Figure 3. Percentage of matriculants to U.S. medical schools by race/ethnicity (alone), academic year 2018-2019.

Black or African American (1,540) Hispanic, Latino, or of Spanish Origin (1,350) Multiple Race/Ethnicity (2,045) Native Hawaiian or Other Pacific Islander (23) Non-U.S. Citizen or Nonpermanent Resident (280) Other (381) Unknown Race/Ethnicity (394) White (10,783) Note: Race/ethnicity "alone" indicates that an individual is

reported in only one race/ethnicity category. The "Multiple Race/Ethnicity" category includes individuals who selected more than one race/ethnicity response. The "Non-U.S. Citizen or Nonpermanent Resident" category may include individuals with unknown citizenship.

Source: AAMC Applicant Matriculant Data File as of March 20, 2019.

# The Journey to Becoming a Physician

### UNDERGRADUATE DEGREE

Minority students are often removed from the medical school pipeline while pursuing undergraduate degrees because they are underprepared for the challenges that arise during the premedical curriculum. While many students enter college with intentions of pursuing careers in medicine but ultimately choose alternate academic paths, this is more prevalent among URIM

"As a girl growing up in Brooklyn, it was difficult to find doctors willing to mentor [individuals] who looked like me. I felt as if my goals were unattainable... [Programs that] play a vital role in helping young children who do not see themselves reflected in the healthcare field [are critically needed]."

#### **Deashia McAlpine**

Medical Student, Class of 2021 Upstate Medical University

students. A Stanford University study found that URIM students lost interest in being pre-med after the first two years of college at a higher rate than their White and Asian colleagues (Acad. Med. 2008).

This study also asked URIM participants why their interest in medicine had declined and found the most prevalent answers included the courses taken, loss of motivation and too much work (Acad. Med. 2008). Conversely, among URIM students whose interest increased cited courses taken, contact with physicians and college advising as reasons why they chose to continue in pre-med studies (Acad. Med. 2008). This suggests that experiences outside the classroom and ancillary supports provided to pre-med URIM students are key aspects to maintaining their commitment to apply to medical school.

Attrition at the undergraduate level is especially prevalent among minority firstgeneration college students - approximately 20% of undergraduate students, 50% of whom are also low-income. First-generation minority and low-income students face myriad financial, academic and social barriers to entering and completing college as the first in their families to navigate admission, financial aid and college-level coursework (PNPI). Many of these students work part- or full-time while attending school. These students often work to finance their educations, but some also have families who depend on their income (Bers & Schuetz, 2014). Employment interferes with time dedicated to class, homework and school engagements which are critical to success, often negatively affecting their grades.



Javier Diaz Collante was born in the Dominican Republic and moved to Yonkers, NY with his family in 2010 after completing high school. "It was challenging to work and support my family while being a full-time student," said Collante. "Now [I can] focus completely on [my] studies. Because of [the] support [of the program I was in], I do not have to work too many jobs to support my family and can spend the appropriate time studying."

#### **Javier Collante**

Master's in Science, Class of 2019 MD Candidate, Class of 2023 New York Medical College

First-generation students frequently find themselves navigating their undergraduate degrees on their own without the ability to ask parents for guidance on how the system works. As a result, only 11% of lowincome students earn bachelor's degrees within six years (PNPI). Anecdotally, many participants in AMSNY pipeline programs cite their outside work requirements as significant reasons they did not perform well during their college career. Further, the time spent earning an income was time they could not use to pursue additional educational opportunities, such as working in laboratories, being teaching assistants or shadowing physicians in the field – all of which bolster post-graduate applications.

Many URIM students experience discrimination on college campuses which lowers their self-esteem, well-being and mental health. These negative effects are exacerbated by the disproportionate prevalence of the imposter phenomenon among minority students, which is an inability to internalize their success. Students suffering from imposter syndrome do not see themselves as worthy of being at their institution, nor do they believe they have earned recognition based on their capabilities. This can often result in self-doubt and guestioning whether the school made a mistake by admitting them (Parkman). They may also face the stigma that their college admittance was based on affirmative action rather than their academic abilities, which



further contributes to low academic selfesteem and feelings of alienation from their peers (Falcon).

As mentioned in the Stanford study, many URIM students do not receive proper guidance and advising when deciding whether to apply to medical school. A good pre-health advisor can help students become better applicants in numerous ways. He or she can aid by:

- discerning the most accurate and reliable information about specific medical schools, including maintaining access to the medical school admission requirements and MCAT Score/GPA data tables
- helping students develop network connections (AAMC Pre-Health)
- having through knowledge of and facilitating introductions to individuals at the medical schools who recruit qualified URIM students

The quality and experience of pre-health or pre-med advisors at undergraduate institutions, however, can vary widely; at many institutions, students with limited experience may not even be aware they exist. Further, pre-health advisors can even be detrimental to qualified students seeking information. In a study of current URIM medical students, there were reports of unhelpful and even racist encounters with college pre-health advisors (Hadinger, 2017).

AMSNY's Committee on Diversity and Multicultural Affairs convened a conference for pre-health advisors to provide a forum for these individuals to thoroughly understand the medical school application process and engage in simulations to provide practical experience to employ with their advisees. During conference exercises, the advisors reviewed the portfolios from several students and were asked to offer the students advice on whether or not to apply to medical school. The counselors recommended that these students not apply based on their application materials. It was later revealed, however, that all the students in the simulation had in fact

"When I was an undergraduate at Northeastern University, I felt really disadvantaged. I had no idea how to apply [to medical school]. I didn't even know about the MCAT until my second year."

#### Robertha Barnes

MD Candidate, Class of 2021 SUNY Upstate Medical University

applied and successfully matriculated into medical school. According to conference evaluations, approximately 50% of the attendees indicated that they had held preconceived and erroneous notions about the criteria medical schools are evaluating when considering URIM applicants and 66% learned something at this conference that changed those assumptions. Overall, 88% of attendees felt the conference provided useful and current information. Several of the advisors indicated that they were unsure how applications were handled at medical schools as well as stating that they would change how they would encourage well qualified URIM students with slightly lower grade point averages (GPAs) and other metrics. There was strong interest in similar conferences to continue to boost the knowledge base of these professionals and help broaden the pool of qualified advisors.

### THE APPLICATION PROCESS

A 2017 qualitative study of URIM students about the medical school admissions process cited the application process itself as the most challenging part, calling it "overwhelming, difficult and expensive" (Hadinger, 2017). For those students who do apply to medical school, the first step is preparing for and taking the Medical College Admission Test (MCAT). The MCAT is the standardized multiple choice exam required by almost all U.S. and Canadian medical schools for admission.

Preparing for this test takes time, but also a substantial economic commitment. Finding support for these two variables can be particularly difficult for low-income students who have competing commitments such as work or family obligations. About half of the examinees between 2015 and 2017 reported taking courses to prepare for the MCAT exam, with 42% of examinees taking commercial preparation courses. The price for a professional, in-person MCAT prep program is between \$2,274 and \$2,699. Given the volume of applicants to medical school, it is very important to have a standardized measurement like the MCAT score. However, overreliance by some schools on admissions tools such as the MCAT - on which URIMs have historically performed less well – disadvantages URIMs in the admissions process (Davis, 2013).

Of the 186,000 individuals who took the MCAT between 2015 and 2017, 10% were Black/African American and 11% were Hispanic/Latino. The overall mean score on the MCAT is set at 500, with a top score around 528 and a low score of 472. Between 2015 and 2017, the mean score for Black/African American examinees was 493 and the mean for Hispanic/Latino students was 495. The mean score for matriculating students at MDgranting schools was 511.2. Even scoring two or three points higher can make the difference in being accepted or rejected by a medical school. Individuals who scored between 494 and 497 had an overall 10% acceptance rate, while those who scored between 498 and 501 had a 20% acceptance rate. When a student scores between 506 and 509, that acceptance rate rises to 46.4% (AAMC MCAT).

Once students take the MCAT the barriers continue to multiply. Application costs alone can be a significant deterrent. Medical school applicants are recommended to budget \$5,000 to \$15,000 for the application process alone (USNEWS).

The American Medical College Application Service (AMCAS) is a centralized medical school application portal. The primary application fee is \$160 to send materials to a single medical school and \$39 for each additional school. Students are typically encouraged to apply to a minimum of 10 schools to maximize their chances of acceptance.

While fee assistance is available through the AAMC, not all lower income applicants qualify for aid. For those who do qualify, students may not know about the program or how to take advantage of it. Additionally, there are costs associated with applying that are not covered by this program (Hadinger, 2017). One fourth year medical student from an AMSNY post-baccalaureate program who had received significant financial aid in college reported that he was not even aware that the AAMC offered the fee assistance program.

### Figure 4. Costs Associated with Licensing Examinations

MEDICAL SCHOOLS	COSTS	
MCAT Preparatory Courses	\$500-\$2,000	
MCAT Registration	\$315	
Medical School Admission Requirements Database	\$28	
Primary Application Fee	\$160 for first, \$39 for each following program	
Secondary Application (if requested by medical school)	\$40-\$100	
Transcript Fee	\$10 per school	
Interviews	\$500-\$3,000 per school	
Interview Attire	\$100-\$500	
Admittance Visit	\$500-\$3,000	
Nonrefundable Acceptance Deposit	\$500-\$3,000	

#### MEDICAL SCHOOL ATTENDANCE

According to the AAMC, 44% of White medical school applicants are accepted, compared to 42% of Asian, 42 % of Latino and 34% of Black applicants (AAMC Diversity Facts and Figures). The majority of medical students accepted come from affluent, higher socioeconomic status background (Youngclaus and Roskovensky, 2018). Not only are low income students underrepresented, they are also more likely to drop out the first two years of medical school. Some of the key reasons URIMs struggle in medical school or leave include lack of exposure to similarly underrepresented faculty mentors, feelings of isolation and imposter syndrome, racially charged climates within institutions and financial concerns

Once students matriculate into medical school, they may find themselves not only underrepresented among their peers, but also unable to find similarly concordant faculty mentors. While medical schools have undertaken numerous efforts to diversify hiring and create safe spaces for students, there is still work to be done. At allopathic schools, only seven percent of professors identify as URIMs (Xierali, Fair and Nivet, 2016). Given these numbers, even small changes in visibility can make an outsized difference in the applicant and matriculant pool. At a recent meeting of New York State's medical schools' deans of "Having faculty of color is really important because students can bond over shared lived experience; but the few that are here experience burn-out because they are asked [to do] so much and have to carry that burden with them."

Adrienne Morgan, PhD Assistant Dean for Medical Education Diversity & Inclusion, University of Rochester School of Medicine and Dentistry

diversity and inclusion, one dean noted that there had been an increase in the number of Black and African-American students applying and accepting offers at her school. She attributed this increase to the appointment of a new president of the medical center who is a Black man and the increased visibility of a person of color in promotional materials for the medical school.

Minority faculty are often tasked with serving as mentors for minority students and to contribute to diversity initiatives. These contributions are exceptionally taxing because they are rarely acknowledged or regarded on an equal plane as research productivity and publishing (Pololi). Because of this, URIM faculty are less likely than their White colleagues to be promoted, receive NIH funding and hold senior-level positions (In-Training).



## Figure 5. Percentage of full-time U.S. medical school faculty by race/ethnicity, 2018.

Source: AAMC Applicant Matriculant Data File as of March 20, 2019.



### COST OF ATTENDANCE

Ten years ago, a national study found that more than 75% of medical school students came from the top 40% highest earning households. The cost of medical school has been escalating at double the rate of inflation (Adashi, 2010). A reexamination of medical school demographics nine years later found the number had barely changed – more than three quarters of American medical students are still from predominantly high-income and, typically, White households (Youngclaus and Roskovensky, 2018).

Most students require loans and scholarships to attend medical school, but this is disproportionately true for URIM students. These students on average receive six percent of the cost of medical education from their families compared to 20% for

"There are many hidden costs to medical school. Tuition alone is very expensive but there is also licensing exam and preparation, commuting costs and more impacting the ability of students to study."

#### Rosa Lee, MD

Associate Dean of Curriculum and Assessment CUNY School of Medicine

## Figure 6. Costs Associated with Licensing Examinations

UNITED STATES MEDICAL LICENSING EXAM (USMLE)	REGISTRATION FEES
Step 1	\$645
Step 2: Clinical Knowledge	\$645
Step 2: Clinical Skills	\$1300
Step 3	\$895

non-URIM students. They are also more likely to begin medical school with higher pre-medical school debt (i.e. debt related to their undergraduate education). In 2015, 35.8% of White matriculants had pre-medical school debt compared to 46.2% for American Indians, 46.3% for Latinos, and 62.1% for African Americans (AAMC Diversity Facts and Figures). The average medical student without scholarships can expect to graduate with \$250,000 or more in federal loans. With accruing interest, which can be as high as seven percent, these same individuals may pay up two to three times their original loan amount (AAMC Diversity Facts and Figures).

Figure 7: Costs	Associated	with App	lying	for Re	esidency
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NON-REFUNDABLE MATCH REGISTRATION FEES			
\$65			
\$100			
\$75			
\$80			
ERAS COSTS OF APPLYING			
\$99			
\$15 per program			
\$19 per program			
NATIONAL RESIDENT MATCHING PROGRAM (NRMP)			
\$85			
\$30 per program			

For those who successfully navigate the hurdles and are accepted to medical school, the hidden costs continue to accrue. Required equipment, such as a stethoscope and ophthalmoscope, can total nearly \$1,000. Textbooks and study materials can be an additional \$1,000 to \$2,000 (NYTimes. 2019). Further, students must take the three "steps" of United States Medical Licensing Exam (USMLE) to continue attending medical school and to continue into residency. There are test registration costs: \$645 for USMLE Step 1, passage of which is required to commence clinical rotations in patient care settings during the third and fourth years of medical school. There is an additional \$1,300 for USMLE Step 2 Clinical Skills, \$645 for USMLE Step 2 Clinical Knowledge and \$895 for USMLE Step 3 (NBME). In addition to registration fees for the USMLE Step 2 Clinical Skills, students have to pay for travel to and accommodations in one of the five cities that administer the test. These final three parts are required for graduation and to continue to residency training.

It is important to note that virtually all forms of financial aid require students to maintain good academic standing. If students need more time to prepare for licensing exams or have to repeat a year, they may lose their scholarships or be rendered ineligible for loans. During repeat years, they may lack funding and seek employment while also attending medical school, studying for remedial exams, or completing clinical rotations. These factors significantly interfere with the students' ability to recover academically, resulting in lower test grades, withdrawal from school, or eventual dismissal.

The prohibitive costs associated with medical school, especially for students from underrepresented backgrounds, limit physician workforce diversity within specialty and geographic locations (Greysen, 2011). Students with increased debt are often pressured to enter more lucrative fields with fee-for-service billing system rewards and discouraged from primary care specialties such as pediatrics and family medicine, which typically have the lowest salaries. This is particularly problematic for underserved communities that are experiencing a dearth of primary care physicians (Commonwealth Fund, 2011). The inability of the United States to close this gap and meet the needs of the population with primary care physicians will only contribute to rising healthcare costs and worsening health disparities as patients seek expensive and inadequate care from emergency rooms, urgent care or simply do not seek treatment.

### GRADUATE MEDICAL EDUCATION (RESIDENCY)

The National Resident Matching Program (NRMP) is a nonprofit organization that matches medical students to Graduate Medical Education (GME) training programs in the United States. The match process is a uniform system in which every residency candidate simultaneously learns where they will be completing their medical training (AAFP).

To register for the match, students must go through another application process.

Students use the AAMC's Electronic Residency Application Service (ERAS) to send their application materials to residency programs. Examples on the ERAS website of the costs associated with applying to one or more specialties range from \$327 to \$439 (AAMC ERAS Fees). Similar to medical school admissions, this process includes application and registration fees, travelling and staying overnight for interviews, professional attire and more which can cost thousands of dollars. The costs of medical education, including tuition, the fees associated with attending medical school and associated costs of becoming licensed are significant and can serve as deterrents to those looking to become physicians. Although we are not focusing on the barriers that exists upon graduation, it is important to note that students' ability to service loans while in residency programs with fixed salaries for three to eight years can be an obstacle to pursuing primary care versus fee-for-service specialties.



# Recommendations

xpanding the pipeline of URIM students entering and graduating from medical school is not a simple task and requires a multifaceted approach with significant dedicated resources. The return for such an investment, however, in both the health of the community and the individuals who reside within it is likewise significant. Given AMSNY's long-standing commitment to increasing diversity in medical schools and rich experience in developing programs that address this concern, we offer the following recommendations.

### PRE-HEALTH ADVISOR TRAINING

As noted above, the guidance from an advisor at the undergraduate level can be the tipping point for URIM students considering careers in medicine. That experience, however, can vary widely across undergraduate institutions or be altogether unavailable to students who have left college already and are considering applying to medical school. Pre-health advisors are often operating with outdated and limited information about what medical schools are looking for in applicants, particularly URIM applicants, and are unable to provide proper guidance. Conferences and trainings for prehealth advisors, like the one AMSNY held, with access to medical school faculty who participate in the admissions process could be a significant professional development tool for these advisors and can help expand the pool of potential applicants.

### PHYSICIAN-STUDENT INTERACTIONS

Studies have demonstrated that interactions with physicians at the undergraduate level increase students' commitment to pursuing careers in medicine (Acad. Med. 2008). "Shadowing" experiences, which demonstrate interest and provide exposure to medical school, are also helpful on students' resumes when applying to medical school. It can be difficult, however, for URIM students with limited contacts in the medical field to establish these shadowing experiences, in addition to having the time, funds and ability to partake in these opportunities. More formalized and open access to these internships or programs and the provision of stipends for participation would allow more URIM students to take advantage of handson experiences with physicians.

### APPLICATION PREPARATORY CLASSES

Preparatory classes can provide guidance and clarity for URIM students, many of whom are the first in their families to navigate the medical school application process. Compared to peers who might have physician parents or family members, these students often lack guidance regarding MCAT preparation, interviews or personalized advising. While good MCAT scores are essential for successful medical school applications, high scores are not necessarily achieved through traditional studying alone. Often, commercial prep courses provide essential inside knowledge for navigating the exam, in addition to covering the subject material. Application prep courses can provide assistance for students in determining whether they qualify for fee waivers and how to obtain such help as well as preparing them for interviews, and assembling faculty letters of recommendation. Through multidisciplinary

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preparatory courses, disparities in opportunities can be addressed to give all students a more equal starting point.

### POST-BACCALAUREATE PROGRAMS

Medical post-baccalaureate programs exist at many institutions to help students who need additional coursework or academic strengthening before applying to medical school. Some students come from nontraditional backgrounds (for instance, having taken time off after college graduation or not having completed science prerequisite coursework in college), while others do not have strong GPAs, which are essential in applying to medical school. The vast majority of post baccalaureate programs, however, are tuition-based; students apply directly and the programs are not focused on URIM students. Since 1991, AMSNY has overseen unique post-baccalaureate programs that focus on assisting URIMs and other students from disadvantaged backgrounds. The AMSNY programs have increased the number of successful medical school applicants and graduates. They offer mentorship from faculty and staff who work closely with students to customize training to strengthen their academic rigor. While enrolled in a 12- to 24-month program, students receive formal mentoring, advising, financial assistance, and a tailored curriculum. The AMSNY post-baccalaureate programs require referral by a medical school and offer students conditional acceptance to the referring medical school upon the successful completion of the program.

"Our Early Assurance Program students are usually the strongest because by the time they start they have spent two years building a relationship with us. We also have a summer program for them where they spend 10 weeks getting first-hand experience, meeting our faculty, and immersing themselves in the medical school experience."

#### Adrienne Morgan, PhD

Assistant Dean for Medical Education Diversity & Inclusion University of Rochester School of Medicine and Dentistry

### MENTORING/PEER GROUPS

Mentoring often plays a significant role in the personal and professional development of students. This can be especially important for incoming students, who are acclimating to new surroundings and the challenges associated with undergraduate programs and medical school. Literature has shown that URIM students have experiences that differ from their non-URIM peers, resulting in feelings of disengagement, withdrawal, isolation, and lack of involvement. These factors may discourage certain career paths and/or prevent them from completing their degrees.

Mentoring and peer programs emphasizing interpersonal reinforcement can reduce the effects of imposter syndrome, low belongingness and disconnection (**Craig**, 2018). Research has shown that mentored students have higher retention in science, technology, engineering and math (STEM), research-related career paths and higher education. But it is important that institutional leadership intentionally creates a culture of inclusive excellence through mentorship initiatives that recognize, value, and respond to the power of diversity.

### MEDICAL SCHOOL EARLY ASSURANCE PROGRAMS

As discussed, traditional medical school applications are expensive and timeintensive processes. Early Assurance Programs (EAP) allow undergraduate students the opportunity to be accepted into medical school in the spring of their sophomore year or fall of their junior year. Many of these programs do not require students to take the MCAT or apply to multiple schools, mitigating the stress and cost associated with the medical school application process. The FlexMed Program at the Icahn School of Medicine at Mount Sinai is open to college sophmores in any major who have taken at least one year of biology, chemistry or physics (Icahn FlexMed). The program draws heavily from students in the humanities and social sciences (Icahn FlexMed). EAP programs free up time in the remainder of the undergraduate experience and allow

the students to take higher division classes, participate in semester abroad programs and focus their education without MCAT preparation, AMCAS application process, interviews and more.

### BS/MD PROGRAMS / DIRECT MEDICAL PROGRAMS (DMP)

Motivated high school seniors committed to careers in medicine can enter medical school through BS/MD programs. This program structure combines bachelors and doctorate degrees, allowing students to obtain medical degrees within six to eight years.

Both DMP and EAP programs allow students to fully commit their efforts to becoming physicians. These students can spend their time crafting their undergraduate years and getting to know professors and faculty in their program. Completing both degrees in less than eight years also has financial benefits because it reduces the cost of tuition and student loans.

### Figure 8: Alternate Medical School Acceptance Models

DIRECT MEDICAL	EARLY ASSURANCE
PROGRAM (BS/MD)	PROGRAMS (EAP)
Apply senior year of high school	Apply end of sophomore year or beginning of junior year in college
Admission mostly	Admission
based on high school	mostly based on
academics and	performance
standardized test	during the first two
scores	years of college
Apply to undergraduate and medical school at the same time	A separate application process

### TUITION SCHOLARSHIP AND TUITION FREE/DEBT FREE MEDICAL SCHOOL

Studies indicate that students with sufficient financial supports for college have higher academic performance, enhanced social integration on campus and are more likely to complete their degrees (Nora, 2016). Scholarship programs like the National Health Service Corps can be used to not only relieve the financial stress, but also reduce the pressure to go into fee-for-service care. These scholarships can be contingent on the commitment to serve underserved communities, thereby addressing workforce shortages in areas and specialties of need. In 2017, New York State provided funding for a Diversity in Medicine Scholarship for underrepresented students who agree to practice in an underserved location within the state upon completion of their medical training (AMSNY, 2017).

Some medical schools have been shifting towards tuition-free or debt-free models, marking a significant shift in financing medical education. Several high profile announcements came from schools in New York, including Columbia Vagelos College of Physicians and Surgeons, which moved to a debt-free model based on need in 2017, both of NYU's Schools of Medicine, which went tuition-free in 2018 and Weill Cornell Medicine, which moved to a debt-free model based on need in 2019. Although there are no service obligations attached, to these models, schools anticipate that by offering free tuition, medical students will be empowered to choose less lucrative practice options, including primary care (NYU News, 2019). There is significant debate as to

whether these models will have the desired effect, and all agree that more longitudinal data is needed (Lachs and Choi, 2019). Although these four programs are not focused on increasing the number of URIM students in medical school, it is cited as a potential positive outcome of moving towards this tuition model (NYU News, 2019).

"When minority students give up their dream of becoming a doctor or other health professional, they are depriving themselves; depriving future patients who would benefit from having a more ethnically and racially diverse health care workforce; and depriving the nation of the contributions they could make to improve their lives, their community, and the country."

Louis Sullivan, MD Founding Dean Morehouse School of Medicine

In 2019, the Icahn School of Medicine at Mount Sinai announced an Enhanced Scholarship Initiative to offer substantial debt relief focused on URIM and low-income students. Qualifying students will have their debt capped at \$75,000 upon graduation (Mt. Sinai, 2019). While these models represent significant steps towards making medical school more attainable to some underrepresented students, relying on private philanthropy to independently fund medical education is unlikely to prove a scalable and sustainable solution to the rising cost of obtaining a medical degree (STAT, 2018). For a majority of the nation's medical schools, access to such funding is unavailable.

"The AMSNY Diversity in Medicine Scholarship means I can truly focus on my studies without the financial burden of a medical education. I no longer think about how I will pay for my debt as a factor in choosing which residency I should consider, instead I can focus on what really matters to me which is preventative primary care for communities in need."

#### Diana Perez

Medical Student, Class of 2021 Albert Einstein College of Medicine



# Conclusion

iversity in healthcare is not simply a matter of filling mandated seats; rather it is about intentionally creating an inclusive environment ensuring all backgrounds, beliefs, ethnicities and perspectives are adequately represented in the medical field. It is about providing the best possible care for all patients by enlisting providers that represent the communities being served. But there are many challenges inhibiting students underrepresented in medicine from obtaining positions from which they can improve access to care and reduce health disparities.

Census projections suggest that by 2050, racial and ethnic minority groups will account for nearly one half of the U.S. population (Colby and Orton, 2015). As a result, the need for diverse physicians who reflect the racial, ethnic, and cultural characteristics of the nation will only increase. Meeting the needs of these populations will ultimately require addressing deeply rooted systemic barriers. Research has clearly demonstrated that if provided comprehensive

academic, emotional, financial and social support services, URIM students have improved success in completing their degrees and obtaining admission to medical school programs.

With increased investment in postbaccalaureate programs, early acceptance programs, mentorship/peer programs and scholarships, URIMs are more likely to overcome the many barriers that exist on the path to becoming physicians. Through this investment, states can increase primary care physicians, reduce health disparities and ultimately decrease health expenditures. "The AMSNY Scholarship is an opportunity for me to pursue my vision of serving a community such as my own without the growing financial burden of medical education. In minimizing my debt, the scholarship has offered me a fast track to creating my own community-based health organization and engaging in philanthropy."

#### Sebastian Placide

Medical Student, Class of 2020 Albert Einstein College of Medicine

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### Glossary

Common abbreviations used in this report.

**AAMC** : Association of American Medical Colleges

**AMCAS** : American Medical College Application Service

**AMSNY** : Associated Medical Schools of New York

**DMP** : Direct Medical Programs

**EAP** : Early Assurance Programs

**ERAS** : AAMC's Electronic Residency Application Service

**GME** : Graduate Medical Education

**GPA** : Grade Point Average

**MCAT** : Medical College Admission Test

**NHSC** : National Health Service Corps

**NIH** : National Institutes of Health

**NRMP** : National Resident Matching Program

**STEM** : Science, Technology, Engineering, and Mathematics

**URIM** : Underrepresented in Medicine

**USMLE** : United States Medical Licensing Examination

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Incorporated in 1967, the Associated Medical Schools of New York (AMSNY) is a consortium of the 17 public and private medical schools in New York State. AMSNY connects the people, knowledge and resources of the State's medical schools, and facilitates educational opportunities for medical students, residents, and faculty by coordinating an intensive statewide effort to increase equitable representation in the health professions. AMSNY also implements programs that support the educational development of high school and college students from underserved and underrepresented communities so they can succeed in medical school.

## **AMSNY MEMBER INSTITUTIONS**

Albany Medical College Albert Einstein College of Medicine CUNY School of Medicine Columbia University Vagelos College of Physicians and Surgeons Icahn School of Medicine at Mount Sinai Jacobs School of Medicine and Biomedical Sciences. University at Buffalo, SUNY New York Institute of Technology College of Osteopathic Medicine New York Medical College NYU Grossman School of Medicine NYU Long Island School of Medicine Renaissance School of Medicine at Stony Brook University SUNY Downstate Health Sciences University SUNY Upstate Medical University Touro College of Osteopathic Medicine University of Rochester School of Medicine and Dentistry Weill Cornell Medicine Zucker School of Medicine at Hofstra/Northwell

