RESEARCH ARTICLES

How to Increase Hispanics in Medicine through the Four Ps: Increase the Pool, Create Effective Pathways, Support Professional Development, and Change the Politics.

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ABSTRACT

Background

Although Hispanics make up just 6% of physicians, they are one in four U.S. children and youth and will grow to be one in three. Therefore, barriers to their underrepresentation in medicine and other STEM fields must be removed for population equity.

Main Idea

Four challenges must be addressed for Hispanics to reach the goal of workforce equity in health care: 1) the limited pool of Hispanic youth prepared for STEM careers, 2) limited pipeline programs and ineffective pathways in educational systems for health careers, 3) inadequate professional development for Hispanic physicians, and 4) a lack of focus in our politics on the size of the Hispanic population and its potential to advance health care.

We must address these four challenges by 1) increasing the K-12 pool of Hispanic students with expectations and preparation to enter medicine, 2) increasing effective pipeline programs and developing more accessible community educational pathways into health careers, 3) enhancing mentorship for professional and leadership development of Hispanics in medicine, from medical students to faculty and community physicians, and 4) change the politics around Hispanic achievement from diversity to one based on maximizing the potential of our nation's human capital.

Conclusion

Addressing these four challenges to increasing Hispanics in health care will require Hispanic health providers to partner with other Hispanic groups in education, public policy, and community advocacy to cover the breadth of changes needed to achieve and maintain population equity in the health professions for Hispanics.

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1. Introduction

Hispanic physicians provide more effective care to Hispanic patients because of their language and cultural concordance with them, particularly for those with limited English proficiency. This finding has been seen in various clinical settings, ranging from pediatric surgery to cancer care to diabetes management.[1-3] In 2003, the Institute of Medicine's report, "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care," noted the importance of minority physicians and their ability to provide more effective patient-provider relationships with racial and ethnic minority patients.[4] In one study, Hispanic patient satisfaction was 70% greater with Hispanic physicians.[5] Yet research into Hispanic subgroups shows variability due to the lived-experiences of different Hispanic communities, creating a need for more research on effective physician-patient relationships with Hispanic patients.[6,7] Nonetheless, Hispanic physicians are an essential component in advancing the quality of health care for Hispanic populations, given the high proportion of health disparities in Hispanic communities and the linkage of these health disparities to the interactions or lack of interactions with our health care system.[8,9] Moveover, since Hispanic physicians make up only 6.9% of all physicians and the Hispanic population is 19% of the U.S. population and growing, there is a clear need for more Hispanic physicians.[10] However, achieving population equity in the short term will be difficult. Thus, Hispanic physicians are needed not only as clinicians to serve Hispanic populations directly but also as leaders to make all aspects of medicine, including teaching, research, clinical care, health care administration, and health policy, more responsive to the health care needs of Hispanic populations.

Leadership is particularly important in academic settings, where Hispanic faculty can be role models, mentors, and teachers of generations of physicians to provide culturally competent health care to Hispanic and other patients in efforts to achieve patient-centered health care.[11] Consequently, with the increasing proportion of Hispanics in the U.S. population, increasing Hispanics in medicine is an urgent national necessity because of its impact on the health of Hispanic patients.[12-14]

However, our educational system to date has not met this challenge. In 1980, the population of Hispanics in the U.S. was 6.4%, while the proportion of Hispanic medical school matriculants was 4.9%.[15] This was a 77% population equity (i.e., the percentage of Hispanic medical students compared to the Hispanic population). In 2023, the Hispanic population was 19.1%, while 12.7% of medical school matriculates were Hispanic, the highest ever.[16] This was a population equity of 65%. If a population base of 26% is used, the percentage of U.S. Hispanic children, the population equity is 49%.

This decreasing proportionality of medical school matriculants to the growth of the Hispanic population indicates that our efforts have not advanced the Hispanic health workforce at a rate that matches the growth of the Hispanic population. Mora notes that changing this trend will be difficult because even by quadrupling the number of Hispanic medical students annually, it would take 30 years, another generation, to achieve equity.[17] While our medical schools and academic centers have attempted to increase the diversity of their classes and training programs, the lack of success in these efforts requires a better understanding of the barriers for Hispanic students in pursuing health careers, including a review of diversity recruitment and retention process, the development of Hispanic leaders to help institute change and perhaps, most importantly, a "rethinking" of the diversity processes for Hispanics.

A Perspective for Advancing the Hispanic Health Workforce

The author's perspective for this article comes from the literature on workforce diversity and a 37-year academic career as an associate dean for diversity, including 28 years as the principal investigator of the Stanford HRSA Hispanic Center of Excellence.

Overall, four linked areas must be addressed to increase the number of Hispanics in medicine:

1. increasing the **P**ool of Hispanic children prepared for health and STEM careers
2. creating effective educational **P**athways to ensure the success of Hispanic students in health careers
3. fostering the **P**rofessional development of Hispanic physicians, starting in medical school, to maximize career opportunities and leadership
4. changing the **P**olitics around diversity by focusing on the Hispanic human capital's potential to advance medicine and other STEM areas.

Developing a Pool of Hispanic Students for Health and STEM Careers

Hispanic children and youth currently make up 26% of the U.S. child population, with the U.S. Census estimating that by 2060, they will be 32% of U.S. children, while non-Hispanic white children will be only 36%.[18] If our nation's children are its future human capital upon which our nation's success will be built, then Hispanic children and youth will be one-third of it. Given this perspective, overcoming the barriers to quality education for Hispanics and other children from under-resourced communities is essential for our nation to continue its leadership in medicine and other STEM fields.

In achieving this goal, understanding the diversity within Hispanics is fundamental; they are not homogenous. There is variability even in the terms used to describe this group nationally (e.g., Hispanic, Latino, Latinx, and Latine.)[19] Hispanic children and youth are heterogeneous by race (a sociological term), social class, parental education, immigration status, language, acculturation status, family history in the U.S., and other factors from their lived experience. Why is this important? It is difficult to improve the entry into health careers for Hispanic children and youth if the variability in opportunities is not recognized. It is this variability in educational opportunities, particularly in contrast to Non-Hispanic white (NHW) children, that needs to be addressed.

Some commonalities do impact most Hispanic children's lives. For example, poverty has been a persistent issue that has resulted in limited family and community resources, particularly for education. While Hispanics overall are noted to have a poverty rate of 28% compared to NHW's 11%, this rate can vary for Hispanic subgroups from 11% to as high as 32%. The rates for three Hispanic subgroups, Mexican American, Puerto Rican, and Cuban American, are 29%, 29%, and 18% respectively.[20] Those Hispanic families with two immigrant parents have the highest rates at 32%.[21] The U.S. Census Bureau has started to collect Hispanic subgroup data and the material hardship they experience.[22] Material hardship measures whether basic needs are met and, while inclusive of poverty, captures a more expansive group of factors: food access, bill-paying, and housing. One in three Hispanics compared to one in four non-Hispanics live in households with hardship. Among the largest Hispanic subgroups, Mexican Americans and Puerto Ricans, 33% and 39.6%, respectively, have material hardship households, higher than their poverty rate. Dominican and Salvadoran households have the highest rates, 50.5%, and 49.2%, respectively. Similarly, in 2021 the median household net worth for Hispanics was $48,700, compared to $250,400 for NHW.[23] These data show that Hispanic students are coming from low-resourced families and communities, but in addition indicate that variability exists among subgroups.

Another factor is Hispanic children's varied exposure to racism in communities and schools.[24-26] The American Academy of Pediatrics has raised concern about the impact of racism on children of color, including Hispanic children and youth.[27] The impact of racism among children and youth has been documented to affect children's development and school performance. For example, Hispanic children and youth experience greater school absenteeism at 21.2% compared to 17.3% for NHW, with these rates being impacted by immigration enforcement. Moreover, studies indicate that teachers underestimate the educational potential of Hispanic students throughout their schooling. An analysis of the 2002 Educational Longitudinal Study showed that both English and math teachers underestimate the educational potential of Hispanic students by 60% and

40%, respectively.[28] This study showed that teacher bias might be associated with student underachievement and create the beginning of "Stereotype Threat," a student's performance being lowered by accepting a racial/ethnic stereotype.[29] A meta-analysis of 173 studies in the U.S. demonstrated that perceived racial/ethnic discrimination was linked with poorer adolescent adjustment in socioemotional wellness, academic achievement, and behavior domains.[30] Discrimination continued into post-secondary education experiences, where one in four felt the effects of discrimination in their educational environments.[31] Added to the problems of racism is the issue of anti-immigrant prejudice, which has led to stress among children with immigrant family members.[32] While one in four U.S. children is Hispanic, with 94% of them U.S. citizens, one-quarter of Hispanic children (4.5 million) have at least one undocumented parent.[33] Thus, Hispanic students can encounter multiple biases in their lives and school.

The issues of poverty and racism have impacted the lives of Hispanic families and their children, and together, they form the structural racism experienced by Hispanic communities. As a result, educational outcomes have shown a lower high school graduation rate for Hispanics of 83% versus NHW of 90% and 72% for English learners.[34] Although this led to less representation of Hispanic students in four-year colleges in the past, recent progress has increased the proportion of Hispanic students in four-year colleges from 4% in 1980 to 20% in 2020.[35] Yet, if one focuses on undergraduates in STEM fields, only 15% of Hispanic bachelor degrees are in STEM areas, lower than NHWs (18%) and Asian Americans (33%).[36] Furthermore, the number of bachelor's degrees in health care ranged from 9% to 13% for Hispanics.[37]

If there is one crucial early factor predicting the low proportion of Hispanic students in health and STEM careers it is their achievement in 8th-grade math, an educational gateway measure. From 2005 to 2022, 80% or more of Hispanic students score as non-proficient in the standardized 8th-grade math test.[38] Moreover, proficiency decreased during the COVID-19 pandemic to 14%.[39] This is not because Hispanic children can't do math but because of the limited educational resources and supportive educational environment.[40] In 2018, the U.S. Department of Education's Office of Civil Rights indicated that data from 17,337 school districts showed that 58% offer 8th-grade algebra, and in those schools, 26% of students are Hispanic. Among those students, 18% are enrolled in algebra, with a passing rate of 72%.[41] In another study of a large southwestern school district, schools were identified as primarily Hispanic (>50%) versus mixed populations. In both school types, Hispanic students were about half as likely to take algebra than NHW students. In 2024, an analysis of the American Mathematics Educator Study by RAND demonstrated systemic education barriers for low-resource schools to provide access to 8th-grade math, including less-prepared math teachers.[42] Thus, if 8th-grade algebra is one key to health and STEM careers, Hispanic

students are not being afforded nor supported in this critical educational pathway. Yet, innovative teaching of math, such as "data science," using students' personal experiences in teaching math or AI teaching of math, may offer the opportunity to improve this educational barrier.[43,44]

To overcome these educational barriers for Hispanic and other underrepresented-in-medicine students (URiM), Johnson and Bozeman developed an asset model for structured pathway programs (programs built to advance students into health careers, formally called pipeline programs) to assess participants' likelihood of successful outcomes.[45] The assets include the participants' family material resources, family expectations, educational endowments, science socialization, and network development. These asset bundles in a life course framework should be developed early in a child's life and can be affected by health care providers. For example, providers can help families access social services to maximize resources for children at their birth. Moreover, health care providers can support parents' educational expectations for their children, 86% of whom place a high value on a college degree, by providing information on educational opportunities.[46] From early childhood, health care providers can help families access preschool and, subsequently, K-12 school educational opportunities, such as science and math courses and pathways to college. Moreover, physicians can provide mentorship in medicine and other STEM careers. A Pew Research Center study suggested that part of the reason for the lack of Hispanics in medicine is the lack of role models and the sense of not being welcome in the profession.[47] Accordingly, providers can open the door to a health career by asking their pediatric patients, "Do you want to be a doctor?" It's a question many will never hear unless a positive effort is made.

Yet beyond motivation, Hispanic students need educational access to advanced placement courses (APC) in science and math in high school. The Educational Trust found that 40% of Hispanic students want to take APC, but only 3% were enrolled due to limited school resources or a lack of a positive school environment.[48] Supporting parental advocacy to expand educational opportunities, such as APC, for Hispanic students is essential. If these programs don't exist, partnering with advocacy groups, such as Latinos for Education, is needed to increase Hispanics in health care.[49]

Create Effective Educational Pathways

"Pipelines" or structured pathway programs for health careers have been in place for over 40 years to compensate for the above educational deficiencies. Still, their nomenclature, success, and ability to meet the need to increase minority physicians have been questioned.[50] For example, in 2023 the highest percentage of Hispanic matriculants began medical school, 12.7% or 2,910 students.[51] Nonetheless, another 3,000 Hispanic students annually are needed for 100% population equity. Still, structure pathway programs have

made a significant difference, as reported in a federal evaluation of national programs in 2009.[52] However, this report noted limitations in estimating their short- and long-term effect since randomized control studies were usually unfeasible. It also raised concerns that they functioned independently and were disconnected from each other, limiting their effects. In 2021, the Council of Medical Education of the American Medical Association reported on the importance of structured pathway programs, noting their limitations, but encouraged their membership to support them in advancing greater workforce diversity.[53] A literature review has recently provided best practices for these structured health career pathways.[54] These include: 1) leveraging participants' assets, such as their lived experiences, 2) developing robust intra- and interinstitutional partnerships, 3) developing varied funding opportunities for sustainability, 4) defining participant criteria with a board diversity base, 5) creating a learning environment that uses both didactic and experiential learning, and 6) maximizing identity-concordant mentoring. From the author's experience, the latter issue is supported by participants building mentorship relationships with peers in their program and staffing medical students, residents, and faculty to establish a community of learning and professional development. Having students understand that those in front of them on the career path came from the same backgrounds and had the same challenges is an essential component of encouragement.

Structured pathway programs are essential in increasing the number of Hispanics in medicine. Yet, these programs alone cannot achieve population equity for Hispanics. For example, the Health Careers Opportunity Program (HCOP), the largest federally funded program, shows that from 2015-2020, 1,103 post-secondary students participated annually.[55] In addition, HRSA Centers of Excellence reported 520 trainees and program completers annually during the same period.[56] In 2019, 7,836 URiM students applied to medical schools, suggesting that HCOP and COE may serve at most one in five URiM applicants.[57] Because structured pathway programs are not geographically distributed, many Hispanic students do not have access. Moreover, since these programs depend on federal and outside funding, they are also at risk of termination. Consequently, while we need to fund and expand these programs, we must acknowledge their limitations.

In contrast, high socioeconomic status (SES) students have had pathways through traditional educational institutions to enter the field of medicine, such as selective universities. Indeed, the top 20% of SES families produce 50% of physicians. However, for Hispanic and other URiM students, those pathways are less available or non-existent because of a lack of academic and financial resources. Thus, most URiM students interested in health careers must make their community educational system work for them. As such, for many Hispanic students the non-traditional pathway is attending a community college, a steppingstone to four-year colleges for pursuing health careers. Recently, community colleges have focused on strengthening these

non-traditional pathways to increase the number of URiM students in health professions. In California, where 56% of K-12 public school students are Hispanic, community colleges are increasing the transfer of Hispanic students into California's university and state college systems, achieving student populations of 23.3% and 48.3%, respectively.[58,59] This is higher than the 21% national average for Hispanics.[60] The California community college system, with 48% Hispanic students, has supported this increase, allowing students with only a high school diploma to begin a college career by attending a community college that can be more educationally and financially accessible.[61] Given the large pool of Hispanic students in community colleges, they have begun to support pathways to health careers for their students. For example, the California Community College Foundation began the California Medicine Scholars Program.[62] This program is based on a "hub" model that links community colleges, four-year colleges, community clinics, and medical schools in a geographic region. It promotes supportive transitions for students from each academic level to the next and provides a model of an educational partnership that can be replicated in other areas of our country. The bottom line is that although pipeline programs have been effective, our local education systems must likewise create effective pathways into health and other STEM careers for Hispanic students.

Lastly, Hispanics' entry into medical schools depends on the number of medical school slots available. In 2023-2024, there were 22,981 matriculants, among which 1,493 were Hispanic, including 279 from Puerto Rico. This makes the mainland Hispanic medical school matriculants 5.3% of all matriculants. If one takes the medical school matriculants as the number of medical school slots (MSS) available and examines the number of slots per 100,000 state population, eight of the nine most Hispanic-populated states fall below the median of 7.2 MSS.[63] Consequently, one consideration to increasing the number of Hispanic medical students is to increase MSS in states with high Hispanic populations and/or consider developing medical schools focused on Hispanics similar to HBCUs. Although this might be a difficult task, the current circumstance requires innovative actions.

Foster Professional Development for Hispanic Physicians

Hispanic medical school matriculants in the 2023 class entered a medical school environment where only 6.2% of the faculty were Hispanic, with only 34% of those being full or associate professors and representing only 5% of all professors and associate professors.[64] This defines the need for early and continued professional development through mentorship for Hispanic physicians, particularly in academic medicine. If Hispanic faculty and other physician leaders can impact the institutions that create health care for Hispanic communities, then creating Hispanic health care leaders is as important as making more Hispanic physicians. Mentorship is vital to achieving this for minority medical students, trainees, and faculty. A review

of the literature on mentorship for URiM physicians (trainees and faculty) found it to be influential in career success and that the quality of mentorship can be enhanced by 1) aligning with institutional goals and resources, 2) tailoring to local needs, 3) using nonracial concordant dyad mentors and 4) engaging in mentorship training.[65] The literature also notes negative factors beyond the lack of mentorship that can impact URiM medical students, trainees, and faculty success. This includes dealing with stereotype threat, imposter syndrome, minority tax, gratitude tax, and dealing with bias, prejudice, discrimination, and racism in the health care system.[66-69] Although these experiences can be managed with the help of mentors and allies, the support of institutional leadership and supportive communities is essential.[70]

The author's experience with mentors was critical for his professional development.[71] Consequently, this led to programs to improve mentorship for URiM medical students, trainees, and faculty. The Stanford Early Matriculation Program started in 1984 and continues as the Leadership in Health Disparities Program at Stanford Medical School.[72] It introduces students prior to matriculation to the academic environment of medical school, including linking them with research and clinical mentors. This early professional development creates a cohort of program students who access early mentorship and academic experiences and develops a group of colleagues to provide support throughout medical school and beyond. The alumni of this program have become professors and academic and community leaders in all fields of medicine. Another program is the Research in Academic Pediatric Initiative on Diversity (RAPID), funded by the National Institute of Diabetes and Digestive and Kidney Diseases and sponsored by the Academic Pediatric Association.[73] This program provides grants with local and national mentorship and discussions about academic environments, leadership, and promotion.[74] The success of its scholars has led to partnerships with the American Pediatric Society, the American Board of Pediatrics, and the Pediatric Infectious Disease Society. Overall, these programs have shown how supportive academic environment can grow the next generation of academic leaders.

Other successful mentorship programs include the NHMA Leadership Fellowship Program, which has supported the leadership of more than 100 Hispanic physicians, and LMSA supporting the professional development of Hispanic medical students.[75,76] In the end, it will take committed leaders to change our institutions to address the inequity in the Hispanic workforce.

Changing the Politics of Diversity for Hispanics

A question has arisen nationally: do we need to reset our mindset on diversity? Historically, at the beginning of affirmative action, "distance traveled," or a holistic review, was used to adjust students' MCAT scores, grades, and college selectivity. How successful was this? In the author's

Stanford medical school class of 1971, he and all his affirmative action colleagues graduated, and half became professors. Thus, the reality was not that affirmation action students were less qualified but that the standard tests used to make the assessment for admission were limited in assessing potential.

The metrics of "quality" are used because assessing "potential" is difficult. The attacks on diversity have focused on the negative implications for students with "better" qualifications. Yet, these metrics of "quality" are still proxies for potential. The 50-year history of diversity efforts has demonstrated that our diversity programs have found students with quality and potential, as shown by their success. Recently, Nguyen et al. showed that Hispanic medical students from 2014-2016 had an attrition rate of 3.5% versus 2.5% for NHW medical students after adjusting for SES.[77] If retention is an assessment of "quality," then 1 percentage point difference would be a minimal cost for society to diversify the workforce and improve health care for the growing Hispanic population. Evidence shows that programs like the Hispanic Centers of Excellence can decrease the attrition of health profession students to less than 1%.[55] Thus, the difference in retention for Hispanics may be rooted in the lack of institutional effort and resources rather than in the potential of Hispanic students.[28]

Therefore, the political discussion on diversity and Hispanics in medicine should start with the reality that Hispanics compose 26% of all children and youth and will shortly be one-third. We must acknowledge that college selectivity and MCAT are influenced by SES, as is entry into medical schools, given as noted above that the top 20% of income families produce 50% of medical students.[78-80] If we are to use all our nation's talent, it necessitates reviewing our educational system to understand how to tap into the nation's talent pool, particularly those previously excluded. Our structured pathway programs have provided insights and helped some academic institutions change to holistic reviews to assess students' potential.[81] However, these efforts need to be expanded to all educational institutions. This is where politics starts, engaging our academic communities to charge forward rather than retreat during this time of political uncertainty concerning diversity. The holistic process of assessing students' "distance traveled" and their potential is not new but reinforced by 50 years of diversity efforts. Ultimately, if science is about estimating the future, is this not what we do through holistic review?

Although our history of DEI has many examples of success, it takes leaders and allies at all levels to support and make these programs successful. In academic institutions, senior faculty and academic leadership need to meet the political challenge of creating systems that assess students and trainees holistically; support the development of residents, fellows, and faculty for career success and leadership; and create an environment of learning, clinical care, and research that is diverse, equitable, and inclusive. Locally, health professionals need to partner with Hispanic communities, public institutions,

and governmental policymakers to make change happen for Hispanic children. We must change the "status quo" thinking about the potential of Hispanics and all under-resourced children. This will require supporting and empowering Hispanic communities to engage local leaders in education, social service, and health care to meet the needs of their children. Moreover, institutional leadership must shift its political mindset from a diversity focus to a focus on Hispanics' human capital potential. This will require local Hispanic champions in medicine who, with their allies, can change the limiting "status quo" mindset.

At the national and state levels, our current politics propagates the idea that developing a diversity program for one group takes away from another. This needs to be countered by expanding efforts to help all under-resourced children. This approach will help Hispanic, Black, Native American/Alaskan Native, Asian, NHW, rural, inner city, and all under-resourced children achieve their full potential. This perspective is foundational to meeting the nation's health needs and being globally competitive in STEM fields. Moving "diversity" thinking from the "them and us" into the "we" construct can create a universal effect that lifts all children. A child education policy to achieve the maximum potential of all children can change the lives of Hispanic children and youth. It can provide the essential funding needed to improve the pool of Hispanic students for health and STEM careers and can move the discussion from a deficit model of poor children to one that understands their potential. This will require a loud and compelling political voice from our Hispanic community, but one that our allies will join. This is where maximizing the collective impact of all Hispanic health, educational, and policy groups will be critical. Fortunately, the Hispanic Congressional Caucus and the National Hispanic Caucus of State Legislators have institutional power to move us in this direction. Adding to this, the voices of our various professions involved with children and families, as well as the voices of our communities, can get this task done.

2. Conclusion: Achieving Population Equity in the Hispanic Workforce

The nation is facing a critical decision regarding the Hispanic community: does it use its significant human potential or continue to marginalize its children and youth? There is a great need for Hispanics in medicine and all STEM areas. Four linked areas need to be addressed to increase Hispanics in medicine: 1) the pool of Hispanic youth prepared for health and STEM careers, 2) more structured pathways and the creation of local community pathways for health careers, 3) greater professional and leadership development of Hispanic physicians, and 4) changing the diversity discussion about Hispanics into a discussion of using the nation's human capital. Hispanic physicians can partner with other groups in education, public

policy, and community advocacy to make change happen. Hispanic physicians and their community have said that 6% of Hispanic physicians is not enough.[82] In the end, the future of Hispanics is the nation's future.

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