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A Call for Investment in Education of US Minorities in the 21st Century

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The most recent census data demonstrates that the population of the US is changing from one that is predominantly white, to one much more racially and ethnically diverse.[1] Some have speculated that the change in demographics played a large role in the last presidential election.[2] The 2 most populous states—California and Texas—lead the way, with minorities (which includes Asian American, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander, or American Indian and Alaska Native) being the majority (http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf). This is also the case in Washington, DC, Hawaii, and New Mexico. Heralding the future, in 6 additional states (Maryland, Georgia, Florida, Mississippi, Arizona, and Nevada) minority children already outnumber white children. Thus, within a generation, the racial and ethnic composition of those who will call themselves "Americans" will be quite different.[3] Furthermore, US census data suggests that by 2050 >50% of Americans will be non-white (Figure 1). Those simple demographic facts serve as a compelling argument to address how best to enhance diversity in medicine in general, and in gastroenterology in particular.

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Conflicts of interest
The authors disclose no conflicts.

The scope of the problem in 2013 is highlighted by the fact that Latinos comprise approximately 15% of the US population, blacks 12%, Asian 4%, and 3% other minorities. By contrast, only 7% of practicing physicians are minorities.[4] In the past, blacks, Mexican-Americans, Native Americans (American Indians, Alaska Natives, and Native Hawaiians), and mainland Puerto Ricans were considered underrepresented minorities (URMs). Although these groups continue to be URMs, the Association of American Medical Colleges (AAMC) has moved away from identifying specific minorities to defining underrepresented in medicine as those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population (https://www.aamc.org/download/54278/data/urm.pdf). Among academic physicians, 3% are black and 4% Hispanic. Similarly, in a recent study 4% black R01-applicants and R01-funded investigators were recent immigrants. These statistics highlight the limited pool of minority mentors.

The Case for Diversity

Merchant and Omary[4] provided a list of arguments to support increasing diversity in the national workforce. Minority patients seek and are more satisfied with the care provided by a race/ethnic-concordant physician.[5] Potentially, this patient preference results in enrichment for minorities in the practices of race/ethnic-concordant physicians. They additionally speculate that increasing the number of minority physicians would increase the pool of investigators interested in further understanding health disparities while also increasing the pool of role models and mentors for future generations of minority physicians and scientists.

Others have additionally found that more minority physicians choose primary care and practice in under-served communities.[6] A more philosophical argument was made by the AAMC in 1994: “Producing a physician work force that reflects this country’s rich diversity is important not only for reasons of social equity, but also to ensure the delivery of health care that is competent, both technically and culturally.”[7] Last, given a predicted shortage of physicians by year 2020, to care for a progressively older US population and the overrepresentation of minority youth among the upcoming generations, it is of national interest to develop a strategic plan to increase the proportion of minorities that will be integrated into our future national health workforce.

No discussion on minority physician training could ignore the effect of Flexner’s report that, in 1910, documented the variability of the quality of medical education throughout the country. His report stimulated reforms and favored fewer university-associated schools to produce “fewer, better trained doctors.” Although the net effect on medical education in general was overwhelmingly positive, his legacy was at best mixed for the education of minority physicians. Only 2 (Howard and Meharry) of the existing 7 historically black medical schools survived Flexner.[6,8] Because approximately 1 in every 3 black doctors who graduated between 1950 and 1998 trained at these 2 schools, it is likely that the survival of the other 5 schools would have had a positive impact on the underrepresentation of blacks in US medicine.

Past and Ongoing Efforts to Improve Diversity in Medicine

Minority-Serving Institutions

Between 1910 and 1960, Howard and Meharry Universities trained approximately 75% of all black doctors in the country. All other medical schools on average enrolled 1 black student every other year.[9] The More-house School of Medicine opened its doors in 1978 and Charles Drew in 1981. In Puerto Rico, 3 accredited medical schools (University of Puerto Rico, Ponce and Cayey Schools of Medicine) serve the population of the island. Although

the AAMC uses numbers from these schools in their reports of minority training, the impact of these graduates on the US population overall is unclear. There has never been a Latino-serving medical school in the continental United States.

Affirmative Action and Medical School Admissions

In 1971, the first year for which there are data, 2 American Indians, 14 mainland Puerto Ricans, and 19 Mexican Americans graduated from medical school.[7] However, those same years (from the late 1960s to the mid-1970s) saw the greatest progress, from 3% minority enrollees in 1968 to 10% in 1974, fueled by the increase in minority college graduates. In 1974, Alan Bakke, a white student, filed a lawsuit that claimed he was denied admission to the University of California Davis owing to a quota system that favored minorities. In 1978, in a 5-to-4 vote, the Supreme Court declared affirmative action programs unconstitutional. However, minority enrollment had already flattened a few years earlier, likely owing to a shortage of qualified applicants. The stagnation seen before the supreme court decision likely illustrated the more insidious problem that affects us to date, as declared by the AAMC: “The failure of our nation’s schools and colleges to produce sufficient number of academically well-prepared minority-group applicants.”[7] This statement was made nearly 20 years ago, and continues to be relevant.

Project 3000 by 2000

The initiative from the AAMC derives its name from its goal of enrolling 3000 minority medical students by 2000.[7] It initially resulted in increased enrollment of minority students from 1470 in 1990 to 1863 in 1993. Twelve years after 2000, the goal has finally been fulfilled with 3456 matriculates in 2011. However, growth has remained flat (Figure 2). Thus, when considering the demographic facts discussed previously, the underrepresentation of minorities in medicine will inevitably worsen.

Existing National Institutes of Health Programs to Train Minority Scientists

The National Institutes of Health (NIH) spends close to $158 million per year in Minority Opportunities in Research programs, which include Minority Biomedical Research Support ($60 million), Minority Access to Research Careers: Undergraduate Student Training in Academic Research, Bridges to the Doctorate Program ($34 million), Research Initiative for Scientific Enhancement ($20 million), Initiative for Maximizing Student Diversity ($16 million), minority supplements to grants ($9.3 million), and predoctoral fellowships. There are scarce data on the impact of these programs on the education of minority scientists, whether they are PhD scientists or physician-scientists. The metrics for success are based on the number of academic researchers that they help to launch. It could be argued that, if the programs have assisted in increasing minority participation in industry, medicine, pharmacy, nursing, and so on, they have indeed succeeded in contributing to the well-being of the nation.

Future Efforts to Improve Diversity in Medicine and Gastroenterology

Merchant and Omary highlighted several recommendations to enhance diversity in medicine, some of which are outlined herein.[4]

Increase the Pipeline of Minority Students Through NIH and Private Sector Programs That Will Stay in Medicine and the Sciences

The NIH has made a commitment to cultivate diversity in science and has created the Diversity in Biomedical Research Working Group that is examining each step of the process extending from minorities at the graduate school level to the eventual promotion of minorities to a tenured faculty position (available at: http://acd.od.nih.gov/dbr.htm). In the

private sector, the Robert Wood Johnson's Harold Amos Medical Faculty Development Program has for several decades fostered the development of minority physician scientists throughout the nation (http://www.amfdp.org).

To address the need in gastroenterology for a diverse workforce, the American Gastroenterological Association has recently obtained an NIH R25 grant to support minority undergraduates and medical students to work in the laboratory of a mentor over a summer. The stipend covers housing costs to facilitate their participation in this research opportunity (http://www.gastro.org/aga-foundation/grants/aga-investing-in-the-future-iitf-student-research-fellowship). Other national societies, such as the American Physiological Society, have secured similar support. We believe programs like this will enrich our minority gastroenterology pipeline.

Support Good Mentors

Although the value of mentorship is recognized, we have not developed an approach to incentivize this effort or to recognize talented, devoted, effective mentors.[10] Mentors should be encouraged to partner with minority trainees. At present, the clinical demands and limited research funding make it difficult to dedicate the necessary time to this important endeavor. Creative approaches could include a relative value unit-based system for mentorship or protected (paid) time for mentoring. Mentors could be evaluated by their mentees and/or by the success of the mentee for awards or consideration for promotion or a bonus.

The NIH K24 program provides grants for successful mentors to protect their time to train clinician-scientists. With respect to training of minority trainees, one can consider funding their mentorship through specific institutional or NIH supplements. The R25 program described will to help pair the mentors with qualified students to make the process easier for mentors.

Ideally, institutional and NIH support could be specifically targeted to bolster URM faculty to mentor trainees. These individuals are critical role models for the next generation of underrepresented minority physicians. At present, there is no defined NIH program to provide targeted funds to URM mentors.

Establish Medical School Champions for Diversity

At some institutions, these are Deans for Diversity or Minority Affairs. Although these exist in many medical schools, their roles can vary. Perhaps the next step is to support and empower them to be an integral part of the admission committee and the promotion process. In particular, these individuals could help to pair minority students with the best mentors at their school. These deans could also help with satisfaction and retention of minority faculty since minority faculty are more likely to feel a lack of opportunities for networking at their institution and to feel undervalued.[11,12] Successful mentoring programs for URM faculty such as those of Creighton and Wake Forest exist and have been studied.[13] Therefore, these encouraging but limited successes ought to be expanded.

Provide Subsidized Time to URM Faculty to Engage in Mentoring

Perhaps not only to URM faculty but to any faculty that would effectively mentor minorities. Dr Andrew Marks, former editor of the *Journal of Clinical Investigation*, proposed aligning some of the indirect costs to the schools' success to diversify students and faculty.[14] Perhaps allowing limited percent effort for faculty who take on mentoring minorities through minority supplements would be a welcome incentive. The NIH lacks a metric to evaluate or reward the role of the investigator as a mentor, with its limited emphasis on "the project."

Engage in Community Activities

This relates well with the idea of partnerships with high schools and colleges. The carrot might be for academic institutions to incentivize such activities as part of academic promotions.

Establish Institutional Endowments

Leadership at the state and national levels should partner with philanthropic organizations to further strengthen existing NIH efforts.

Create a Supportive Environment to Minimize the Attrition of Minority Women

This benefits not only women, but also men. The latest data from AAMC show that women comprise around two thirds of black applicants, whereas black males are applying, enrolling, and graduating in declining numbers.[15]

Establish an NIH-Wide Initiative to Address Underrepresentation

Although such an initiative will definitely be of benefit, we need a national initiative, for an "as early as possible" intervention. The goal of such an initiative would be to address the issues of educational inequities that begin during the K–12 years, are perpetuated in college and result in noncompetitive medical school applications.

In 2013 it is likely, however, that our first priority should be the NIH budget or few efforts have a chance to succeed, past the postdoctoral level. We question whether it is wise to train anyone in the sciences, to later see them wither away in their careers for lack of funding.

Advice to URM Mentees and Mentors

For you as mentees, success in academics depends on staying focused on the mark and aiming for the highest standard in your area of interest. Academic success can occur within education, clinical research, or basic science research. A great deal has been written about the characteristics of a great mentor and we will not repeat this here.[16,17] It helps to identify the best local mentor in your area of interest. The altruistic and intellectual qualities of the mentor are most important. The chemistry has to be right. As in all aspects of what we do, the most important thing is to be fairly treated. Therefore, your mentor should provide constructive support and encouragement for your endeavors. It may be that your mentor is also a minority. It may also be that you identify a URM mentor at your institution that can help to provide general advice on career success rather than the targeted advice in your chosen project or field. Thus, you may need >1 mentor to fulfill all the dimensions of a successful career.

Minority trainees with the help of their mentors should be on the lookout for programs that specifically encourage and support URM applicants. The R25 program described will be primarily for URM undergraduates and medical students with an interest in research. The NIH will be making available scholarship programs to fund minority undergraduates interested in the sciences as well as fellowship programs for minority graduate students.

We have advocated for resources to be allocated to mentors for URM trainees. Sadly, there is a scarcity of URM mentors at all levels of the academic chain. If one considers that only 1% of NIH R01 grant applications are from Black applicants, one gets a sense that we must help these individuals to cultivate the next generation so that this deficit will someday be historical. URM faculty members are often overtapped to take part in university activities and committees as well as national committees and organizations. It is important, however, for us to set time aside to ensure the success of the next generation of educators and

scientists. Again, protected time and incentives could help this problem, but we should not wait for these. The success of a mentee is a terrific source of satisfaction in academia.

Final Thoughts

By 2040 (the switch in the workforce is predicted to occur a decade before the general population change of 2050), minorities will be the largest demographic segment of the country's workforce. We must strive to create a gastroenterology work force that achieves health equity through innovation and inclusion. The nation will now benefit from a greater number of insured patients, especially from URM groups. We have a terrific opportunity, therefore, to improve our understanding of pathophysiologic differences in disease states and determine the most effective ways to deliver health care to a diverse nation. It will require diversity of perspectives, experiences, and knowledge to fill these gaps in health care and the sciences.

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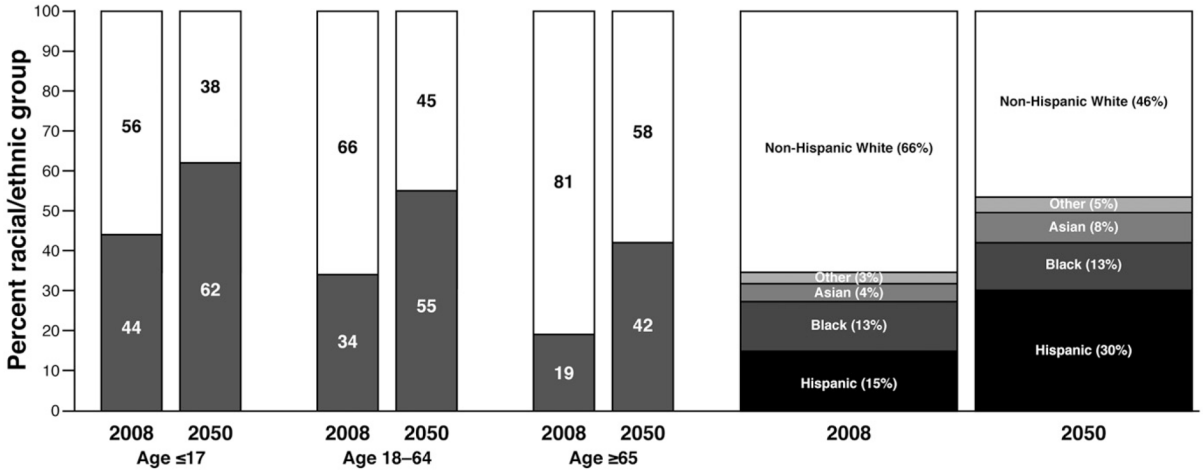

Figure 1.
Projections from the US Census Bureau regarding changes in the American population with respect to race and ethnicity between 2008 and 2050.

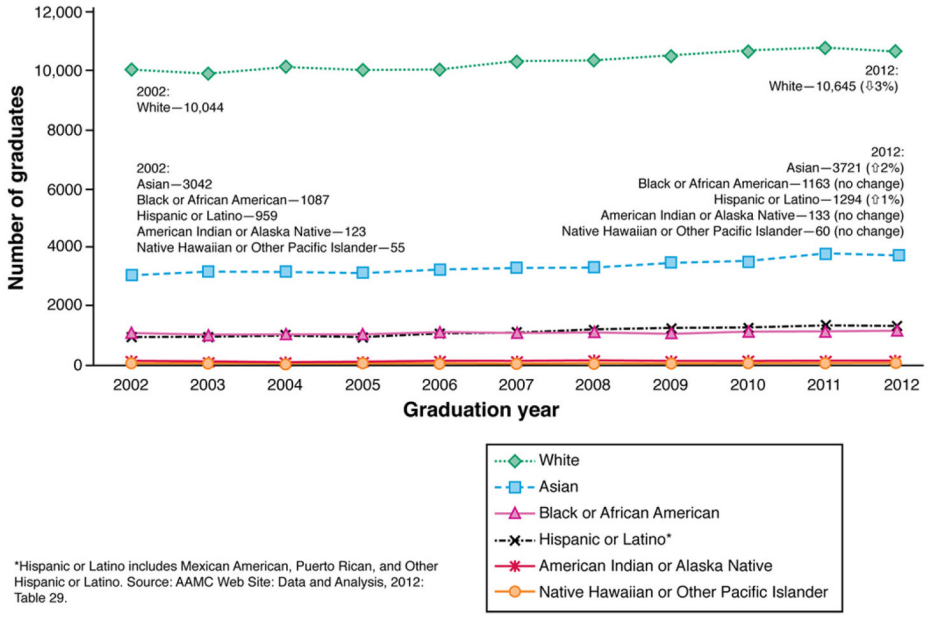

Figure 2.

Race and/or ethnic composition of medical school graduates between 2002 and 2011. (Adapted from AAMC: Diversity in medical education: facts and figures 2012. ©2012 Association of American Medical Colleges. All rights reserved. Reproduced with permission.)