

### Primary Care Physicians Who Graduated from U.S. Medical Schools: Trends in Specialty, Gender, and Race and Ethnicity

In recent years, a prominent physician workforce issue in the United States has been that the supply of physicians does not match societal needs, including in primary care specialties.<sup>a(1, 2)</sup> Reasons for the shortages include the national population rapidly growing older,<sup>a(3)</sup> baby boomers beginning to use more medical services,<sup>a(4)</sup> some physicians working shorter hours<sup>a(5)</sup> while others desire to retire earlier,<sup>a(6)</sup> and the number of racial and ethnic minority physicians not keeping pace with the growing diversity in the U.S. population.<sup>a(7)</sup> Moreover, the Affordable Care Act in effect has promised 32 million Americans access to health care<sup>a(8)</sup>—making the issue of the shortage of physicians even more acute.

This *Analysis in Brief* reviews the trends of primary care physicians for MDs who graduated from LCME-accredited

U.S. medical schools over the past three decades, paying special attention to the specialties of family/general medicine, general internal medicine, and pediatrics; differences in gender and race and ethnicity; and the proportion of primary care physicians by race and ethnicity. Understanding these trends may have implications for mitigating the physician shortage.

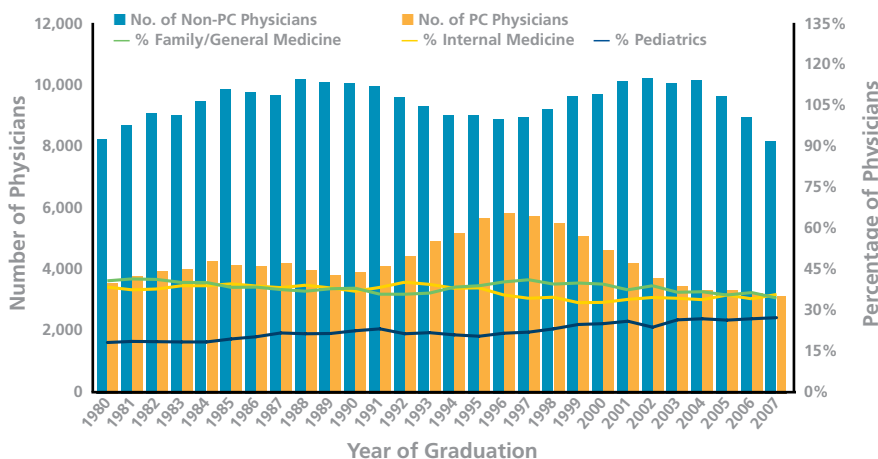
#### Methods

The study population consists of individuals who were listed in the 2015 AMA Physician Masterfile as direct patient care physicians practicing in one of the following specialties: Adolescent Medicine, Family Medicine, Geriatric Medicine, General Practice, Internal Medicine, Internal Medicine/Family Practice, Internal Medicine/Pediatrics, and Pediatrics. The population was

limited to those individuals who had received an MD degree from an LCME-accredited U.S. medical school between 1980 and 2007.<sup>b</sup> Data were derived from three data sources in the AAMC data warehouse: the Student File (for graduates), the Applicant and Matriculant file (for race and ethnicity information), and the AMA master file (for practice specialty and type of practice).<sup>c</sup>

From 1980 to 2007, U.S. medical schools produced 441,912 graduates. These records were merged with the 2015 AMA Physician Masterfile physician data. There, 98.5 percent (435,146) of graduates had a matching record and 89.2 percent (388,222) were active physicians in direct patient care. Of those active physicians, 121,127 (31.2 percent) had primary care specialties. This study focused solely on this subset of primary care physicians.

**Figure 1. Numbers of U.S. MD 1980-2007 Graduates in Primary Care and Nonprimary Care (bars) vs. Percentages of Primary Care Graduates by Subcategories (lines)**



Source: AAMC Data Warehouse: Student file, Applicant and Matriculant file as of 8/20/2015; AMA Physician Masterfile as of 12/31/2014.

Note: Primary Care = PC; Nonprimary Care = Non-PC.

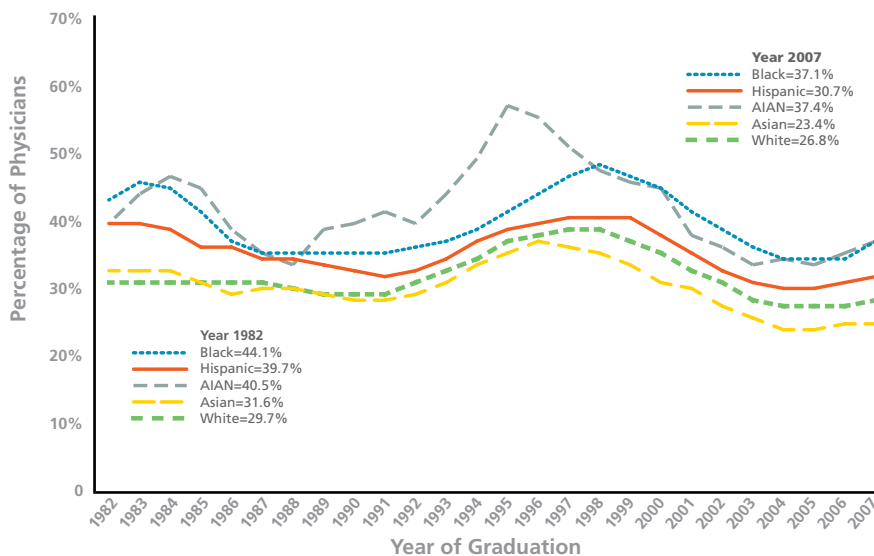
To evaluate changes in the size and composition of the U.S.-trained MD physicians who are in primary care specialties, three trends are presented. The first depicts the numbers of primary care and nonprimary care physicians and the percentages of those physicians who are in specialty subgroups within primary care; the second describes the number and percentage changes by gender in primary care; and the third details the trend of primary care by each racial and ethnic group.

#### Results

From 1980 to 1992, the annual number of MD physicians who graduated from medical schools and went on to practice primary care was around 4,000 (Figure 1). Between 1993 and 1999, there was an increase in primary care physicians.

a. For a full list of references, see Supplemental Information.  
 b. The 1980–2007 graduation years were selected because substantial numbers of recent medical graduates are still in residency training.  
 c. Student file data was derived from Student Record System, a system tracking student progress from matriculation through graduation. Applicant and Matriculant file data came from American Medical College Application Service, to which medical school applicants provide their biographical information. The AMA Physician Masterfile is a database with information about all physicians in the United States, Puerto Rico, the Virgin Islands, and some Pacific Islands.

**Figure 2. Percentage of U.S. MD 1982-2007 Graduates in Primary Care by Race and Ethnicity\***



\* Note: A 3-year moving average was used because of the variability in the AIAN group, whose data size was small. Source: AAMC Data Warehouse: Student file, Applicant and Matriculant file as of 8/21/2015; AMA Physician Masterfile as of 12/31/2014.

However, in 2002 the trend began to decline, and the annual numbers dropped below 4,000 between 2003 and 2007. Looking at specialty subgroups within primary care, pediatrics had the lowest percentage at approximately 19 percent from 1980 to 1984, but that percentage steadily increased from 1985 to 2007. The trend of general internal and family/general medicine plateaued in terms of their numbers, though their respective percentages decreased from 1980 to 2007.

In terms of gender, 73.2 percent of physicians who practiced primary care and graduated in 1980 were men and 26.8 percent were women (See Supplemental Figure). However, the gap has gradually narrowed. For physicians who graduated in 1996, women comprised the larger percent of primary care physicians. Since then this trend has continued, even while the overall numbers of primary care physicians for both men and women are decreasing.

Findings also show that although the trend has fluctuated, racial and ethnic minority physicians are more consistently practicing primary care than their Asian and white physician counterparts (Figure 2). On average, 41.6 percent of black or African American, 36.5 percent of Hispanic or Latino, and 44.0 percent of American Indian or Alaska Native

(AIAN) physicians who graduated between 1980 and 2007 were in primary care. During the same period, 30.3 percent of Asian and 32.3 percent of white physicians who graduated practiced primary care.

The proportion of racial and ethnic minority physicians in primary care has noticeably changed. The total percentage of black or African American, Hispanic or Latino, and American Indian or Alaska Native primary care physicians who graduated in 1980 was 10 percent, but it climbed to 17.4 percent by 2007.

### Discussion

From 1993 to 1999, there was an increase in numbers of MD physicians in primary care, likely resulting from the early 1990s expansion of managed care advocated by health maintenance organizations.<sup>a(9, 10)</sup> The findings from this analysis indicate that racial and ethnic minority physicians consistently tend to practice primary care compared with their non-minority counterparts. Previous research studies have also shown that racial and ethnic minority physicians are more likely to practice primary care and that an association between overall racial and ethnic composition and specialty selection exists.<sup>a(11)</sup> The trend presented in this *AIB* also shows that there was an impressive change in the proportion of

race and ethnicity practicing primary care. However, the production of black, AIAN, and Hispanic physicians has not kept abreast with the pace of diversity in the U.S. population. Moreover, 28.2 percentage points more women entered primary care than men did in 2007. However, the trend also exposes that the number of graduates in primary care in recent years has been declining.

One limitation of this work is that it makes inferences about differences in career outcomes by cohort when looking at a snapshot in time. Further, this study covers the MD primary care physicians who graduated from U.S. medical schools, only reflecting one aspect of the suppliers of primary care. Future research is needed to understand more fully these issues and the implications for the workforce. That said, as demand for physicians continues to grow faster than supply, by 2025, research forecasts suggest there will be a shortfall of between 12,500 and 31,100 primary care physicians.<sup>a(2)</sup> Myriad factors could help address the physician shortage issue, but one factor suggested by this analysis is relative to the supply of primary care physicians: the group of racial and ethnic medical school graduates. Minority medical school students have been shown as major contributors to the primary care physician workforce in the United States.<sup>a(12)</sup> Therefore, if more minority students are enrolled in medicine, it will hold significance for the supply of primary care physicians.

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