RESEARCH REPORT

Improving and Expanding Programs to Support a Diverse Health Care Workforce

Recommendations for Policy and Practice

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Contents

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Executive Summary

Though the United States is an increasingly racially and ethnically diverse and multicultural society, the health care workforce lacks corresponding diversity.[1] Studies demonstrate that a diverse health care workforce can improve patients' access to and satisfaction with care and health outcomes, and that shared identities between providers and patients may improve health equity (HHS Advisory Committee on Minority Health 2021).[2]

Despite long-standing efforts to increase diversity, health care professions have not achieved equitable representation of Black/African American and Hispanic/Latinx people[1] (HHS Bureau of Health Professions and Office of Minority Health 2009; Morris et al. 2021). To identify promising policies and practices for sustainably increasing diversity in the physician and nursing workforces, the Urban Institute examined pathway programs (also known as pipeline programs) in medicine and nursing. These programs provide academic, financial, and social supports to encourage more students from systemically and structurally excluded groups to enter and remain in health care professions. This study adopts the term systemically and structurally excluded to call attention to the ways that Black/African American and Hispanic/Latinx students and professionals in particular have been locked out of equitable educational and professional opportunities (see box 2).

Drawing on data gathered through a literature scan, in-depth interviews with key stakeholders and experts, and focus group discussions with Black/African American and Hispanic/Latinx health professionals and students, we found that pathway programs are a promising strategy for increasing diversity in health professions. Study participants emphasized that pathway programs are instrumental for health care diversity but identified many challenges that threaten their effectiveness and reach, including insufficient and unstable funding, anti–affirmative action policies, and lack of institutional buy-in.

Here we outline some of our key findings specific to each type of support that pathway programs offer and the institutional environments in which they operate. An important limitation of these findings is that they are mostly based on perspectives and experiences of medical students and professionals because comparable nursing pathway programs are almost nonexistent, which indicates the need for more investments in diversity pathway programs for nurses.

[*] In this report we chose to use the terms Black/African American and Hispanic/Latinx. We recognize, however, that these terms may not resonate with all people, and we remain committed to using respectful and inclusive language.

- Academic enrichment programs are invaluable to entry into and graduation from medical school. Study participants noted the competition for top-performing students, a lack of paid internship opportunities, and deficiencies in academic advising as major opportunities for change.
- Financial support (including for living expenses) is a critical component of pathway programs. However, some study participants were concerned about the undue influence of loan forgiveness programs in steering systemically and structurally excluded students into primary care and service in underserved communities.
- Social supports, particularly mentorship by faculty, professionals, and older students, are vital in helping Black/African American and Hispanic/Latinx students face educational demands, navigate professional development opportunities, and deal with microaggressions and implicit bias. Although racial concordance was desired but not always feasible, participants also identified a need for more support for program mentors, including training, guidance, and compensation for their time.
- Institutional supports may be lacking in that initiatives to increase diversity in health care may not sufficiently encompass efforts to improve equity and inclusion. In fact, many Black/African American and Hispanic/Latinx students and health professionals reported experiencing racism in both school and the workplace. Thus, institutions must implement policies and practices that support and fairly compensate faculty, staff, and students from systemically and structurally excluded groups.

These findings inform the following sector-specific recommendations for higher education, philanthropy, and state and federal government stakeholders who seek to support the development and implementation of pathway programs to promote a diverse, equitable, and inclusive health care workforce.

Higher education stakeholders could consider the following recommendations:

- Invest in targeted interventions across the full educational continuum, with continued support from elementary school through a professional's early career.
- Provide low-cost trainings, summer academic-enrichment programs, and virtual or hybrid mentorship and internship programs, all of which offer opportunities to engage students along their academic careers.

- Ease financial burdens, including investing in wraparound funding, paid internships, and accelerated programs, and provide social and emotional supports, like investing in quality advisers and mentors and in faculty diversification efforts.
- Invest in institutions' surrounding communities by recruiting for health care programs locally and creating pathways for ancillary health care professionals to upskill.
- Commit to creating inclusive learning and working environments and integrating diversity, equity, and inclusion (DEI) principles in institutional policies, practices, operations, and instructions.

Philanthropy stakeholders could consider the following recommendations:

- Provide funding for interventions and activities that have limited or no public support, including elementary and middle school pathway programs and linkage programs that help aspiring health care professionals navigate from one educational step to the next.
- Make investments that support the capacity of programs to collect and evaluate outcome data; these programs are critically needed to secure the sustainability of pathway programs.
- Develop new grant-funding opportunities that can incentivize interventions supporting the retention of Black/African American and Hispanic/Latinx students and professionals in clinical education and practice and that promote the creation of nursing pathway programs.
- Promote DEI policies and practices by tying financial support for academic and health care institutions to demonstrated success in DEI efforts.

Finally, **state and local government** officials could consider the following recommendations:

- Fund programs that have a track record of success and start pathway programs at public colleges and universities.
- Enact new or revise existing pathway policies, such as mandating holistic admissions practices, establishing DEI initiatives in medical and nursing education, reinstating affirmative action laws, and reducing the financial burden of higher education.

These are just some of the many ways in which pathway programs can be better supported, improved, and expanded to increase the entry and retention of Black/African American and Hispanic/Latinx people, and other people from systemically and structurally excluded groups, in health professions. Initiatives to increase diversity should be accompanied by efforts to create and maintain inclusive, supportive, and respectful learning and working environments, not just within the pathway

programs but also in broader academic and health care institutions. In addition, higher education institutions, foundations, and state and local governments should engage students and health professionals from systemically and structurally excluded groups to develop, implement, and evaluate programs and policies that promote greater DEI in health care.

Improving and Expanding Programs to Support a Diverse Health Care Workforce

Introduction

Throughout America's history, institutional and government actors have created and perpetuated inequities in access to health care, high-quality education, workforce development programs, and pathways to promising health care careers for people from systemically and structurally excluded groups.[3] As the nation's racial, ethnic, and age demographics rapidly change, these persistent inequities have resulted in few systemically and structurally excluded patients sharing an identity with their providers and fewer Black/African American and Hispanic/Latinx[2] students or professionals pursuing critical roles such as nurses and physicians (Salsberg et al. 2021).[4]

The need for the health care workforce to diversify itself is well documented. According to 2018 Association of American Medical Colleges (AAMC) data, Black/African American physicians comprised just 5 percent and Hispanic/Latinx physicians just 5.8 percent of the workforce, despite representing 13 percent and 19 percent of the US population.[5] A 2020 nursing workforce survey showed that most registered nurses are white (81 percent); just 6.7 percent of nurses are Black/African American and 5.6 percent are Hispanic/Latinx (Smiley et al. 2021).[6] National statistics often understate regional gaps in representation. In California, for instance, Hispanic/Latinx people make up 40 percent of the population but just 5 percent of physicians and 8 percent of nurses (CHCF 2021; Spetz, Chu, and Blash 2018).[7]

Studies have shown that when the race or ethnicity of a patient matches that of their physician, patients have greater satisfaction with and trust in them, and in some cases receive more effective care (Cohen, Gabriel, and Terrell. 2002).[8] In fact, a 2018 study found that Black men were more likely to agree to preventive services if they were seen by a Black physician than if they were seen by a non-Black physician (NBER 2018). Similarly, a 2011 study by the US Department of Health and Human Services suggested that training and hiring more health care providers from diverse backgrounds can improve patients' access to high-quality care, patient choice and satisfaction, and patient–clinician trust

[†] In this report we chose to use the terms Black/African American and Hispanic/Latinx. We recognize, however, that these terms may not resonate with all people, and we remain committed to using respectful and inclusive language.

(HHS Advisory Committee on Minority Health 2011). The same study also found that such efforts could create a more diverse pool of medically trained professionals who can better represent the experiences and interests of communities and populations who have been systemically and structurally excluded from leadership, policymaking, and research positions. Diversity on health care teams has also been shown to improve decisionmaking, health outcomes, productivity, revenue, and understanding of others (Gomez and Bernet 2019). Beyond these results, bright minds and compassionate people who want to become a part of the health care system should have an equitable opportunity to do so.

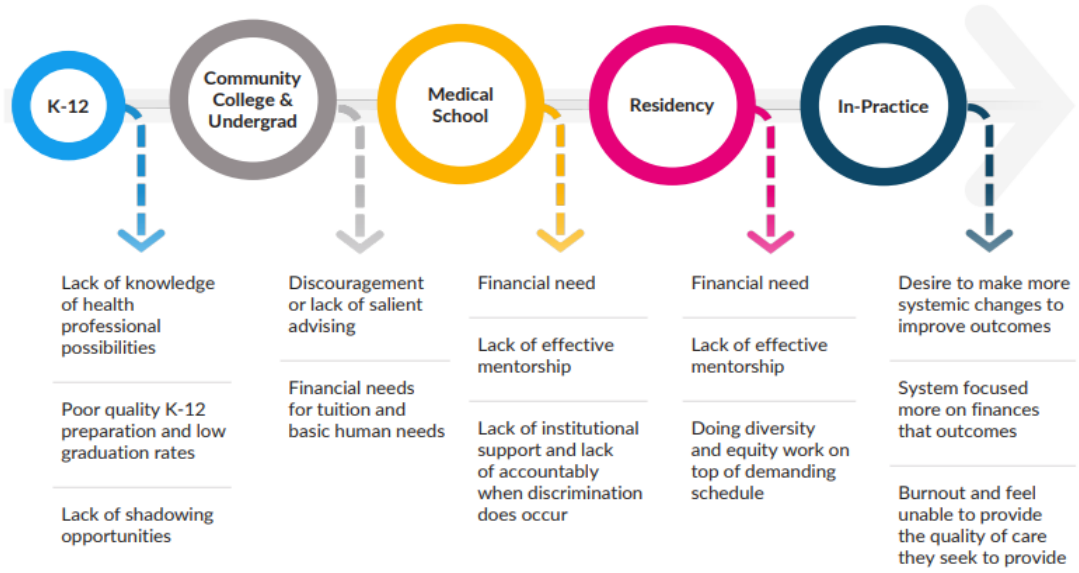
Despite long-standing efforts to increase diversity in the health care professions, we have not achieved equitable representation of people from systemically and structurally excluded groups in the physician and nursing workforces. The lack of diversity, equity, and inclusion (DEI) in health care can affect care quality, diminish the well-being of Black/African American and Hispanic/Latinx providers (Serafini et al. 2020), perpetuate racial and ethnic disparities in patient access to and outcomes from care (AHRQ 2021; Hinton, Howell, and Merwin 2010; Jackson and Gracia 2014; Kutalek 2012), and prevent physicians and nurses of all races and ethnicities from receiving the training necessary to serve different populations. Since 2020, the disproportionate health effects of the COVID-19 pandemic on systemically and structurally excluded groups have exposed the need for nursing and medical training on racial health disparities and the social determinants of health (Sequist 2020)—yet only 40 percent of US medical schools teach about racial disparities in health care (White Ojugbele 2019).

The failure to recruit and retain sufficient numbers of Black/African American and Hispanic/Latinx nursing and medical professionals has been described as a "leaky pipeline" because of the many ways that promising health care professionals are intentionally or unintentionally diverted (Upshur et al. 2018). These students and professionals face numerous challenges and obstacles at every stage in the process (figure 1), resulting in far fewer practicing physicians and nurses from structurally and systemically excluded groups than would otherwise be possible.

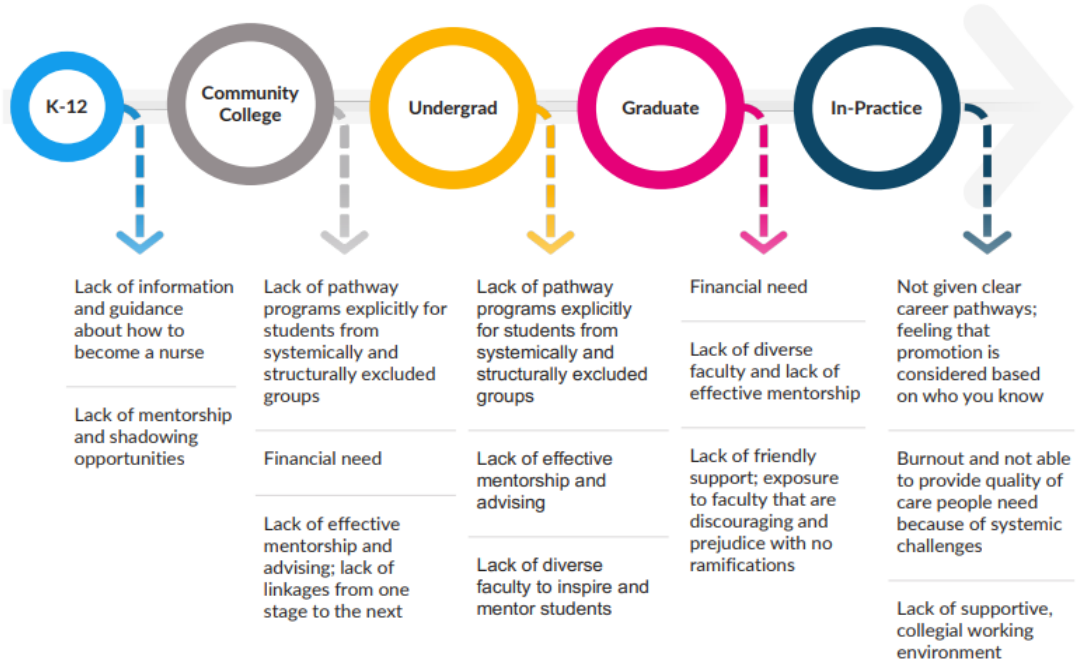
FIGURE 1

Obstacles to Participation in the Medical and Nursing Workforces for Black/African American and Hispanic/Latinx People

Leaks in the medical workforce pipeline



Leaks in the nursing workforce pipeline



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Source: Urban Institute.

Yet, despite the many challenges to improving racial diversity in health professions, there are reasons to be optimistic. A recent AAMC press release announced that medical schools across the country had attracted and enrolled a more diverse class in the 2021–22 academic year.[9] Black/African American, Hispanic/Latinx, and women applicants and enrollees all had higher rates of acceptance and enrollment in medical education programs, with Black/African American first-year medical students increasing by 21 percent and Hispanic/Latinx students or those of Spanish origin increasing by 7.1 percent.[10] Although these numbers are promising, more work needs to be done to address the academic, financial, and other barriers nursing and medical students from systemically and structurally excluded groups may experience.

With support from the California Health Care Foundation, the Urban Institute conducted a comprehensive study of pathway programs, also known as pipeline programs. These programs have been used for decades as a main strategy to recruit and support students from communities of systemically and structurally excluded groups and socioeconomically disadvantaged families in pursuing health care professions.[11] Through a literature review, interviews, and focus groups (box 1), we sought to understand how pathway programs are developed, funded, and operated; how they affect participants; and what impact they have on diversity to draw lessons for policymakers and other key stakeholders on how to sustainably increase the representation of Black/African American and Hispanic/Latinx people in the physician and nursing workforces.

BOX 1

Research Methods

Between April and December 2021, we conducted interviews with 35 stakeholders and experts (also called key informants herein), including pathway program directors, medical education leaders, and health care workforce policy experts and advocates, to (1) examine how pathway programs are structured, operated, and funded and (2) identify key challenges and promising strategies to strengthen pathway programming and increase the participation of Black/African American and Hispanic/Latinx people in health professions. We also conducted eight virtual focus groups with Black/African American and Hispanic/Latinx medical and nursing students and professionals to learn about their experiences with and perspectives on pathway programs. Last, we supplemented our qualitative data collection with a review of published literature examining the effectiveness of postsecondary medical and nursing pathway programs.

These procedures have several limitations. We interviewed and held focus groups with a relatively small number of stakeholders and selected participants through a nonrandom convenience sample, so some important perspectives may not have been captured and other perspectives may be overrepresented. In particular, none of the nursing students and professionals we spoke with reported

ever participating in diversity pathway programs. Also, the literature examining the impacts of pathway programs on participant education and employment outcomes is limited and especially thin for nursing pathway programs. See the appendix for a more detailed description of the study's methodology and limitations.

Although this report focuses on increasing the number and inclusion of Black/African American and Hispanic/Latinx people in health care professions, the needs to recruit, support, and retain Indigenous and Native American, disabled, LGBTQ+, and other systemically and structurally excluded groups are critical amid a growing national shortage of physicians and nurses.[12] We take seriously the need to understand the barriers to increasing representation among all systemically and structurally excluded groups, and we understand the importance of acknowledging and calling attention to the diversity within these populations and the intersectional identities of many people represented in these groups. (See box 2 for definitions of frequently used terminology and our reasons for choosing certain terms.)

Still, to shed light on the unique experiences of Black/African American and Hispanic/Latinx populations, we specifically focus on the case for diversification for Black/African American and Hispanic/Latinx health care providers and the roles that pathway programs play in increasing the number of nurses and physicians from these groups. In the following sections, we review the social and political contexts that can explain the lack of diversity in health professions today. We then present key findings from our literature review, interviews, and focus groups with Black/African American and Hispanic/Latinx nursing and medical students and professionals. We organize the findings by the central components of pathway programs—academic, financial, social, and institutional—and include considerations for policy and practice. We conclude with a discussion of the ways in which pathway programs could be improved to further support DEI in health care.

BOX 2

Note on Terminology

Throughout this report, we use the phrase "systemically and structurally excluded," instead of the more commonly used terms "underrepresented," "minority," and "minoritized," to call attention to the ways that Black/African American and Hispanic/Latinx students and professionals have been locked out of equitable educational and professional opportunities, including funding, training, and mentorship. Not only are these commonly used terms historically and contemporarily inaccurate, but their use also problematizes or generalizes students or professionals from systemically and structurally excluded groups. By using "systemically and structurally excluded," we hope to prioritize the opportunities for

radical transformation in the diversity of health professions and overcome the gatekeepers, practices, systems, and institutions that have historically excluded and marginalized such students to maintain a predominantly white health care workforce.

We also use the term "intersectionality." Popularized by legal scholar Kimberlé Crenshaw, intersectionality refers to the reality that individuals have intersecting identities that affect how they are viewed, understood, and treated. In this report, intersectionality encompasses the sum of an individual's experiences in school, training, pathway programs, and professional contexts. We recognize that a physician or nurse could identify as Black/African American, Hispanic/Latinx, or both and could also be from a rural or urban community, be a new immigrant or a fourth-generation descendant, be LGBTQ+, have different learning styles, and the like. We want to draw attention to the complexities, nuances, and individuality within each racial and ethnic category in this report.

Last, we define a "pathway program" as a program or intervention that supports systemically and structurally excluded students, early-career professionals, and established professionals upon entry and sometimes through the duration of their academic and professional careers. This support can take many forms, such as mentorship, financial aid and scholarships, training, or social supports. We focused on programs that explicitly or implicitly seek to increase the diversity of the health care workforce, particularly by increasing the number of Black/African American and Hispanic/Latinx medical and nursing professionals. Although some sources refer to these interventions as pipeline programs, we chose to use the term pathway to emphasize the ability of these programs to empower participants to explore and take different paths to achieve their academic and professional goals.

Historical Context

Expanding the representation of Black/African American and Hispanic/Latinx people in the health care workforce is not a new goal. Stakeholders in the health care system, including physicians, nurses, medical and nursing education faculty, policymakers, advocates, and organizers, particularly from systemically and structurally excluded groups, have long sought to improve the diversity of physician and nursing students and professionals (Harley 2006). To inform recommendations for today's leaders, it is important to understand the historical context for why, despite decades' worth of efforts, our nation's health care workforce still lacks diversity.

A Long History of Discrimination

Slavery, the annihilation and forced assimilation of Indigenous people, and ever-present systemic and institutionalized racism laid the groundwork for today's inequitable and disproportionately homogenous health care system.[13] After the Civil War, Black/African American medical schools were

developed to serve Black/African American patients within their communities. There were not enough schools to meet the demand, however, and existing schools were precariously sustained through tuition fees, religious institutional support, and, at times, government funding (Harley 2006).

Inequities between Black/African American and white medical schools were cemented with the release of the 1910 Flexner Report on medical education.[14] Written by educator Abraham Flexner and funded by the Carnegie Foundation, the report sought to improve the quality and standardization of medical education by importing and emulating Germany's "professionalized" system (Institute of Medicine et al. 2003). Flexner's work led to the closing of all but two historically Black/African American medical schools, Howard University and Meharry Medical College. Segregated white medical schools did not reciprocally expand their enrollment of Black/African American medical students, creating a shortfall that persists today.[15] The Flexner Report also recommended that Black/African American medical professionals focus on "hygiene," not medicine, which has had lasting ramifications for the health of Black/African American patients (Hunt 1993). Relegating Black/African American physicians to a focus on hygiene rather than more specialized forms of practice, such as surgery or research, limited their career opportunities and prevented Black physicians from providing medical care to Black/African American patients, establishing their own research programs, or leading training or administration in clinics or hospitals (Hunt 1993). Similarly, many students from systemically or structurally excluded backgrounds have been directed or redirected to less visible or lucrative career paths such as nursing assistants, aides, and medical assistants rather than registered nursing programs or medical school (HRSA 2017).

In the decades following the Flexner Report, health care workforce diversification efforts stagnated. But in 1961, President Kennedy signed an executive order formalizing affirmative action policies for federal contractors in response to growing recognition of past structural exclusion.[16] The passage of civil rights legislation in 1964 and the enactment of Medicaid and Medicare in 1965 also spoke to the need for diversification (Berkowitz 2005). Medicare required that hospitals receiving federal funding be desegregated, leading many Black/African American hospitals to close or merge with white hospitals (Institute of Medicine et al. 2003). The closures displaced Black/African American patients and providers while limiting job access, geographic proximity to care, and reliability of care within Black/African American communities (Institute of Medicine et al. 2003). Desegregation presupposed Black/African American patients would now receive the same-quality care as white patients, but disparities in access to high-quality care persisted.[17]

After desegregation, many professional associations remained white-only organizations, which denied Black/African American and Hispanic/Latinx physicians the professional credentials and

certifications necessary to join hospital medical staffs.[18] Likewise, Black/African American and Hispanic/Latinx nurses were not hired by segregated hospitals and were barred from the American Nurses Association and other professional organizations.[19]

Emerging Pathway Programs and Subsequent Legal Challenges

In response to these historical developments, several pathway programs, designed to increase the number of systemically and structurally excluded people in health professions, emerged or expanded.[20] Collectively, these efforts, coupled with broader societal shifts, bore some fruit. In the late 1960s, the share of medical students from "Black, Mexican American, mainland Puerto Rican, and Native American" backgrounds nationwide increased from 2 to 9 percent.[21] But diversification progress was slow, prompting the AAMC to start a campaign in 1991 that sought to enroll 3,000 students from the aforementioned four groups in medical school by the year 2000 (Terrell and Beaudreau 2003). At the time, affirmative action policies were widely used to counteract discriminatory admissions and hiring policies. Similar efforts to diversify the nursing workforce were notably absent until the early 2000s, when the American Association of Colleges of Nursing began urging nursing programs to increase their efforts to attract "diverse students" (Lightfoot and Quintana 2017).

Unfortunately, legal challenges through these decades had been hindering the continuation, growth, and sustainability of many pathway programs at predominantly white institutions (PWIs). One case, *Regents of the University of California v. Bakke* in 1978, saw the Supreme Court rule that although the Constitution prohibited the School of Medicine at the University of California, Davis, from reserving spots specifically for "minority" students,[22] race could be considered as one of many factors in the admissions process.[23] The ruling had a cascading effect on the admissions practices of other medical and professional schools.[24] Since the 1990s, nine states, including California, Florida, Michigan, and Washington, have banned race-based affirmative action policies.[25]

States that banned affirmative action have seen the enrollment rates of Black/African American and Hispanic/Latinx students decline in the immediate and long terms.[26] In fact, evidence suggests affirmative action bans have led to persistent declines in the proportion of these students enrolled in public universities (Long and Bateman 2020). The efforts of university faculty members and admissions offices have failed to replace race-based affirmative action practices and policies. As recently as 2020, Californians reaffirmed this objection to affirmative action by voting down Proposition 16, an effort to repeal the statewide ban.[27]

Legal challenges to affirmative action policies contributed at least partly to the failure of the AAMC's 3000 by 2000 initiative, which aimed to enroll 3,000 underrepresented minority students in

medical school by the year 2000 (Terrell and Boudreau 2003). A recent analysis of four decades' worth of medical school enrollment data showed little to no progress in the representation of Black/African American and Hispanic/Latinx students (Morris et al. 2021). In fact, although Black/African American men accounted for 3.1 percent of the nation's medical students in 1978, by 2019 their share had dropped to 2.9 percent (Morris et al. 2021).

Recently, many advocates, funders, policymakers, physicians, and nurses have renewed calls for health care workforce diversification to advance equity for students, professionals, and patients (Saizan et al. 2021).[28] Nationally recognized racial inequities in COVID-19 and maternal health outcomes, and more pressing calls to address all forms of systemic racism following George Floyd's murder in May 2020, have catalyzed a movement to shed light on how systemic racism has limited the academic and professional pathways for health care professionals from systemically and structurally excluded groups, especially Black/African American and Hispanic/Latinx people (Chen et al. 2021).[29] Attention from various stakeholders, including policymakers in the Biden administration,[30] to advancing health equity and addressing health care workforce challenges has opened a window of opportunity to invest in developing new and improving existing efforts to increase DEI in the health care workforce.

Findings

Research suggests pathway programs are often successful and important tools for increasing the entry and retention of systemically and structurally excluded groups in health professional schools (HHS Bureau of Health Professions and Office of Minority Health 2009; Rittenhouse et al. 2021; Snyder et al. 2018). Although participants in our study reported numerous shortcomings with and challenges to participation in or administration of pathway programs, they also emphasized that pathway programs are instrumental to health care workforce diversification because they provide students with skills, resources, and supports. We organize our findings according to the four primary support types provided by or associated with pathway programs: academic and career, financial, social, and institutional. We disaggregate these findings by participant characteristics when relevant to recognize respondents' differing experiences, professional needs, and career development. At the end of each section, we present policy and practice considerations for academic, philanthropic, and government stakeholders. Per our discussion of study limitations (box 1 and appendix), our findings about pathway programs are generally more robust for medical students and professionals than for nursing students and professionals.

Academic and Career Supports

Nearly all interviewees and focus group participants cited academic and career supports as important components of a successful pathway program. Participants highlighted that additional coursework, clinical training, and other forms of academic support before entering professional school helped students develop skills to succeed. Academic support can include the following programs and interventions:

- academic enrichment programs focused on science, technology, engineering, and medicine (STEM) courses, including increasing the number of girls and women in STEM programs
- summer programs focused on orienting incoming medical students for academic and social life in medical school
- practicum experience and internships
- research and conference opportunities
- academic advising
- study tips and exam preparation (including advice for taking notes during class, writing application essays, or preparing for admissions interviews)
- assistance with residency placements

Medical students and practicing physicians consistently cited academic enrichment, clinical experience and training, and examination preparation in particular as components that supported their academic and career success. Interviewees and focus group participants also highlighted that most academic support is designed for students about to start medical school—either in college or through a postbaccalaureate program. Participants reported these supports primarily took the form of study tips, Medical College Admission Test preparation, interviewing practice, preparation for clinical rotations, shadowing current physicians, or paid research and conference opportunities. They also noted that academic support for enrolled medical students typically included supplemental classes, training, and clinical experience the summer before medical school.

Overall, the themes gathered from our qualitative data collection aligned with our literature review findings. Several studies over the last four decades demonstrated that participation in pathway programs improves the odds of medical school matriculation among students from systemically and structurally excluded backgrounds (Campbell et al. 2014, 2018; Cantor, Bergeisen, and Baker 1998; Cosentino, Speroni, and Sullivan 2015; Grbic et al. 2021; Grumbach and Chen 2006; Keith and Hollar 2012; Metz 2017; Pisano and Epps 1983; Strayhorn 2000). Additionally, research shows that summer

orientation programs providing academic preparation and opportunities for social interactions with peers and faculty improved the retention and grades of first-year medical students and rates of advancement to the second year (Hesser and Lewis 1992; Schneid et al. 2018; Ugbolue, Whitney, and Stevens 1987).

Study participants spoke highly of practical experiences, including opportunities for hands-on training, internship, and research. Many participants characterized these opportunities as extremely valuable for students to round out their skill sets and add to their résumés. But many also noted paid internships were hard to come by and that unpaid opportunities or those that do not cover the cost of living may not be plausible for students from financially disadvantaged backgrounds.

A student's financial or socioeconomic background is one of the most salient barriers to participation in pathway programs. Students who live in communities with fewer resources often attend schools with fewer resources, which decreases the kinds of enrichment and extracurricular opportunities available. Pathway programs can help bridge this gap, but according to some study participants, admissions to most programs are competitive, with many schools focusing on top-achieving students. The "top-achieving" moniker usually pertains to students who succeed along traditional criteria (such as a high grade point average or Medical College Admission Test score) and does not recognize people who lack a high grade point average but are still academically capable and excel in other qualities that define great health care professionals.

Some participants noted that this highly competitive process may force some undergraduate pathway programs to recruit academically strong students who are already likely to gain admission. As one participant observed:

The big problem is the medical schools themselves. The medical schools are given money to all focus on the same cream of the crop. The medical schools get 10 Hispanic kids and 10 Black kids, and they say they did their best. The same 10 kids are getting into 10 schools. So the numbers [of systemically and structurally excluded candidates] never increase.
—Study informant

Others agreed that focusing on top students with perfect grades will not expand the pool of qualified medical and nursing school candidates. One informant suggested that funder expectations play a big role in steering programs to cherry-pick candidates to demonstrate good results instead of selecting a broad range of students with the potential to succeed. Some informants recommended that diversity pathway initiatives should focus on students who struggle academically because of adversity or other reasons. As one key informant remarked, diversity also entails having different lived experiences so health care providers can better meet the needs of different populations.

Medical focus group participants highlighted that shadowing and research experience in particular helped them hone their clinical and research interests, allowing them to home in on a specialty field. As a practicing doctor commented:

[Pathway programs] help with providing a lot of academic resources and getting experienced and exposure with different research avenues of medicine…that's actually how I found my interest in neuroscience.
—Study informant

Several federal workforce-development programs focus on increasing the proportion of people with low incomes who become nurses, but these programs are not focused explicitly on increasing racial diversity among health care professionals. Few of the nursing students and professionals we interviewed had participated in a pathway program; none had participated in a pathway program specifically designated to increase the representation of Black/African American and Hispanic/Latinx nursing students and professionals.

Of the students who entered nursing school, several reported feeling they had very little autonomy over their classes and career trajectory. One student explained they were not allowed to take any elective courses in other nursing areas that might interest them, highlighting an unspoken pressure from the program administrators to enter a medical or surgical nursing field that they believed to be the way to become a well-rounded nurse. Even after graduation, if a student wanted to become an obstetric nurse or serve in another field, they would have to complete time in a medical or surgical field first to demonstrate they were well trained. Many practicing nurses also highlighted the need for mentorship and more information about possible nursing careers. Students and professionals conveyed that

mentorship is important for exposing students to different career options and for offering students emotional support and encouragement. Additionally, our informants said that more shadowing and internship opportunities early in the academic journey would expose students to the array of nursing specialties available to them and could promote retention, career satisfaction, and comfort in their chosen field.

The medical students and professionals we spoke with felt pressure to enter primary care in particular. One informant described feeling "pigeonholed to go into primary care" because of their identity:

I do feel that that type of pushback or negative feedback from people when they express interest in specialties is really unfair because it does kind of feel like we're like pigeonholed to go into primary care because we have to…I guess serve…marginalized [people], marginalized communities.
—Study informant

Medical students and professionals also noted that within the health care field, primary care is viewed as less prestigious and pays less than specialty care. For these reasons, directing systemically and structurally excluded students to primary care may continue to disadvantage them financially and diminish their status or prestige.

ACADEMIC ADVISING

Both medical and nursing focus group participants noted deficiencies in the academic advising they received during their time in high school, college, and higher education. Participants most often reported being discouraged from pursuing medical school by their high school or college advisers and from pursuing certain specialty residencies by their medical school advisers. In some cases, participants felt the discouragement was racially motivated and that advisers or counselors perceived them as incapable and incompetent.

Nursing professionals reported that there was no exposure to or advising in their colleges and universities about nursing and that they had to figure out on their own how to become a nurse. One nurse said that if she had learned about various pathways to nursing earlier in her education, she would

have sought an associate's degree at a community college rather than going through a four-year college program and before taking on more debt to get a master's degree. Another nurse stated, "A lot of people want to do nursing but they don't know how to even get there."

Participants felt programs and students should distinguish between a mentor and adviser, recognizing that both are needed and roles may overlap at times. A mentor will consider a student or professional's personal situation, interests, passions, and goals, whereas an adviser has the resources, networks, and skills to support a student's or professional's career and provide targeted and focused educational or career development guidance. Both types of advocates are integral to students' and professionals' success.

According to study participants, high-quality advisers often have shorter relationships with students or professionals that focus on particular tasks such as résumé development, interview skills, or application support. Although they are short, these relationships can have great impact. The Charles R. Drew University of Medicine and Science, a historically Black/African American graduate school, for example, offers learning specialists who work closely with students to plan for the year and ensure their success.

We talked to our learning specialists specifically about our plan, and she helped us create a specific study plan on how to study for step one [of the US Medical Licensing Examination], including what resources are available and what resources work for us during med school and how we can put that into our schedule.
—Study informant

Unfortunately, many informants described unsupportive, discouraging advisers who did not try to understand their realities or struggles, which made it hard to follow through on given advice. One focus group member spoke of an adviser who told her to shadow a doctor or nurse over the summer, incorrectly assuming she had the personal connections to easily do so.

To better ensure mentors and advisers provide high-quality support, participants suggested having a way to provide feedback. One professional recommended creating a hotline through which people could provide confidential reports when they receive bad information or experience discouragement or

active racism, and which also would serve as a mechanism for investigating complaints and holding people accountable.

CONSIDERATIONS FOR POLICY AND PRACTICE

Academic enrichment is a fundamental component of pathway programs. Although some programs may forgo social supports or be unable to offer scholarships, they will always include some form of academic support. Our findings suggest that the skills and opportunities pathway program participants gain through academic supports are invaluable for their entry into and graduation from medical school. Medical and nursing schools also should consider making early investments at the K–12 level, whether or not these children pursue careers as nurses or physicians, because these investments matter for children's outcomes in health, education, justice, and other key areas.

We offer the following considerations, grouped by stakeholder, for expanding access to academic supports and improving pathway program participants' experiences.

Higher Education, Including Medical and Nursing Schools

- Increase access to quality STEM education by facilitating low- or no-cost training opportunities for elementary, middle, and high school teachers in school districts with fewer resources.
  - » Involve supportive family members in the pathway and STEM experiences when possible.
  - » Ensure teachers are compensated when developing new, creative, and supportive programming for students.
- Evaluate traditional metrics of academic enrichment programs, in critical fashion and with adjustments to programs and practice, to make them more accommodating of students who may succeed with additional support. Also, improve access to enrichment programs, including summer intensives, workshops, and bridge programs, by recruiting candidates who may not meet traditional metrics of achievement but are motivated and demonstrate an exceptional work ethic. For example, the Health Equity Scholars Program was designed to support a broader range of undergraduate students than traditional pathway programs; an evaluation showed it had improved graduation rates and other outcomes (Upshur et al. 2018).
- Establish pathway programs for undergraduates at high-quality public colleges and universities to attract, support, and graduate students from systemically and structurally excluded groups (Baylor 2016; Carnevale et al. 2018).

- Adopt cohort-model approaches in which program participants receive academic supports, mentoring, and other program resources from medical or nursing school acceptance through graduation.
- Systematically assess academic advising policies and practices and develop resources, guidance, and training for advisers to remove implicit bias from the process.
  - » Develop partnerships among colleges, universities, medical schools, and nursing schools to offer high-quality advising support in community colleges, four-year colleges and universities, medical schools, and graduate nursing schools.
  - » Share emerging best practices for academic advising among different stakeholders, including education institutions.
  - » Advocate for legislation or policy changes that mandate implicit bias training for advisers.
- Develop culturally and linguistically appropriate student-centered resources for academic advisers (including on how to finance education) to use when advising prospective nursing and medical students from systemically and structurally excluded groups.
- Transform academic advising to better support students, including by adding accountability mechanisms for academic advisers to receive regular, anonymous feedback to help refine their approaches.
- Provide access to specialized training for advisers, including how to finance medical education for students and program participants who wish to pursue specialty medicine.
- Invite input and collaboration from existing and prospective pathway program participants to determine what supports are needed and how they should be structured.

Philanthropy

- Coordinate and collaborate with education-focused funders to ensure investments in the K–12 space create outcomes where the next generation of premedical and prenursing students is prepared for postsecondary education and professional programs. For example, the Philadelphia STEM Equity Collective works to increase the number of students from systemically and structurally excluded groups entering STEM careers.[31]
- Expand funding focuses to include students who have great potential to achieve success with structured academic supports and to provide resources and funding for the development of programs that strengthen these students' academic skills.

- Redefine how success is measured to view improvements in grades or graduation rates as a success, even if pathway participants ultimately choose a different field of study.
- Increase investments for unbiased, effective career development and advising in public schools.

State and Federal Governments

- Continue to support and increase funding for initiatives with an effective track record, including the Health Resources and Services Administration's Health Careers Opportunity Program and Centers of Excellence program.
- Develop and provide guidance to states on how to prioritize K–12 educational resources and supports for students from socioeconomically disadvantaged backgrounds, including targeted investments such as the Comer School Development Program.[32]
- Provide funding to all community and public four-year colleges and universities to support diversity pathway programs, including academic enrichment, as needed, for undergraduates.

Financial Support

Study participants emphasized that the cost of pursuing a nursing or medical career poses a considerable barrier for students, particularly those from low-income backgrounds. As one focus group participant said, taking on student debt when your family already experiences financial distress is out of the question for many. According to recent estimates, the average medical school graduate can incur close to $250,000 in educational debt on top of any existing undergraduate debt.[33] A recent AAMC analysis shows that American Indian/Alaska Native, Black/African American, and Hispanic/Latinx medical students come from lower-resourced families and rely on a smaller share of private resources and a higher share of scholarships to finance their education than white medical students (Youngclaus and Fresne 2020).

Financial support can come in many forms, including scholarships, Pell grants, paid internships, practical training opportunities, research grants, application fee waivers, school expense stipends (e.g., fees for room and board, textbooks, and exams), and state and federal student loan repayment programs.[34] Study participants did not frequently report being offered financial literacy courses or advising, but some emphasized these offerings are highly needed to help students navigate available financial assistance, find paid internships and research opportunities, and manage their finances and postgraduation debt. Pathway programs can help students interested in medical or nursing positions by

providing many of these financial supports. Our study participants highlighted some areas of greatest pre- and postenrollment student need.

Many participants associated pathway programs with federal scholarship or loan programs and shared several concerns about how federal financial assistance programs support health care workforce development. One informant noted that major federal programs authorized in the Public Health Service Act are designed to alleviate primary care physician shortages but dedicate only a small share of their funding to increasing workforce diversity (CRS 2013; HPNEC 2019). Interviewees also pointed out that the main mechanisms for student debt reduction—scholarship or loan forgiveness programs—require a recipient to complete several years of service in underserved communities, and that forgiveness funding only comes at the end of the educational pathway, after health care professionals already may have incurred considerable debt. Forgiveness programs have been found to increase the recruitment, and sometimes retention, of physicians in rural and medically underserved areas (Gluck 2017; Goodfellow et al. 2016; Pathman and Konrad 1996; Pathman et al. 2004; Rosenblatt et al. 1996). However, the long timeline to loan forgiveness disincentivizes entry into medical or nursing schools and pressures students from financially disadvantaged backgrounds—many of whom are also from systemically and structurally excluded communities—to become primary care physicians or work in underserved communities, which may not be their desired career choice or may compel them to live or work far from social supports.

Some medical schools are attempting to address student debt burden by providing full-tuition scholarships or accelerated medical education. The Accelerating Change in Medical Education project at the University of California, Davis, for example, allows for fast-tracked three-year medical school and a conditional residency upon program admission.[35] Despite skepticism from some participants about the quality of training in an accelerated medical program, research suggests these graduates are as prepared for residency as graduates from traditional programs (Leong et al. 2022). The Kaiser Permanente Bernard J. Tyson School of Medicine (box 3) and New York University Grossman School of Medicine offer free medical school for all students, but the benefits of free tuition at these programs may not be felt equally if they do not prioritize students from families with low or moderate incomes who would most benefit from debt reduction.

BOX 3

Kaiser Permanente Bernard J. Tyson School of Medicine

Kaiser Permanente opened its own medical school, the Bernard J. Tyson School of Medicine, in the summer of 2020 to teach the next generation of physicians committed to providing patient-centered, evidence-informed care in collaboration with patients. The mission, vision, and values of the school are deeply rooted in principles of DEI and are demonstrated in its holistic admissions policies, curriculum, clinical training, and wraparound student supports. For example, all students have access to an array of well-being resources to support their academic achievement and promote physical and mental health.[a] These resources include academic and career advising and supports, one-on-one physician coaching, mentorship, mental health counseling, and access to fitness centers. In addition, the school is committed to minimizing the debt burden and its effects on specialty choices and service locations. The first five cohorts enrolled between 2020 and 2024 have their full tuition and fees waived for all four years of training and can apply for financial assistance with living expenses. There are no requirements or expectations for students to become primary care physicians or to work at Kaiser Permanente.

The school's commitment to diversity and inclusion is reflected in student demographics.[b] Among the first 100 students enrolled across the first two classes, 38 percent are from systemically and structurally excluded groups. This includes an average of 15 percent Black/African American and 21 percent Hispanic/Latinx students. On average, 30 percent of students identify as LGBTQ+, come from socioeconomically disadvantaged families, and represent nontraditional students. About 19 percent of all students are first-generation medical students. In addition, about half of students come from California.

Sources: Key stakeholder interview and Kaiser Permanente Bernard J. Tyson School of Medicine home page, https://medschool.kp.org/.

Notes: [a] "Maintaining a Healthy Balance Can Begin in Medical School," Kaiser Permanente Bernard J. Tyson School of Medicine, accessed May 5, 2022, https://medschool.kp.org/student-life/student-well-being.

[b] "Student Demographics," Kaiser Permanente Bernard J. Tyson School of Medicine, accessed May 5, 2022, https://medschool.kp.org/admissions/student-demographics.

Medical students and professionals who participated in the focus groups thought full scholarships were a huge incentive for medical students and helped motivate students to pursue primary care careers without fear that they would not be able to pay their loans. They also noted that full medical school scholarships, if allowed, also provide students options for choosing their desired specialty without pressuring students to sign up for programs that require primary care practice in underserved areas.

Several study participants pointed out that costs can add up during the medical school application process because of application fees and travel to interviews; students with low incomes reportedly have

few financial-assistance avenues to offset these costs. A key informant noted that postbaccalaureate premedical programs that guarantee admission to a medical school for qualified participants reduce financial strain on students by eliminating the need to apply to multiple medical schools. Participants in the Houston Premedical Academy, for example, receive provisional acceptance into Baylor College of Medicine as well as academic and social supports throughout college and medical school.[36]

Study participants emphasized the need for wraparound financial assistance to cover not just tuition but other expenses, including food, housing, transportation, exam preparation courses and materials, and applications. One informant noted she based her medical rotation choices on where she could take the bus, not her desired discipline. A medical pathway program director told us that her program sets aside funding to provide emergency grants to students who may face unexpected financial expenses, such as a costly car repair or flight to attend a family member's funeral. A few interviewees highlighted the benefits of California's Nursing Education Investment Grants Program, which is designed to support community college nursing students by providing small grants directly to students who experience financial hardship.[37]

Concerns about taking on significant debt might discourage students who come from systemically and structurally excluded groups or families with limited resources. Although some focus group participants felt a loan forgiveness option was better than nothing, they expressed that loan repayment programs should be expanded from focusing on primary care to include and help diversify specialty care.

FUNDING SOURCES AND CONCERNS FOR DIVERSITY PATHWAY PROGRAMS

According to study participants, creating and maintaining comprehensive diversity pathway programs requires substantial funding, often from several funding streams. Study participants who direct and manage pathway programs reported relying on state and local funding, such as California state funding that draws on revenues from health-professional licensing fees to support various loan repayment programs, grants, and scholarships. Philanthropic and professional associations also provide funding through grants or donations, as do internal funds from institutional higher education sponsors. Although some informants noted that institutional funding is easier for private schools with big endowments, many agreed that schools with skin in the game are more likely to sustain pathway programs when other funding sources run short. Exploring other, less traditional types of funding can also support health care diversification efforts, from both health care and non–health care sectors.

Across the board, participants noted that funding for pathway programs was often unstable and short of the level needed. Federal funding, which is the largest source of funding for diversity pathway

programs, can fluctuate depending on the politics and priorities of changing administrations.[38] According to informants, private funding often has changing priorities, short funding windows, and expectations of concrete results in just a few years. This uncertainty can leave programs constantly fundraising, making the continuity of programming hard to maintain, which can erode community and hurt institutional reputations. One interviewee suggested that foundations should commit for at least 10 to 20 years to know if a program is working; the Robert Wood Johnson Foundation's health professional pathway programs offer a bright spot for consideration (box 4). Participants also noted that public and private funders often avoid investing in elementary school pathway programs because the longer timeline is perceived to increase the risk of students dropping out or pursuing careers outside health care.

BOX 4

Robert Wood Johnson Foundation's Health Professional Pathway Programs

The Robert Wood Johnson Foundation (RWJF) has a decades-long history of developing, sustaining, and scaling pathway programs to increase diversity in health professional education. In 1987, RWJF launched the Minority Medical Education Program, a summer enrichment program designed to prepare applicants from racial and ethnic "minority" groups who were underrepresented in medicine—specifically African Americans, Mexican Americans, mainland Puerto Ricans, and American Indians and Alaska Natives—to successfully matriculate to medical schools. Eventually, 11 medical schools participated in the program. In the early 2000s, the program expanded to recruit and support students across the spectrum of systemically and structurally excluded groups, including on the basis of socioeconomic status, and was renamed the Summer Medical Education Program. In 2006, the program further expanded to include dental students and was renamed the Summer Medical and Dental Education Program. A comprehensive impact evaluation of this program found that it contributed to greater diversity in medical and dental schools. As of 2016, RWJF expanded the program to include a range of health professions and changed the program name to the Summer Health Professions Education Program.

RWJF's efforts to improve diversity in health professions extend to programs designed to support faculty underrepresented in medicine, nursing, and dentistry because of race, ethnicity, socioeconomic status, or other barriers. In 1984, the foundation created the Minority Medical Faculty Program, which is still in place today as the Harold Amos Medical Faculty Development Program. The program offers four-year postdoctoral research awards to historically disadvantaged physicians, dentists, and nurses to support their career development in academia and to allow them to serve as role models for students and faculty of similar backgrounds.

Sources: "The Minority Medical Education Program," Robert Wood Johnson Foundation, accessed May 5, 2022, https://www.rwjf.org/en/library/research/2000/01/to-improve-health-and-health-care-2000/the-minority-medical-education-

program.html; "About SHPEP," Summer Health Professions Education Program, May 4, 2022, https://www.shpep.org/about/; and "About AMFDP," Harold Amos Medical Faculty Development Program, accessed May 4, 2022, https://www.amfdp.org/about.

Many pathway program administrators noted that funding to evaluate program effectiveness is often limited, which informants recognized leads to limited evidence of pathway programs' effects. This results in a negative feedback loop, where the lack of funding for evaluation leads to less funding for pathway programs that cannot prove their effectiveness in health care workforce diversity initiatives. Although some evidence exists that suggests comprehensive pipeline programs are successful (Campbell et al. 2014; Maton et al. 2000; Thomson et al. 2003), interviewees stressed that more data are needed to understand which components work best, how and when students make educational and career decisions, and what affects retention in a chosen career field. Several informants suggested that funders could play a greater role in building an evidence base for diversification efforts by requiring and funding evaluation while supporting the infrastructure and capacity of grantees to collect and analyze data. Evaluating pathway program outcomes will require multiyear analyses, however; one informant argued that building the internal capacity of programs to self-evaluate could enable program staff to understand whether interventions are meeting participants' needs and use the results to garner ongoing investment in pathway programming.

CONSIDERATIONS FOR POLICY AND PRACTICE

For students from socioeconomically disadvantaged backgrounds, the costs of higher education are often a primary factor in deciding whether to pursue a health care profession. The following considerations could help remove financial barriers for students and expand and sustain pathway programs.

Higher Education, Including Medical and Nursing Schools

- Allocate adequate and sustainable internal funding for diversity pathway programs, including funding for staff, operations, social supports for students and faculty from systemically and structurally excluded groups, and evaluation of program effectiveness.
- Allocate wraparound funding for nursing and medical students from backgrounds with fewer financial resources to support nonacademic needs.
- Provide financial supports and program flexibility to nontraditional students, recognizing that some students who want to return to school, particularly nursing school, may also need to work

and provide child care and/or elder care, which could lead to competing priorities, financial stress, and longer completion timelines.

- Design and fund for interested students accelerated three-year medical programs that show great promise in reducing debt burden while maintaining the quality of training and student satisfaction and prioritizing students from financially disadvantaged households (Drees 2012).[39]
- Create postbaccalaureate programs and college-to-medical-school pathway programs for interested people from systemically and structurally excluded groups that provisionally guarantee acceptance to medical school for successful participants.
- Partner with local community and public schools to open introductory medical classes to high school students.
- Test and scale virtual and hybrid pathway interventions (such as Diversifi and National Summer Undergraduate Research Project[40]) to reach students who might not be able to participate in pathway programs because of geographic, financial, or other barriers.
- Establish direct transfer agreements between local nursing associate's degree programs and bachelor of science nursing programs to facilitate admission into and completion of bachelor's degrees in nursing among students from economically disadvantaged backgrounds.

Philanthropy

- Recognize that workforce development is a long game, and programs providing a comprehensive range of supports across the educational continuum (starting in elementary and middle school) can be more effective in expanding the pathway for medical and nursing professionals from systemically and structurally excluded groups (Campbell et al. 2014; Thomson et al. 2003).
- Consider investing in programs at each educational level to ensure students continue to progress along their desired career pathways in medicine and nursing. Some students might thrive in a high school pathway program, for example, but struggle when they get to college if they are not connected with a college-level pathway program or other resources.
- Structure funding to build program capacity and ensure long-term sustainability. For example, seed funding could include requirements and incentives for programs to collect and analyze data to measure program success, inform program improvements, and make a case for

sustained investment from other funders. Similarly, grant funding could include requirements for institutional matching and commitment to sustain the program past the seed funding.

- Financially incentivize nursing and medical schools to use emerging best practices for the recruitment, retention, and graduation of Black/African American and Hispanic/Latinx students.

State and Federal Governments

- Expand programming and funding for initiatives specifically designed to improve diversity in the medical and nursing workforces, including incentives that focus on support for specialty-care physicians and nurse practitioners. These expansions may require using broader definitions for "underrepresentation" in states with bans on affirmative action.
- Expand direct support to students, including unconditional grants, scholarships, and stipends, to allow them the freedom of choice in specialty and geographic area of practice and to defray the costs of living and other nonacademic expenses.
- Structure funding opportunities and grant requirements to incentivize and support investments in data collection and evaluation infrastructure.
- Remove financial barriers to higher education through policies such as free college or sliding-scale tuition for students, depending on financial need.

Social Support

The academic rigors of a medical or nursing education and the other demands on students' time and energy can be stressful regardless of someone's racial identity. Study participants emphasized that emotional support from peers, faculty members, mentors, and family members can ensure students have the tools and resources to persist in rigorous training programs. Our literature review and the data collected from interview and focus group participants confirmed that people from systemically and structurally excluded racial and ethnic groups pursuing medical or nursing education in particular could benefit from social supports. Black/African American students, Hispanic/Latinx students, and students from other systemically and structurally excluded groups explained that they faced additional barriers in pursuing health professions, including discrimination and racism, which underscores the need for targeted social support. The most common forms of social support that pathway programs offered to participants were structured mentorship programs and social activities, such as affinity groups.

MENTORSHIP

The available evidence points to a positive association between having a mentor or a role model and sustaining interest or succeeding in a health professional school. Several studies suggest that having a mentor or a role model from the same racial and ethnic background has a positive impact on students' interest and retention when pursuing a career in health care (Akinla, Hagan, and Atiomo 2018; Bonifacino et al. 2021; Farkas et al. 2019). According to a study participant familiar with the program, an ongoing randomized controlled trial study of the National Hispanic Medical Association's College Health Scholars Program also suggests undergraduate students mentored by medical students show improvements in academic performance and interest in pursuing medical careers when compared with students without a mentor.[41] Qualitative findings from the evaluation of the program suggest mentees were increasingly motivated and confident in pursuing their career goals (Kamler et al. 2021).

Among our study participants, mentors were deemed the most vital support, ideally throughout one's educational development and clinical practice. All of the pathway programs our focus groups had experience with offered mentorship matching, but many students and graduating professionals noted they often had to find more effective mentors on their own. To better understand how mentees and mentors are matched and experience mentorship, we layered the lived realities of our participants onto our literature findings.

When matching students to mentors, program leaders and participants prioritized racial, ethnic, and other shared intersectional identities. Many students expressed that they wanted their mentor to reflect their identity, but most nursing and medical professionals did not deem it essential, partly because it was not always possible. Most interviewees preferred a mentor who understood their personal and professional career aspirations and remained open to shifts in professional goals. Interviewees reported that they would ideally partner with a mentor who shared their race or ethnicity, if possible, so long as that person understood that their goals as a mentee might change over time. Often the lack of diversity within health professions precluded such matching. One professional noted how only looking at shared identity could hinder the mentee:

> *It's almost a harsh reality to know that…the mentor that you found that is representative of your skin tone…hasn't necessarily achieved what you want to achieve.*
> *—Study informant*

Our study participants also mentioned the importance of exposure to various clinical disciplines, with many medical and nursing interviewees noting that pathway programs often pointed doctors to primary care and nurses to general medical or surgical fields. As a result, the available mentors were often from these foundational disciplines and could not help students explore or enter other specialty careers. Interviewees who wanted to pursue a different, competitive specialty often had difficulty pivoting or felt pressured not to pivot from a predetermined path. Many participants eschewed scholarships and took on large loan burdens to protect their practice choices. Although more clinical diversity among mentors could help interested students find their way, focus group participants noted that financial support and other incentives could still make deviation from primary care or medical or surgical nursing nearly impossible. One pathway program, for example, required doctorates in medicine and philosophy (MD or PhD), even though many students simply wanted an MD. The added time in the PhD program created financial strain and delayed the attainment of goals.

Study participants also identified that often more than one mentor was necessary to fill different needs. They described having professional, personal, and work-life-balance mentors, among others. Participants chose mentors from varying races and ethnicities and would seek new mentors as their educational or professional needs changed.

I'm a light brown woman in medicine, I'm in [gastroenterology]. There's not a lot of brown women in [gastroenterology] and I'm a mom…I need somebody who understands me as a mom; I need somebody who understands me as a gastroenterologist and somebody who…really understands my commitment to caring for the underserved, like health disparities. And it's really hard to find that one person.
—Study informant

Many focus group participants have retained their early mentors well into their professional careers but wish they had had even more support as they advanced in their respective fields.

Navigating Challenging Power Dynamics in Mentorship Relationships

Despite the benefits found in mentorship, our study participants also noted that not all mentors create positive relationships. Nurses and medical professionals identified abusive mentors who screamed at,

discouraged, and denigrated them. One nurse described this mentality as "nurses eat their own." Students in both fields tried to avoid these people and quickly sought out new mentors. More insidious were mentors who discouraged students because they were being "protective."

Some mentors from systemically and structurally excluded communities were perceived as preemptively discouraging students from such backgrounds because they knew firsthand how challenging pursuing particular specializations or training opportunities could be. In some instances, they pushed their mentees away from challenges they or other colleagues had experienced and toward what they perceived to be easier pathways. In doing so, mentors reinforced the existing biases in the pathway system that precluded systemically and structurally excluded students and professionals from pursuing advanced or specialized training. Because these mentors were often kind and seemingly acting in mentees' best interests, mentees had difficulty knowing how to evaluate whether they should maintain or end the mentorship relationship.

According to focus group participants, the most frustrating mentors were those who only talked about, focused on, and advocated for their own pathways. Instead of listening to mentee preferences, struggles, and goals, such mentors talked about how their chosen specialty was the only pathway to a successful career. Unfortunately, these abusive, discouraging, and myopic mentors were commonly assigned to students and professionals, leaving them to find new mentors who were a better fit.

Nursing students and professionals in particular were more often left to find their own way. When the nurses we interviewed found their mentors, their mentorships had often grown from preceptorships or other training relationships. These mentees lacked formal advice and support on how to pursue different opportunities and how to practice within one's desired field. Many nurses who participated in our focus groups reported learning from trial and error and by making their own path. Every nurse study participant noted the importance of and their desire for more formal mentoring.

Mentee as Mentor

Most participants have formally or informally mentored others. The aforementioned College Health Scholars Program,[42] for example, relies on medical students serving as mentors to high school and college students. Most student mentors in our focus groups were enthusiastic about helping other students and inspiring them in ways they did not experience. But student mentors acknowledged that this labor was extra work on top of an already rigorous schedule and academic and training expectations. Mentoring gives other professionals pause, as they are already exhausted and fearful of putting themselves in a position where their burnout could affect their mentees.

It's a continuous problem and [the professional pathway] does not get easier. And I think that's super frustrating for me. And it kind of makes it difficult for me to mentor other people too, because I don't want to be negative, but it's actually really hard and it's getting harder. And I'm trying to figure out and navigate my way.
—Study informant

OTHER SOCIAL AND PSYCHOLOGICAL SUPPORTS

Our study participants also found other types of peer and psychological supports important for successful engagement with and graduation from professional school. Many noted that professional organizations helped with finding an anchor. One nurse who had a particularly arduous path ultimately found support through the National Association of Hispanic Nurses. Throughout school and her early career, she was one of the only Latinas, and although she noted that some of her white mentors were great, she wanted support from people who looked like her. Other interviewees mentioned that professional organizations or trade associations helped provide educational opportunities and build community. For instance, one medical student shared:

Our National Medical Association local chapter had a one-month shadowing situation. I shadowed different doctors over the course of four different weeks, each for a week, and then did some specific activities, like application review, and they paid for it.
—Study informant

Our participants found that trade associations and specialty organization programs opened up opportunities to understand different career paths for Black/African American and Hispanic/Latinx students; they also connected students with mentors who could help them understand non–primary care and non–medical or surgical paths. Many of the trade or professional associations in which nursing and medical students participated were organized by race. For students who described their nursing or medical school cohorts as mostly white, these race-based professional associations created a safe space

for systemically and structurally excluded students to share resources, network, and provide one another with much-needed social support.

Although most pathway program participants found good mentors essential to their experiences, institutions often failed to protect students from other faculty members, preceptors, or staff who might discourage them, make racist remarks, or belittle people or patients from systemically and structurally excluded groups. To counter instances of active discouragement and a lack of institutional support, one program provided trained psychological support to help students overcome feelings of imposter syndrome. At other schools, pathway program leaders often served as self-esteem mentors, assuring students they belonged and were going to thrive.

The students we interviewed also found social events critical. They valued informal meetings with residents, nurse professionals, nurse practitioners, and practicing providers to hear about different paths for achieving professional and personal ambitions. Students also wanted to see pathways for Black/African American and Hispanic/Latinx people outside of primary care for doctors and outside the medical or surgical field for nurses. Social gatherings provided opportunities for participants to talk through their struggles, ease loneliness, get advice, and understand where they could find support.

Finally, students spoke of the importance of maintaining good work-life balance and having time to rest and have fun, neither of which is prioritized in many medical or nursing schools despite the effect of both on work and outcomes. Many Black/African American and Hispanic/Latinx respondents also expressed having to endure isolation and racism while developing programming, mentorship, and other coping strategies to survive the school experience, making time to rest more elusive:

[Becoming a doctor is] hard because the full-time job is so hard [being a student and resident], and any additional things are draining and keep you from resting—and you need to rest to be the best doc you can.
—Study informant

CONSIDERATIONS FOR POLICY AND PRACTICE

The preceding findings indicate that though pathway program participants deeply value mentorship programs, there is always room for improvement. The following considerations can help health

professional schools, health care systems, philanthropic funders, and state and federal policymakers increase social supports in health care pathway programs.

Higher Education, Including Medical and Nursing Schools, and Health Care Systems

- Prioritize the development of nurse mentorship programming—currently lacking and in high demand from nursing students and professionals—from college through professional experiences.
- Base mentoring matches on shared identities and interests when possible. When it is not possible to have both, work with the mentee to identify priorities.
  - » Conduct surveys and interviews with mentors and mentees to assess interests and compatibility.
  - » Consider shared identities beyond just race and ethnicity, including all aspects of intersectional mentor-mentee identities.
- Compensate mentors and recognize the relationship as part of the mentor's professional career and part of the mentee's curricular activities.
  - » If mentors are faculty, mentorship should be a part of faculty evaluation, promotion, and tenure considerations.
- Develop mentor and mentee trainings that articulate roles, responsibilities, and opportunities and help mentors center mentee needs and goals. Require regular meetings and preserve dedicated time for these meetings.
  - » Mentees may desire multiple mentors to increase their exposure to a wider array of interests and opportunities and address different types of mentorship needs.
  - » Create an online training program with essential content for mentees and mentors that must be completed before the start of the mentoring experience to improve mentor selection.
- Diversify the universe of mentors—which often means diversifying faculty—so students have more mentors from whom to choose without contributing to faculty burnout.
  - » Both the National Medical Association and the National Hispanic Medical Association have created mentor programs that are larger than a particular campus, which can help identify mentors in different specialties. However, the overall limited number of professionals from

systemically and structurally excluded communities still means these programs are robbing Peter to pay Paul.

- Evaluate mentors and advisers regularly to assess if they are effective, need additional skills, or should be let go. Recognize outstanding mentors.
- Create and support programs that support the mental health and well-being of students and faculty from systemically and historically excluded groups (e.g., counseling, social activities, exercise programs, and affinity groups attuned to various intersecting identities) in collaboration with and informed by the needs and preferences of such students and faculty.

Philanthropy

- Support the development and maintenance of medical and nursing mentorship programming. For example, the Washington Center for Nursing offers an example of a pilot program that is part of a larger effort to center equity and diversity in the nursing workforce.[43]
- Support the development and dissemination of formal mentorship training and implementation policies, such as the University of California, San Francisco, Medical School mentorship resources,[44] which allow for mentoring throughout a student's development.
- Support the development of a website that identifies nursing and medical pathway programs across the nation for people from systemically and structurally excluded backgrounds.
- Provide financial compensation and other support to clinicians, either by supporting existing programs or developing new ones,[45] so college students from systemically and structurally excluded groups can shadow medical and nursing professionals to understand the breadth of clinical specializations and opportunities.
- Provide resources to support social gatherings outside school and/or time and opportunities for students to enjoy themselves in nonacademic social settings.
- Host cohort conversations and trainings so national and state-level programs for specific pathways can share and learn from one another's best practices, particularly how their support systems for students and participants are designed and implemented.
- Support Black/African American and Hispanic/Latinx medical and nursing school faculty development through programs similar to the Harold Amos Medical Faculty Development Program, which seeks to increase the number of faculty from systemically and structurally excluded groups (box 4).[46]

- Create and fund faculty mentoring programs to support and retain faculty from systemically and structurally excluded groups at historically Black colleges and universities (HBCUs), Hispanic/Latinx-serving institutions, and PWIs.
- Fund mentoring and support programs for existing clinicians from systemically and structurally excluded backgrounds.
- Develop grants for professional nursing and medical education organizations to evaluate mentoring programs.

State and Federal Governments

- Expand funding for programs such as the National Hispanic Medical Association's College Health Scholars Program,[47] which prioritizes mentoring, and implement new components like mentorship feedback and improvements to mentor-mentee matching.
- Provide financial incentives to nursing and medical schools that have formal mentoring programs and other successful efforts to diversify and support their faculties and student bodies.

Institutional Support

Study participants agreed that institutional culture plays a large and important role in efforts to diversify the nation's health care workforce. They noted that although pathway programs can provide emotional support and build the self-esteem of program participants, the programs often cannot shield them from discrimination and hostility in school and the workplace. Educational institutions and health care employers have a tremendous opportunity to promote the entry and retention of Black/African American and Hispanic/Latinx people in health professions by creating a welcoming institutional environment for people from systemically and structurally excluded backgrounds. Informants said that having a strong champion for racial DEI in leadership helps foster organizations' commitments to DEI principles. But some informants also recognized that an institution must build an inclusive culture that can survive the departure of a key leader. Institutions can do so by explicitly centering DEI in an organization's mission to foster broad buy-in and institutionalize DEI policies and practices throughout organizations' operations and curricula.

INSTITUTIONAL CULTURE AND COMMITMENT TO DIVERSITY

Most study participants recognized that the level of commitment to DEI priorities and support for pathway interventions varies among health professional schools and places of employment and often depends on institutional, local, state, and national policies and politics. One informant pointed out that medical schools are encouraged to develop diversity pathway programs per the 2009 Liaison Committee on Medical Education accreditation standards.[48] But, according to this interviewee, some schools want to meet the basic minimum requirements rather than authentically and systematically working to increase diversity among students, faculty, and staff. Several medical and nursing focus group participants felt this practice also applied to their institutions and that they were admitted just to fulfill a quota.

Other interviewees said focusing on numbers of students from systemically and structurally excluded groups may be misleading. Although the number of Black/African American medical students might be higher at some institutions, these numbers might reflect first- or second-generation Caribbean or African students rather than American descendants of enslaved people. This suggests barriers to entry and completion for the latter group may not be sufficiently addressed. One informant suggested that making the business case for how a diverse health workforce can meet the health care needs of a diverse US population while reducing costs would change minds more effectively than a moral call for diversity.

According to study participants, broad institutional buy-in and support for DEI practices are critical for two main reasons. First, diversity pathway programs require extensive staffing, funding resources, and wide-ranging stakeholder engagement, all of which are easier to achieve with backing from sponsoring institutions. Second, institutions where DEI principles and practices are deeply ingrained in the culture can more easily attract and retain faculty and administrators from systemically and structurally excluded backgrounds, which will attract more students from these backgrounds. Allocating funding for pathway programs from within an institution instead of relying on outside sources can demonstrate commitment and support the sustainability of diversity pathway programs. According to one informant, clearly articulating the mission and goals for diversity can also help organizations more effectively negotiate with funders and prioritize funding opportunities that align with the program's own mission and goals.

Conversely, study participants suggested that if diversity pathway efforts are carried out by just a few people in programmatic leadership without being embedded in and embraced by the host institution, these efforts' effectiveness will be curtailed and their sustainability threatened by changing leadership and priorities. Program leaders we interviewed reported the continuous need to

educate and cultivate support from not only administrators, faculty, and staff but also prospective students and pathway program participants to develop or refine pathway interventions. DEI champions and pathway program leaders have always had to find solutions that sustain programs as needs or politics change. Specifically, anti–affirmative action policies, laws, and regulations have negatively affected health care diversification efforts. A recent analysis of racial and ethnic diversity in California medical schools showed that the passage of Proposition 209, which prohibits affirmative action in public education, considerably slowed diversification progress (Pfeffinger et al. 2020). One interviewee noted that the threat of legal action, along with other challenges such as low institutional buy-in and sustainable funding, have forced some pathway programs out of existence.

RETENTION IN TRAINING AND CLINICAL PRACTICE

Data collected from our focus group participants offer anecdotal evidence on how an institutional climate can affect the retention and well-being of people from systemically and structurally excluded backgrounds in health professions. As one key informant summarized, despite many programs and interventions designed to increase diversity in medicine and nursing, the overall diversity of the US health care workforce has remained unchanged because the culture associated with training doctors and nurses has not become more inclusive, respectful, or supportive of people from systemically and structurally excluded groups.

Actual data on retention in nursing or medical clinical practice are seldom available. The diversity pathway programs represented in our study most often tracked short-term measures such as pre- and postintervention changes in grades and exam scores, graduation rates, and admission into and graduation from health professional schools. Some interviewees felt that the sheer quantity of students participating in or completing a program should not be the only success measure, but they acknowledged that funding for long-term studies is lacking. Additionally, pathway programs can lose touch with participants over time, limiting the ability to see the long-term effects of the intervention or program. When asked about the retention of program graduates in their profession, no one was able to provide concrete statistics.

School Environment

In general, participants who attended HBCUs had better experiences in educational programs, felt more supported, and had more faculty members from systemically and structurally excluded groups than participants who attended PWIs. Participants and interviewees familiar with the Charles R. Drew University of Medicine and Science in California consistently pointed to it as a program where students

felt supported. Nursing students who attended Hampton University, an HBCU in Virginia, had the same sentiments; one said:

Most of my classmates were African American. Most of the faculty were African American. Most of the preceptors were African American. So, for the most part, with the exception of a few token individuals, everybody was there for your success and pushing you towards the end goal.
—Study informant

Upon leaving these supportive institutions, however, students often felt they did not have the same support, encouragement, or mentorship. Although investments in HBCUs and Hispanic/Latinx-serving institutions are clearly important, several study participants suggested that the health care system as a whole needs to acknowledge, address, and hold itself accountable for supporting a healthy and equitably diverse workforce and inclusive learning and working environments.

Participants who attended PWIs recounted ways in which they felt unsupported and even threatened sometimes, including experiencing hostility, discriminatory statements from faculty and peers, discouragement from pursuing desired career tracks and generally feeling they did not belong or did not deserve to be enrolled in a particular medical or nursing school. One nursing professional said:

I was always the only Hispanic. I never felt like I belonged in school…I felt like I wasn't good enough to be there with other students and I think that's probably why it took me so long to finish school, but I didn't feel supported or encouraged or even knew what I was doing.
—Study informant

Some participants reported that although schools spared no expense to recruit students from systemically and structurally excluded groups, their support for students ended after enrollment, which

may have contributed to students struggling academically and socially and failing to complete their programs as a result.

"Minority Tax" and Faculty Diversification

Both nursing and medical focus group participants noted the lack of faculty diversity as an overall barrier to finding mentors, feeling welcome, and having a sense of belonging at a school. Furthermore, study participants reported that faculty from systemically and structurally excluded groups tend to pay a "minority tax" by taking on the unpaid emotional labor of mentoring students from these groups, teaching about disparities, or leading DEI efforts. For example, pathway programs often ask the few Black/African American or Hispanic/Latinx faculty at PWIs to serve as mentors and advisers for all diversity pathway participants. Other students from systemically and structurally excluded groups in the program or school also sought out the same faculty, so these faculty members ended up overburdened and uncompensated for labor that was not asked of their white colleagues. Often those same faculty did not have professional mentors and faced their own barriers, which raised concerns among study participants about professional burnout.

Some participants said that, at times, the few faculty members from systemically and structurally excluded groups did not want to gain attention by openly supporting students from these backgrounds or might even be bitter and discouraging in the face of their own personal challenges. Others observed that faculty members from systemically and structurally excluded groups tended to bear responsibility for teaching about racism and diversity and could face pushback from white students. Multiple study participants emphasized that these additional burdens on faculty from systemically and structurally excluded groups were unfair, and that the diversification of faculty and greater involvement and support from white faculty are needed so these responsibilities do not fall on one or two people.

These comments suggest health professional schools wishing to attract students from diverse backgrounds need to concentrate on increasing and supporting faculty diversity. Indeed, the latest data show that most medical and nursing faculties are white (AACN 2017).[49] Recent findings show that the proportion of medical school faculty who self-identify as Black/African American increased minimally over the last 30 years, from 2.68 percent in 1990 to 3.84 percent in 2020 (Bennett and Ling 2021). Several studies have found that targeted diversity-recruitment strategies and faculty development programs improved the representation of racial and ethnic groups on faculties (Deas et al. 2012; Glazer, Tobias, and Mentzel 2018; Guevara et al. 2013; Lin et al. 2016). But one interviewee noted that the limited pool of faculty members from systemically and structurally excluded groups means that hiring

such a faculty member at one school entails another school losing this faculty member. Faculty diversification, like student diversification, requires a longer-term pipeline investment.

Workplace Environment

Focus group participants also reported that they continued to face hostility and prejudice after graduation during residency and practice. One medical professional described the relentless pressure she felt to always be on high alert and never relax or feel like she had "made it" because the smallest mistake could derail her career. She also felt her white colleagues were afforded more leeway. Data from the Accreditation Council for Graduate Medical Education suggest that Black/African American medical graduates are less likely to complete their residencies than other racial and ethnic groups. Although only about 5 percent of medical school graduates are Black/African American, they represent between 13 and 28 percent of trainees dismissed from residency across various specialties, including family medicine, psychiatry, and surgery (McDade 2019). According to the Accreditation Council for Graduate Medical Education, much of the attrition can be attributed to unsupportive learning environments (McDade 2019).

Nursing professionals also noted that toxic nursing culture was a huge challenge to overcome once they entered the health care workforce. Some professionals reported that preceptors and supervisors were burned out because of the demands of a hospital setting. Other supervisors were explicitly racist, and some professionals felt like nursing was devalued by patients, physicians, and administrators. One focus group participant shared the following:

I feel like they either didn't like me because I was a woman that was a nurse practitioner, or because I was brown….I had a doctor who threw papers at me. I had people dismiss me. People told me they didn't have time to do a consult…It was actually pretty tough, not just learning how to manage these patients but dealing with the people that I worked with.
—Study informant

Health care professionals who no longer practice medicine reported that the demands of being a clinician, particularly one serving in an underserved community, contributed to burnout and a decision to leave practice. Several informants characterized primary care as an undervalued and

undercompensated profession. One informant described having a very high patient load and witnessing the harm of her patients' unmet social needs daily. In response, she pivoted to policy and advocacy to affect the upstream factors patients in underserved communities are facing. Others reported coming to a similar realization and wanting to make a larger impact for patients from systemically and structurally excluded communities by going into research and policy. Nurses are also face high rates of burnout because of long hours, high patient census and acuity, and a lack of supports. Focus group participants also pointed out that the COVID-19 pandemic is exacerbating the strain on health care professionals, causing many to leave clinical practice altogether.[50]

In addition, many of the providers we interviewed were in primary care, which can entail less pay and respect and fewer resources than more specialized care. According to one interviewee, many primary care providers of all types feel "expendable," particularly those who see more patients for lower pay without adequate time, which severely affects work-life balance.

These findings again point to the great need to pair strategies to increase diversity with efforts to improve equity and inclusion and to support health care professionals through education, training, and practice. Efforts to create a diverse health care workforce are futile if unsupportive work environments lead faculty and clinicians to leave the profession.

PROMISING STRATEGIES TO PROMOTE DIVERSITY, EQUITY, AND INCLUSION

State bans on affirmative action policies have forced leaders of health professional schools and pathway programs to consider alternative means to develop and support workforce diversity. Programs and schools have adopted various strategies to continue such efforts, such as establishing holistic admissions policies and focusing the program on recruiting candidates interested in serving in underserved areas. Other programs have tailored their outreach strategies to identify and recruit candidates from disadvantaged socioeconomic backgrounds, whose primary language is not English, or who are first-generation college students (Smith et al. 2009). Still others have engaged in broader efforts to expand partnerships with and outreach to local schools and communities. Some informants noted that there were untapped opportunities to support the advancement of ancillary health workers into nursing and medicine. Others emphasized the need to transform institutional culture to be more inclusive to attract and retain students, faculty, and clinicians from systemically and structurally excluded groups.

Admissions Processes

Several interviewees noted that health professional schools are increasingly using holistic admissions practices to expand their recruitment of candidates from systemically and structurally excluded backgrounds (Bates, Mutha, and Coffman 2020; Brunson et al. 2010; Glazer, Tobias, and Mentzel 2018; Grbic et al. 2019; Lacy et al. 2012; Witzburg and Sondheimer 2013). Holistic admissions practices consider qualities such as commitment, resilience, work ethic, and interest in serving underserved communities to be as important as grades and exam scores. They have shown promise in increasing the number of students from systemically and structurally excluded backgrounds in medical and dental schools (Brunson et al. 2010; Glazer, Tobias, and Mentzel 2018; Grbic et al. 2019; Lacy et al. 2011; Witzburg and Sondheimer 2013). This approach could be fruitful for identifying, recruiting, retaining, and supporting strong pathway participant cohorts.

The University of California, Davis, School of Medicine increased the representation of students from systemically and structurally excluded groups from about 15 percent of the student body in 2008 to 52 percent in 2020 by implementing a holistic admissions review policy, which includes an adjustment for a student's socioeconomic disadvantage score.[51] One study suggests that adjusting for applicants' socioeconomic disadvantage could increase student body diversity in California medical schools (Fenton et al. 2016). Research also suggests health professional students admitted through holistic review perform at the same level as students admitted through traditional review (Glazer et al. 2014). According to recent data, more than 90 percent of medical schools and 47 percent of nursing schools report using holistic admissions policies.[52] Still, as one interviewee noted, effectively implementing holistic review policies and eliminating bias from the admissions process depends on the adequate training of admissions staff.

Community Partnerships and Investments

Pathway program leaders who participated in our study described how a range of partnerships, especially with schools and colleges, is integral to effective initiatives. One informant explained that their program used creative and broad-based outreach, including partnering with local school districts with diverse student bodies, but remained careful to "follow the letter of the law," because they would rather use funding to support students than to fight legal battles.

Several interviewees described regional networks where health professional schools and higher education institutions share ideas and collaborate on a unified strategy for workforce diversification. Although several programs in our study partner with community colleges, we learned that this approach is very rare. One interviewee noted that medical schools tend to be biased against students who

attended community colleges and other nontraditional institutions but continue to blame the lack of diversification progress on a "limited pool of qualified candidates." Other informants recognized that systemically and structurally excluded groups have less access to quality public K–12 education. Focus group participants agreed that better K–12 core educational coursework and enrichment programs are needed in addition to targeted pathway programs. One study participant noted the following:

> *My dean recently said, 'Well, where would you put [recruitment] money?' and I, joking, said Head Start. And we both laughed. But getting students at least at the middle school level to even see the possibility of becoming a health care worker, ensuring that we have just strong education, even in communities historically disinvested, that's where, in my opinion, the efforts lie.*
> *—Study informant*

Some informants argued that medical schools should invest in growing their own pools of qualified candidates by providing and advocating for support in local communities. One interviewee suggested that health professional institutions could use the Social Vulnerability Index to identify school districts that need more support and financial resources.[53] Medical and nursing schools can invest in academic center and elementary and middle school science partnerships that encourage nursing and medical students to make classroom visits and introduce students to opportunities for high school internships. The University of California, San Francisco, for example, donates lab equipment and other resources to local high schools to spark students' interests in health care professions.

One key informant observed that medical schools and teaching hospitals are starting to consider themselves anchor institutions and are paying more attention to the effects they have on their communities. As part of this commitment, these institutions could embark on efforts to improve the quality of the public education system and the diversity and cultural effectiveness of the health care workforce. Several interviewees pointed out that existing pathway programming tends to be short term and siloed, which may not adequately support people from systemically and structurally excluded backgrounds who may need more guidance to navigate from one educational or career step to the next.

Opportunities for Expanding Outreach and Recruitment

Residency programs, too, have started tailoring interventions to attract more candidates from systemically and structurally excluded backgrounds. The literature suggests strategies such as using holistic review policies, increasing outreach, analyzing recruitment data, offering financial incentives, and adding faculty from shared backgrounds to the interview and recruitment processes are associated with increasing the pool of applicants, interviewees, and residents from systemically and structurally excluded communities (Aibana et al. 2019; Marbin et al. 2021; Tunson et al. 2016; Wusu et al. 2019). A recent survey of family medicine residency programs found that programs with diversity initiatives were 2.5 to 4 times more likely than such programs without diversity initiatives to have a higher share of residents from systemically and structurally excluded backgrounds (Roulier and Sung 2020).

Institutions also have an untapped potential pool of workers in ancillary health professions, such as nurses' aides, medical assistants, X-ray technicians, and phlebotomists. These ancillary workers are often more diverse than the medical and nursing professions (HRSA 2017). Currently, members of ancillary health professions have no clear pathway to enter and complete nursing or medical school. As a result, very few of these workers make the transition to nursing or medicine; yet, according to our study participants, many may be interested in professional growth and advancement in clinical fields. Informants offered several suggestions for tapping into this potential workforce, including by developing culturally effective career progression advising, developing pre- and postbaccalaureate and baccalaureate programs that build on participants' health-related experience, and establishing or improving a process to translate and recognize health care professional credentials from other countries to the US (box 5).

BOX 5

International Medical Graduates

International medical graduates are a potential source of diversity in the US health care workforce. They comprise more than a quarter of the US physician workforce,[a] but most foreign-trained physicians certified to practice in the US come from Canada, China, India, and Pakistan.[b] The International Medical Graduate Program at the University of California, Los Angeles, is a preresidency training program for bicultural and bilingual medical school graduates from Latin America interested in practicing family medicine in underserved California communities. Although key informants interviewed for this study acknowledged that such programs can increase the supply of culturally and linguistically effective providers who can serve California's fast-growing Hispanic/Latinx population, some also raised ethical concerns about the "brain drain" of physicians from countries that often experience health professional

shortages. It is important to distinguish between attracting health professionals from other countries and enabling people already in the US to meet the requirements for practice as a nurse or physician.

Notes: [a] Jeanne Batalova, "Immigrant Health-Care Workers in the United States," *Migration Information Source* (Migration Policy Institute), May 14, 2020, https://www.migrationpolicy.org/article/immigrant-health-care-workers-united-states-2018.
[b] "Top Five Countries of Citizenship, Certificants 1994-2018," Educational Commission for Foreign Medical Graduates, accessed May 4, 2022, https://www.ecfmg.org/resources/Top5CitizenshipCountries1994-2018.pdf.

Reforming Culture

Last, some academic and health care institutions are working to address internal systemic racism, not only to create room for diversity but to promote greater equity and inclusion (box 6). As study participants consistently emphasized, supportive learning and working environments are critically important for both attracting people who have been systemically and structurally excluded from health professions and ensuring their well-being, unobstructed advancement, and professional satisfaction. One nursing professional with a master's degree expressed frustration that after so many years of rigorous academic preparation and training, she still has to "prove" to her supervisors, peers, and patients that she is a competent and capable health care provider. She also said she will discourage her own children from becoming doctors or lawyers because it is not fair that people in these professions—despite holding one of the most prestigious positions in our society—will still be treated poorly if they come from a systemically and structurally excluded community. If academic and health care institutions do not move beyond focusing on diversity to improving equity and inclusion, the future will be no brighter.

BOX 6

Medical Schools Leading the Charge in Transforming Culture

Inspired by student-led activism as early as 2014, the Icahn School of Medicine at Mount Sinai has launched multiple efforts to disrupt and eliminate racism and promote greater DEI in medicine and science. Chief among them is the Center for Antiracism in Practice, established in 2021 to be a hub for antiracism education, training, and capacity-building resources designed to drive transformational change at Mount Sinai's Icahn School of Medicine and Graduate School of Biomedical Sciences. The center focuses its efforts on three strategic areas: (1) teaching and learning designed to empower educators to create an inclusive and equitable learning environment; (2) organizational and strategy development designed to build the capacity of school leaders and administrators, faculty educators, and staff to create and maintain an antiracist institution; and (3) the integration of current scientific research on race and disease into learning and research environments. The Icahn School of Medicine

also launched a three-year Anti-racist Transformation in Medical Education project to teach 11 partner medical schools in the US and Canada about and support them in achieving fundamental antiracist transformation through a multiphase change-management process.

In the wake of George Floyd's murder in May 2020, Vanderbilt University Medical Center and Vanderbilt University School of Medicine convened a racial equity task force to begin a process of dismantling racism within their institutions. The task force, consisting of more than 100 members from diverse backgrounds, developed a set of recommendations organized around eight areas for action: (1) establishing infrastructure to combat systemic racism; (2) cultivating an inclusive environment; (3) supporting the racially equitable career advancement of employees; (4) recruiting and retaining a diverse workforce; (5) teaching students about the social constructs of race, racism, and racial equity; (6) recruiting and retaining more structurally and systemically excluded students; (7) cultivating racial equity in research and advancing research that addresses racism; and (8) delivering high-quality, equitable health care. Following the release of the task force's recommendations, both institutions began taking steps to address racism, including providing antiracism training to medical center leadership, increasing the institution's minimum wage to $15 per hour, embedding antiracism training in the first-year medical school curriculum, and revising the School of Medicine's mission statement to include commitments to antiracism and equity.

Sources: "The Center for Antiracism in Practice," Icahn School of Medicine at Mount Sinai, accessed May 4, 2022, https://icahn.mssm.edu/about/diversity/center-for-antiracism; "Anti-racist Transformation in Medical Education," Icahn School of Medicine at Mount Sinai, accessed May 4, 2022, https://icahn.mssm.edu/education/medical/anti-racist-transformation; Consuelo H. Wilkins, Mamie Williams, Karampreet Kaur, and Michael R. DeBaun, "Academic Medicine's Journey toward Racial Equity Must Be Grounded in History: Recommendations for Becoming an Antiracist Academic Medical Center," *Academic Medicine* 96, no. 11 (2021): 1507–1512, https://dx.doi.org/10.1097%2FACM.0000000000004374; Leona Hess, Ann-Gel Palermo, and David Muller, "Addressing and Undoing Racism and Bias in the Medical School Learning and Work Environment," *Academic Medicine* 95, no. 12S (2020): S44–S50, https://doi.org/10.1097/ACM.0000000000003706; and Kathy Whitney, "Racial Equity Task Force Releases Initial Recommendations," *VUMC Reporter* (Vanderbilt University Medical Center), June 21, 2021, https://news.vumc.org/2021/06/21/racial-equity-task-force-releases-initial-recommendations/.

CONSIDERATIONS FOR POLICY AND PRACTICE

As discussed, a welcoming institutional culture and readily available support are critical for recruiting and retaining students and professionals from communities that have been systemically and structurally excluded. Providing such institutional support requires committed leadership, a clear alignment of mission and DEI principles, and measures to cultivate and ensure an appropriate and accountable culture. The following considerations can help health professional schools, health care systems, philanthropic funders, and state and federal policymakers create more and better institutional supports.

Higher Education, Including Medical and Nursing Schools, and Health Care Systems

- Articulate and embed a focus on DEI across race, ethnicity, and other intersectional identities in the mission, structure, and operations of the institution by creating actionable policies and processes to institutionalize DEI in curricula, administration, and operations (including accounting, facilities, financing, governance, financial aid, and performance evaluation).
- Change institutional culture to encourage inclusion by documenting and publicizing initiatives that provide systemically and structurally excluded students with resources, support, mentorship, and funding and by penalizing discriminatory and ineffective faculty and staff. National associations such as AAMC and the Accreditation Council for Graduate Medical Education and some medical schools are developing policies, practices, and resources to promote DEI in medical education (box 6).[54]
- Review and update medical and nursing program accreditation standards to promote DEI initiatives in all aspects of program operations, including curriculum, staffing, and business operations.
- Create anonymous pathways for students, trainees, faculty, and staff to report racism and microaggressions, and follow up frequent reports with accountability measures.
- Develop and embed standardized metrics in institutions to measure progress on DEI initiatives and make these data available to the public.
- Provide workforce development opportunities for Black/African American and Hispanic/Latinx faculty from systemically and structurally excluded backgrounds to improve representation and retention. These activities should include professional development, protected time for research and mentorship opportunities, and financial incentives.
    - » Establish faculty diversity benchmarks and hold nursing and medical schools accountable for meeting the goals.
- Recruit students locally and make investments in early pathway programs to identify and support people in the surrounding communities who are interested in health professions.
- Train recruiters and admissions staff on implicit bias and holistic admissions practices.
- Prepare students who want to practice in underserved communities by providing training and creating partnerships for students to gain exposure to the patient care environment in community health centers and residencies.

- Diversify specialty residencies by funding targeted recruitment and retention activities while ensuring mentorship and other supports are in place for systemically and structurally excluded students. These efforts can include refining recruitment strategies, subsidizing application fees, or partnering with other nursing and medical schools that have pathway programs.
- Develop strategies to recruit members of the ancillary health care workforce and provide dedicated funding to support upskilling from the allied health care workforce.
- Train all leadership, faculty, staff, preceptors, students, and residents on implicit bias, health disparities, and antiracism in health care, and ensure clinical placement sites and workplace settings support students, trainees, health professionals, staff, and patients from systemically and structurally excluded groups.

Philanthropy

- Provide grant support to pathway programs that provisionally guarantee admission into college, professional school, or residencies for Black/African American and Hispanic/Latinx students from community colleges, Hispanic/Latinx-serving institutions, HBCUs, and areas with people predominantly from systemically and structurally excluded groups.
- Support early pathway interventions and longer-term interventions throughout the educational continuum, including providing support to incumbent ancillary health care workers.
- Develop and support learning communities or collaboratives of key stakeholders (including academic institutions and health care systems) to develop and share ideas, best practices, policies, and other resources that promote greater DEI in the medical and nursing workforces.

State and Federal Governments

- Support or reinstate affirmative action policies and uphold sanctions on noncompliance in the long term.
- Mandate adoption of holistic admissions practices in nursing and medical schools in the short term.
- Create legislative mandates for DEI in medical and nursing education and health care settings; allocate funding to support these mandates; and develop accountability metrics to enforce them.
- Develop, embed, and publicly report standardized metrics to measure progress on DEI initiatives.

- Financially incentivize educational institutions and residency programs to meet or exceed DEI metrics.
- Expand funding for the Health Resources and Services Administration's Faculty Loan Repayment Program.[55]

Collaborative Actions for All Stakeholders

- Develop and support an interdisciplinary multisector work group on nursing pathway programs specifically for Black/African American and Hispanic/Latinx people.
- Coordinate across local, state, and national stakeholders with a demonstrated commitment to and interest in diversifying the health care workforce to increase and expand pathway programming that provides comprehensive supports for Black/African American and Hispanic/Latinx nursing and medical students from elementary school through the start of a professional's career.
- Build and support the data collection and tracking capacities of professional organizations (e.g., the AAMC, American Medical Association, and American Nurses Association) and local licensing boards to collect data on nursing and medical school applicants that allow longitudinal tracking of students and professionals across education and professional practice settings and across race and ethnicity and other marginalized identities. These data should be publicly available and have open access.
- Develop, advocate for, and implement policies and practices that promote DEI in health care education and practice.
- Engage nursing and medical students and professionals from systemically and structurally excluded groups in creating, implementing, and disseminating workforce development policies and strategies.

Discussion

Our findings reveal overarching areas of opportunity for and realities to consider before developing, supporting, and expanding pathway programs to increase the recruitment and retention of Black/African American and Hispanic/Latinx health care professionals. Here we discuss key challenges and opportunities across the education and career continua.

Primary and Secondary Education

Every program director and many students and stakeholders we interviewed noted the importance of the K–12 period in forming students' ambitions and beginning their professional pathways. Black/African American and Hispanic/Latinx students have lower rates of graduation from high school than white and Asian students, which influences who enters an undergraduate health professional pathway program.[56] But graduation rates do not tell the whole story. Although the K–12 years were beyond the scope of this study, study participants widely recognized that successful pathway programs should begin working with students in local communities before the undergraduate level. Pathway programs can thus ensure that high-quality K–12 education includes exposure to health professions as a potential career path.

According to study participants, college is another time when the pathway to professional education narrows but could, with intention, possibly be expanded. Many students who graduate high school and wish to attend college do not do so for myriad reasons.[57] Some cannot afford the next step and receive no guidance on how to make it possible. Others either need to enter the workforce immediately to pay their or their families' bills or are advised that they are incapable of going on to school. Breaking down these barriers requires ensuring colleges and undergraduate institutions are nurturing and supportive, and that they will work with students to tailor support and academic advising to their specific situations. Investing in pathway programs requires that postsecondary educational leaders and other stakeholders, such as policymakers and philanthropies, scrutinize the broader institutional environment outside the program to ensure it is not repelling possible entrants or pushing pathway participants to leave. Importantly, sustainably increasing diversity in the medical and nursing education system requires all stakeholders to work toward dismantling structural and institutional racism.

Health Professional Schools

As emphasized throughout this report, entry into medical and nursing schools is a major barrier for students from socioeconomically disadvantaged families, and some schools are starting to use more holistic admissions policies and to address financial barriers. Health professional school can be a toxic and difficult environment for all students but is even more challenging for students from systemically and structurally excluded backgrounds. Many students try not only to keep up with the rigorous curriculum but also to create a space where they can ensure that their own, their colleagues', and their patients' needs are valued and respected. Accountability measures must be introduced into

institutional cultures to ensure faculty and staff are providing culturally effective care and fostering a respectful and inclusive learning environment.

According to study participants, Black/African American and Hispanic/Latinx medical students in financial need require programs that provide financial support that is not contingent on their choice of specialty or practice location. Equally needed are service-contingent programs that financially incentivize students from all racial and ethnic groups to serve in the specialties and locations in greatest need of providers. States can diversify specialty professions by ensuring that systemically and structurally excluded people can follow their passions and are a part of every medical and nursing discipline. To this end, a foundation could contribute by supporting scholarships or loan repayment for professionals outside of primary care.

Although HBCUs and Hispanic/Latinx-serving institutions have been centered in some conversations about the preparation and training of Black/African American and Hispanic/Latinx nurses and doctors, PWIs continue to graduate most nurses and doctors. In light of this difference, PWIs must strive for the equitable representation of all students, including supporting students' and faculty's mental health and well-being and fostering a respectful and inclusive learning environment. Our study participants also stressed that providers from systemically and structurally excluded backgrounds cannot address the needs of their communities on their own, and that medical and nursing programs should equip providers from all other backgrounds to serve these communities effectively. Foundations and other stakeholders must hold PWIs accountable for educating all faculty, staff, and students on providing unbiased and culturally and linguistically effective care.

Finally, study participants argued that all medical and nursing students are overworked and will become better providers if work-life balance is explicitly valued and promulgated. Systemically and structurally excluded students and faculty bring skills, perspectives, and experience that are valuable in supporting the next generation of providers and the increasingly diverse patient population. Professional schools should compensate students and clinicians through academic credit, generous paid administrative time, and points toward tenure for using these assets to enrich health care.

Clinical Practice

People leave clinical practice for various reasons, but for many, the way the health care system practices health care is the trigger; the system generally treats patients as clients and prioritizes financing over patient care, which overburdens providers with upholding the business model. Health care providers, both medical and nursing, noted being overworked, which affected their ability to

provide care most effectively. Many interviewees also reported experiencing discrimination and racism in the workplace. Nurses particularly noted that it was often the clinic or hospital staff who were the most discouraging and hostile to early-career nurses and new nursing staff members. Many of the providers we interviewed who were burnt out by clinical practice were still employed in health care– or public health–related positions. Most also were working in some capacity to ensure equitable access to high-quality care. None, however, spoke of returning to full-time clinical practice. Although many of these interviewees wanted to continue mentoring medical students, many of their concerns would require the health care system to grant providers the sort of work-life balance that would enhance their abilities to ensure patient (and personal) access to culturally and linguistically effective primary care, specialty care, and social services.

Pathway Programs

The effectiveness and scalability of health care workforce diversity pathway programs are dampened by legal challenges to affirmative action policies, limited and unstable funding, and insufficient institutional buy-in and support. The lack of standardized metrics and accountability measures has also hampered pathway program directors' ability to evaluate and build an evidence base for health care workforce diversity pathway programs. Additionally, an openly racist climate regarding the inclusion of students and professionals by race or other aspects of diversity requires pathway programs to be courageous in providing the resources needed to support participants' emotional well-being.

Through efforts to appease politicians, administrators, and funders, pathway programs began to use broader and more inclusive definitions of "underserved student," establishing programs that prioritized socioeconomic status, geography, and parental educational attainment as proxies for race and ethnicity. Although it is important to ensure all people have access to higher education, universalism does not necessarily help create a workforce reflective of the overall population. As such, pathway program leaders have had to rely on creativity and flexibility to achieve their goals despite ever-changing politics. Targeted programs are needed for people who have been excluded and left behind. The goal should be achieving equity, not solely promoting equality.

Conclusions

This study sought to understand how pathway programs are structured, operated, and funded and to identify ways in which they could be developed, supported, and expanded to improve the recruitment and retention of Black/African American and Hispanic/Latinx health professionals. Although the

findings in this report suggest that efforts to increase the diversity of the health care workforce face many challenges, there is still hope.

Comprehensive pathway programs demonstrate promise, and the experiences and insights of those who lead and participate in pathway programs can guide the development and scaling of programming that can meets participants' needs throughout their formal health care educations and careers. Our findings and recommendations are surely not news to anyone who has followed the discussion about health care workforce challenges and the need for greater diversity. Despite decades of pathway program interventions and other efforts to attract and retain people from systemically and structurally excluded backgrounds in health professions, progress has been slow (Morris et al. 2021).

Although pathway programs have their limitations and need strengthening, they are perhaps the only reason we have any—albeit insufficient—diversity in health professions today (Grbic et al. 2021). The dedication and perseverance of pathway program leaders and the uncompromising determination of the students we talked to have ensured their success, despite the cost to their mental health and well-being. Outside the pathway programs, these medical and nursing students and professionals have little rest, support, and recognition. Beyond recruiting more health professionals from systemically and structurally excluded backgrounds to the workforce, diversification efforts should also ensure these professionals are neither overburdened by the stresses of racism nor overworked compared with their white peers. If comparable efforts are not also made to dismantle racism and improve equity and inclusion in health care education, training, and the workplace, efforts to increase diversity likely will continue to fall short.

Although the diversification of the health care workforce alone will not eliminate health inequities, it is a vital piece of the puzzle. To ultimately achieve the change needed, stakeholders must reform the systems that underpin our society by improving the quality of public education, addressing the racial wealth gap, and dismantling long-standing racist and discriminatory practices baked into the health care system. Reforming and rebuilding the wider system is a gargantuan task that will require a long-term journey and many partners. Aligning financial incentives, establishing accountability, and transparently standardizing metrics and data may help hasten these needed changes. For now, pathway programs represent promising interventions that can be improved, replicated, and expanded upon to increase diversity as we fight the longer battle. We hope the insights and considerations in this report provide the necessary motivation and information to decisionmakers who want to lead the charge.

Appendix. Study Methodology

The study's research design had three components: (1) a scan of peer-reviewed literature on existing and historical pathway programs and their efficacy; (2) semistructured interviews with key stakeholders, including medical and nursing students, nurses and physicians who are no longer practicing, practicing physicians, public health officials, and pathway program leaders; and (3) focus groups with Black/African American and Hispanic/Latinx health professionals and students. We launched the literature review and data collection in April 2021 and concluded them in December 2021. We analyzed our findings and prepared this report in winter and spring of 2021 and 2022.

Literature Review

We began in April 2021 with a scan of peer-reviewed literature examining the effectiveness of programs and initiatives designed to increase the participation of systemically and structurally excluded groups, including Black/African American and Hispanic/Latinx populations, in the physician and nursing workforces. Building on prior research (HHS Bureau of Health Professions and Office of Minority Health 2009; Snyder, Frogner, and Skillman 2018), we reviewed the PubMed and ERIC databases for peer-reviewed literature published since 2015 to identify studies that evaluate the effects of health professional pathway programs on increasing workforce diversity.

Supplemented by four discussions with program and policy experts, we used various search terms to identify more than 4,000 titles and abstracts in PubMed and ERIC. Because our study was qualitative, we focused our literature review on collecting quantitative and mixed-methods studies to complement our qualitative efforts and to ensure a robust assessment of pathway program outcomes. We identified 26 such studies for analysis.

Interviews

We conducted semistructured virtual interviews with 35 stakeholders and experts between April and December 2021. We selected interviewees for their relevant knowledge of and expertise on (including lived experiences with) increasing the Black/African American and Hispanic/Latinx health care workforce.

We spoke with pathway program graduates, policy experts and advocates, leaders in medical education, government representatives, public health officials, mentors, pathway program leaders, and physicians and nurses who were no longer practicing. The 35 key informants were identified through the literature scan of successful pathway programs, the personal and professional networks of the research team and the California Health Care Foundation program officer, and referrals from other interviewees (i.e., the snowball sampling technique).

The interviews explored topics such as pathway program components, governance and programmatic leadership, financing and sustainability, outreach to and recruitment of program participants, program retention, program outcomes and metrics for determining success, and recommendations and best practices for developing and sustaining successful pathway initiatives. The interviews with medical and nursing professionals no longer practicing largely focused on the retention of Black/African American and Hispanic/Latinx physicians in clinical practice.

Focus Groups

Between September and October 2021, we conducted eight virtual focus groups with Black/African American and Hispanic/Latinx medical and nursing students and professionals who were currently in or had completed pathway programs and with professionals who did not have the opportunity to participate in pathway programs. To facilitate detailed discussion, each focus group was made up solely of participants with the same status (student or professional) and from the same field (medical or nursing). For the medical participants, we organized focus groups by racial and ethnic identity (Black/African American or Hispanic/Latinx).[58]

We recruited our focus group members by contacting medical school nursing programs, national and state medical and nursing associations, diversity and inclusion offices at several US colleges and universities, and professional and personal contacts. We asked these contacts to widely distribute a focus group invitation email to students, association members, and professional colleagues. Interested participants completed a screener on Qualtrics (a secure survey tool), which confirmed their eligibility and reported basic demographic and contact information. To encourage and compensate participants for their time and contributions, all participants were given digital Visa gift cards with stored values of $150 (for students) or $250 (for professionals).

Through our focus groups, we spoke with 41 people, documenting a diverse set of participant perspectives (see table A.1 for more details on medical focus group participants). Of the 23 medical

focus group participants, 11 were professionals and 12 were students. Of the nursing focus group participants, 7 were practicing nurses and 10 were nursing students.

Topics for focus group discussion included experiences with pathway programs, reflections on mentorships, helpful and unhelpful elements or interventions of pathway programs, challenges to entry into and retention in medical and nursing professions, institutional environments, and ideas for improving diversity in the health care workforce.

TABLE A.1

Characteristics of Medical Focus Group Participants and Total Pool of Potential Participants

Question	Response	Focus group participants (*N* = 23)	Total respondent pool (*N* = 312)[a]
Status and age	Professional	11	68
	Median age of professionals	33	32
	Students	12	244
	Median age of students	26	25
Racial/ethnic identity	Black/African American	12	196
	Hispanic/Latinx	10	103
	Black/African American and Hispanic/Latinx	1	15
Gender identity	Male	5	87
	Female	18	191
	Genderqueer/nonbinary/ nonconforming	0	3
Language spoken at home	English	19	223
	Spanish	4	48
	Other	0	11
Sexual identity	Heterosexual	22	235
	LGBTQ+	1	31
	Prefer not to answer	0	11
First generation in family to go to college	Yes	9	119
	No	14	152
	Not sure	0	8
First generation in family to go into health care profession	Yes	16	196
	No	5	78
	Not sure	2	6

Question	Response	Focus group participants (*N* = 23)	Total respondent pool (*N* = 312)[a]
Disability status	Yes	0	16
	No	21	255
	Prefer not to say	2	10
Time zone where based	Eastern	7	141
	Central	1	35
	Pacific	14	100
	Other	1	1

Note: [a] Not all demographic categories for total respondents add to 312 because some respondents declined to answer some questions.

Data Analysis

All interviews and focus group discussions were conducted using the Zoom video-conferencing platform. The discussions were audio recorded and transcribed using the Otter.ai program. Data were securely stored with access restricted to members of the research team. The interview and focus group protocol and data protection plans were reviewed and approved by the Urban Institute's Institutional Review Board before data collection.

Data were analyzed on an ongoing basis and at the completion of each component (e.g., literature review), with a summary of findings for each component created and shared for review by study team members and the California Health Care Foundation. Each interview and focus group discussion was summarized in a memo of key points and analyzed by the research team for common themes and insights, with findings organized by the type of pathway program component identified during the literature review. This report and other publications have been reviewed by subject matter experts (see the Acknowledgments section for a list of reviewers).

Study Limitations

It is important to acknowledge that this study has several limitations. First, the literature base that quantitatively evaluates the outcomes and effectiveness of pathway programs and their components is limited.

Many students participate in multiple pathway programs before entering health professional schools, with programs collectively (not just individually) contributing to their success. Additionally, pathway programs can lose touch with participants over time, limiting the ability to see the long-term effects of the intervention or program. Most available studies focus on a single program or intervention, limiting our understanding of the replicability and scalability of successful interventions or pathway programs in other settings. Also, our study scope focused on postsecondary programs, but we recognize that pathways to health care professions can begin earlier, with programs designed to inspire, engage, and encourage K–12 youth.

The existing evidence rarely isolates pathway programs to determine their effects, and most existing research is descriptive. The prevalence of less methodologically rigorous studies points to the need for additional funding to increase the capacity, evaluative infrastructure, and consistent data collection practices in pathway programs. Study participants also confirmed the lack of funding for program evaluation.

Also, we interviewed and held focus groups with a relatively small number of stakeholders and selected participants through a nonrandom convenience sample, so some important perspectives may not have been captured and others may be overrepresented.

The findings of this study for the nursing field are limited for two reasons. First, the existing literature on pathway programs largely focuses on programs for medical students, and literature that describes or evaluates nursing pathway programs is scarce. Second, although most medical students or professionals we spoke with reported participating in a pathway program, none of the nursing students or professionals we spoke with reported participating in diversity pathway programs. These limitations align with the literature, which finds that about 20 percent of nursing schools have targeted interventions designed to increase the participation of Black/African American and other systemically and structurally excluded people in nursing (Carthon et al. 2014), unlike medical schools, which are required to focus on attracting and retaining diverse student bodies.[59] As a result, our findings on pathway program features and interventions are principally based on the perspectives and experiences of medical students and professionals, though suggestions about what such programs could or should look like incorporate the views of nursing counterparts.

For these reasons, our findings may not represent the perspectives and experiences of all stakeholders involved in or affected by health care diversity pathway programs, particularly nursing stakeholders.

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