

### Analyzing Physician Workforce Racial and Ethnic Composition Associations: Physician Specialties (Part I)

Health care reform in the United States is well underway. Given the current shortages with the physician workforce, the benefits of increased coverage and access may not be fully realized by those without access to a physician. Estimates suggest that the U.S. is facing an overall shortage of 130,000 active care physicians and almost 66,000 primary care physicians by 2025.<sup>1</sup> These shortages could exacerbate the health care access problems many Americans face today.

Despite substantial research on medical student specialty choice, few studies have considered specialty choice differences by distinct racial and ethnic groups. It has long been argued that increasing the racial and ethnic diversity of the physician workforce may have significant positive implications for primary care.<sup>2,3</sup> This *Analysis in Brief (AIB)*, the first in a two-part series exploring associations with the diversity of the physician workforce, examines whether there is an association between physician specialty and their racial and ethnic composition to determine whether increasing physician workforce diversity could influence the distribution of physicians across specialties.

#### Methodology

Data in this AIB come from three sources. The demographic characteristics and distribution of physicians who graduated from medical school between 1980 and 2010 are from the 2012 American Medical Association (AMA) Physician Masterfile, which is a database of education, training, and professional certification information of all physicians in the United States. The sample was limited to these physicians because racial and ethnic data for medical school graduates was not systematically or reliably collected prior to 1980. Physicians' race and ethnicity information were obtained from the AAMC Student Records System and the AAMC Minority Physicians Database. The association between physician specialties in direct patient care and physician racial and ethnic composition was analyzed. Primary care physicians were defined as family physicians and general practitioners, general internists, and general pediatricians.

#### Results

The sample was comprised of 507,622 direct patient care physicians, reflecting 73 percent of the total direct patient care physicians in the nation as of 2012. Of these physicians, 38 percent (192,083) were practicing primary care. Specifically,

15 percent (76,717) were practicing family and general medicine, 15 percent (77,766) were practicing general internal medicine, and 7 percent (37,600) were practicing pediatrics. A statistically significant association between physician specialty choice and their racial and ethnic composition exists ( $p < 0.001$ ). While 35 percent of white physicians were practicing primary care, 41 percent of Asian physicians, and 44 percent of URM physicians (43 percent of Hispanic/Latino physicians, 45 percent of black or African American physicians, and 46 percent of American Indian, Alaskan Native, or Hawaiian or Pacific Islander physicians)<sup>4</sup> were practicing primary care (see Figure 1).

Results also show statistically significant differences within individual primary care specialties. American Indian, Alaskan Native, or Hawaiian or Pacific Islander and Hispanic/Latino physicians are more likely to practice family medicine while black or African American and Asian physicians are more likely to practice general internal medicine. These differences were smaller in pediatrics. Although nearly half of black or African American, Hispanic/Latino, and American Indian, Alaskan Native, or Hawaiian or Pacific Islander physicians were

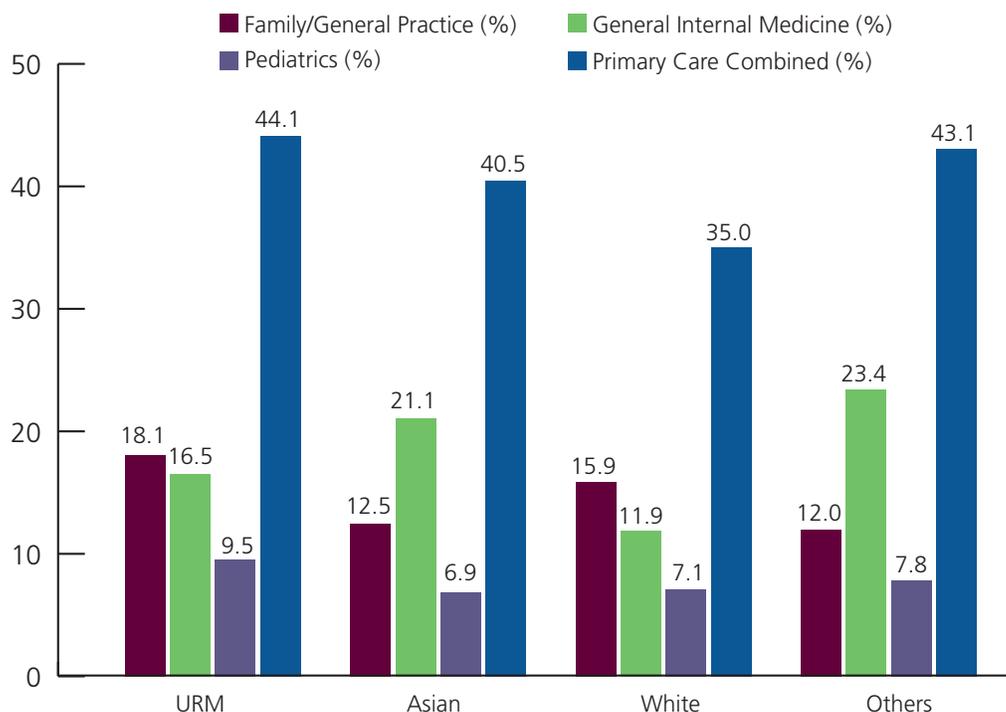
1 The impact of health care reform on the future supply and demand for physicians updated projections through 2025. Washington, DC: Center for Workforce Studies, Association of American Medical Colleges, 2010. Available at: [https://www.aamc.org/download/158076/data/updated\\_projections\\_through\\_2025.pdf](https://www.aamc.org/download/158076/data/updated_projections_through_2025.pdf). Accessed July 30, 2014.

2 Council On Graduate Medical Education (COGME) 12th Report. Minorities in Medicine. May 1998. Available at <http://www.hrsa.gov/advisorycommittees/bhpradvisory/cogme/Reports/twelfthreport.pdf>. Accessed July 16, 2014.

3 Keith SN, Bell RM, Swanson AG, Williams AP. Effects of affirmative action in medical schools. A study of the class of 1975. *N Engl J Med*. 1985;313(24):1519-25.

4 This breakdown not shown in Figure but are available upon request from the authors.

**Figure 1: Percent Physician Participation in Specialties, by Race and Ethnicity**



Note: Physicians under-represented in medicine (URM) are defined as black or African American physicians, Hispanic/Latino physicians, and American Indian, Alaskan Native, Hawaiian and Pacific Islander physicians.

Source: 2012 AMA Physician Masterfile; 2013 AAMC Minority Physician Database

practicing primary care, their representation among all primary care physicians still remains low at approximately five percent each for black or African American and Hispanic/Latino physicians and less than one percent for American Indian, Alaskan Native, or Hawaiian or Pacific Islander physicians.

**Discussion**

These results show significant associations between physician specialty and their racial and ethnic composition. Physicians of American Indian, Alaskan Native, or Hawaiian or Pacific Islander; black or African American; or Hispanic/Latino origins are more likely to practice primary care than white physicians, which suggests that increasing representation from these groups

within the physician workforce may increase the number of physicians practicing primary care. This study also shows a significant gap between the racial and ethnic composition of primary care physicians and the general population.

Not only are certain racial and ethnic minority physicians more likely to practice in medically underserved areas as shown in prior research,<sup>5</sup> these findings suggest they also are more likely to practice primary care. Eliminating disparities in K-12 education, enhancing pipeline programs and college-level interventions, and transforming medical school admissions<sup>6</sup> are promising ways to increase physician diversity and ultimately promote excellence in health care. Future

research should consider the pursuit of specialties by underrepresented racial and ethnic minority physicians. A diverse physician workforce serves the national interest on many fronts, and has important implications for the physician shortages and the shortage of primary care physicians in our nation.

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5 Grumbach K, Mendosa R. Disparity in human resources: Addressing the lack of diversity in the health professions. *Health Aff.* 2008;27(2):413-422.

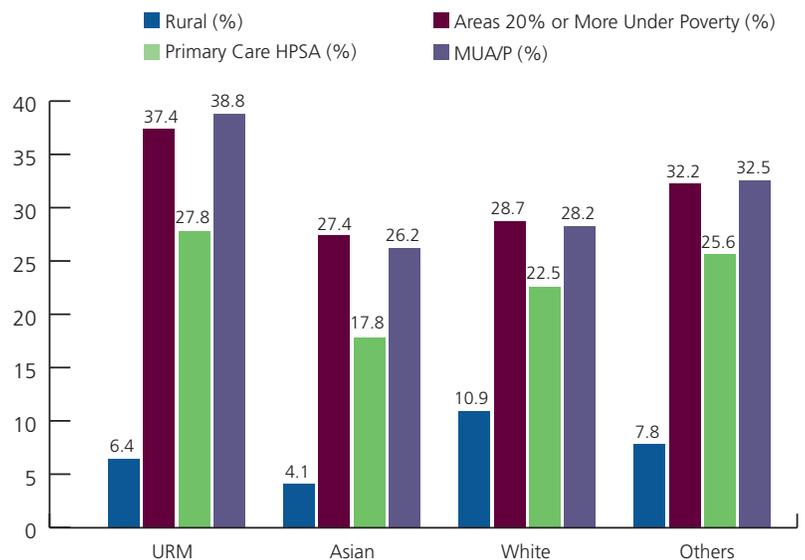
6 Kirch DG. Transforming admissions: The gateway to medicine. *JAMA.* 2012;308(21):2250-2251.

## Analyzing Physician Workforce Racial and Ethnic Composition Associations: Geographic Distribution (Part II)

The geographic distribution of the physician workforce in the United States has important implications for patients and their ability to access care. Many federal incentive programs have been established to mitigate the effect of regional shortages and to improve the recruitment and retention of health care providers in underserved areas.<sup>1,2</sup> Additionally, many training models and recruitment strategies intended to improve geographic distribution of the physician workforce have been studied.<sup>3,4</sup> However, few studies focus on the role of racial and ethnic composition of the physician workforce in establishing a more equitable distribution of physicians. For example, prior research indicates that physicians underrepresented in medicine are important for the delivery of primary care,<sup>5</sup> the provision of care to underserved populations,<sup>6</sup> and to improve access to health care services in medically underserved areas. Although the nation is experiencing a significant demographic shift towards more racial and ethnic diversity, the physician workforce has not kept pace.<sup>8</sup>

This *Analysis in Brief (AIB)*, the second in a two-part series exploring racial and ethnic diversity in the physician workforce, examines geographic

**Figure 1: Percent U.S. Physician Participation in Various Practice Locations, by Race and Ethnicity**



Source: 2012 AMA Physician Masterfile; 2013 AAMC Minority Physician Database

distribution to determine whether a more racially and ethnically diverse physician workforce could positively contribute to a more equitable distribution of the U.S. physician workforce. Medical schools can use this information to inform their efforts to foster a geographically well-distributed physician workforce that is responsive to the nation's evolving health care needs.<sup>9</sup>

### Methodology

The 2012 American Medical Association (AMA) Physician Masterfile was used to study the characteristics and distribution of direct patient care physicians who graduated from medical school between 1980 and 2010. The sample was limited to these physicians because racial and ethnic data for medical school graduates was not systematically or reliably collected prior to 1980. Physician race and ethnicity

- 1 Programs include, for example: Health Professional Shortage Areas (HPSA), Medically Underserved Areas/Populations (MUA/P), Geographic Practice Cost Index, and National Health Service Corps (NHSC).
- 2 Xierali I, Bazemore AW, Phillips RL et al. A perfect storm: Changes impacting Medicare threaten primary care access in underserved areas. *Amer Fam Phys.* 2008;77(12):1738.
- 3 Rabinowitz HK, Diamond JJ, Markham FW, Hazelwood CE. A program to increase the number of family physicians in rural and underserved areas: impact after 22 years. *JAMA.* 1999;281(3):255-60.
- 4 Hughes S, Zweifler J, Schafer S, Smith MA, Athwal S, Blossom HJ. High school census tract information predicts practice in rural and minority communities. *J Rural Health.* 2005;21(3):228-32.
- 5 Grumbach K, Mendosa R. Disparity in human resources: Addressing the lack of diversity in the health professions. *Health Aff.* 2008;27(2):413-422.
- 6 Rosen D. Questioning the premedical paradigm: enhancing diversity in the medical profession a century after the Flexner Report. *JAMA.* 2011;306(9):1001-1001.
- 7 Walker KO, Moreno G, Grumbach K (2012). The association among specialty, race, ethnicity, and practice location among California physicians in diverse specialties. *J Natl Med Assoc.* 2012;104(1-2):46-52.
- 8 Diversity in Physician Workforce: Facts and Figures 2010. Association of American Medical Colleges, Washington, DC; 2010.
- 9 Kirch DG. Transforming admissions: The gateway to medicine. *JAMA.* 2012;308(21):2250-2251.

information was obtained from the AAMC Student Records System and the AAMC Minority Physicians Database. The variation in physician practice locations by physician race and ethnicity was analyzed. Specifically, physician practice locations that were identified as rural (2003 Urban Rural Continuum Codes), areas with 20 percent or more of the population living in poverty (2011 American Community Survey Five-year Estimate), federally designated 2012 Primary Care Health Professional Shortage Areas (HPSAs), and Medically Underserved Areas/Populations (MUA/P) were studied. Bivariate measures of association were performed to study the relationship between physician race/ethnicity and their practice location.

### Results

The sample was comprised of 507,622 direct patient care physicians, reflecting 73 percent of the total direct patient care physicians in the nation as of 2012. Less than one percent of these physicians identified as American Indian, Alaskan Native, or Hawaiian/Pacific Islander; roughly five percent of these physicians identified as black or African American; five percent identified as Hispanic/Latino; 11 percent identified as Asian; 17 percent identified as “other” or were listed as unknown race/ethnicity, and 62 percent identified as white. Together, the groups underrepresented in medicine (URM)<sup>10</sup> comprise roughly ten percent of the physicians, which is substantially lower than their percentage in the overall U.S. population (30 percent). It is worth noting that although the Asian group appears to be overrepresented in the physician pool, many studies have pointed out that combining Asian subgroups can mask subtle differences within certain groups.<sup>11</sup>

In terms of practice in rural areas, results show significant differences among racial and ethnic groups (see Figure 1). Nine

percent of physicians in the study sample practiced in rural areas, but significant differences exist between racial and ethnic groups ( $p < .001$ ): four percent of Asian physicians, six percent of URM physicians, and 11 percent of white physicians were practicing in rural areas. Results also show significant differences ( $p < .001$ ) between physicians based on race and ethnicity practicing in areas high in poverty. Compared to the 27 percent of Asian physicians and 29 percent of white physicians practicing in these areas, results show that 37 percent of URM physicians practice in these locations.

Similarly, significant associations exist between physician race, ethnicity and practice locations in primary care HPSAs and MUA/Ps ( $p < 0.001$ ). Twenty-eight percent of URM physicians were practicing in a HPSA, compared to 18 percent of Asian physicians and 23 percent of white physicians. Similar patterns were found for practice locations in MUA/Ps, with URM physicians being more likely to practice in a MUA/P than Asian and white physicians. Results show that while 33 percent of Asian physicians and 38 percent of white physicians practice in either a HPSA or MUA/P, nearly half of URM physicians practice in these areas.

### Discussion

These results show that there are significant associations between physician practice location and their racial and ethnic composition. Physicians identifying as American Indian, Alaska Native, or Hawaiian/Pacific Islander; black or African American; and/or Hispanic/Latino were more likely to practice in impoverished areas, and areas federally designated as medically underserved or experiencing health professional shortages. American Indian, Alaska Native, or Hawaiian/Pacific Islander physicians as a group are significantly more likely to practice in

rural areas when compared to the overall physician pool. These findings suggest that increasing the racial and ethnic diversity of the physician workforce—in particular, increasing representation from American Indian, Alaska Native, or Hawaiian/Pacific Islander; black or African American; and Hispanic/Latino groups—may help improve the distribution of the physician workforce, and could have a profound impact on improving access to physicians in underserved areas. Furthermore, diversifying the physician workforce also may be key in addressing health disparities among racial and ethnic minority groups.<sup>12</sup>

In light of the nation’s evolving racial and ethnic landscape, physician workforce diversity is becoming an increasingly urgent matter. As part I of this AIB series discussed, eliminating disparities in K-12 education, enhancing pipeline programs and college-level interventions, and transforming medical school admissions<sup>9</sup> are some ways to increase physician racial and ethnic diversity and ultimately promote excellence in health care. Future workforce interventions should consider the role of racial and ethnic diversity in the physician workforce, and the positive impact of this diversity on the geographic distribution of the physician workforce.

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10 For this analysis URM includes black or African American; Hispanic/Latino; and American Indian, Alaskan Native, or Hawaiian/Pacific Islander physicians.

11 Islam NS, Khan S, Jang D, Ro M, Trinh-Shevrin C. Methodological issues in the collection, analysis, and reporting of granular data in Asian American populations: Historical challenges and potential solutions. *J Health Care Poor Underserved*. 2010;21(4):1354–1381.

12 Marrast L, Zallman L, Woolhandler S, Bor D, McCormick D. Minority physicians’ role in the care of underserved patients: Diversifying the physician workforce may be key in addressing health disparities. *JAMA Intern Med*. 2014;174(2):289–91.