

Running the Numbers

*A Periodic Feature to Inform North Carolina Health Care Professionals
About Current Topics in Health Statistics*

Does North Carolina's Health Care Workforce Reflect the Diversity of the State's Population?

In 2002, the National Academy of Medicine released the report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, which highlighted disparities in health services received by racial and ethnic minorities in the United States and called for strategies to increase the proportion of underrepresented minorities in the health care workforce [1]. Since then, attention has focused on diversifying the health care workforce to improve patient outcomes, reduce disparities, and ensure equity in opportunity to enter the health care workforce [2-5]. Despite these efforts, health workforce diversity continues to lag behind the diversity of the population. Data released by the Association of American Medical Colleges showed that 2015 set a new record for the largest number of students enrolled in medical school [6], yet fewer black males entered medical school in 2015 than in 1978 [7].

This column provides an overview of how the racial and ethnic diversity of North Carolina's population compares to that of its health professionals, particularly physicians.

Methods

This analysis draws on data from the North Carolina Health Professions Data System (HPDS). The HPDS contains annual licensure data from 1979 through 2014 for 19 different health professions in the state. Data are derived annually from each of 12 North Carolina health professions licensure boards and include all licensed health professionals who are actively practicing in the state as of October 31st of each year. Data are collected during initial licensure or reregistration and include self-reported information about practitioners' demographic characteristics, practice location, specialty, and education. Physician data in this report do not include residents in training or physicians employed by the federal government.

The percent of health professionals for whom data on race were missing in 2014 ranged from a low of 0.0% (n = 4 of 10,546) for pharmacists to a high of 7.8% (n = 418 of 5,380) for dental hygienists, with an average of 2.4% for all professions included in the study. Providers with missing race data were excluded from these analyses. Race categories vary among health professions boards, so categories were aggregated to allow for comparison between professions. This report also used population data estimates from the US Census Bureau.

Results

How Well Are Different Races and Ethnicities Represented Across North Carolina's Health Professions?

Whites comprised 64.4% of North Carolina's population in 2014 and were overrepresented in every health profession, from a low of 66.5% among licensed practical nurses (LPNs) to a high of 92.6% in the dental hygienist workforce. With the exception of LPNs and physicians, white providers made up more than 80% of licensed health professionals analyzed in this report. Data for white providers are not shown in order to better highlight gaps in parity.

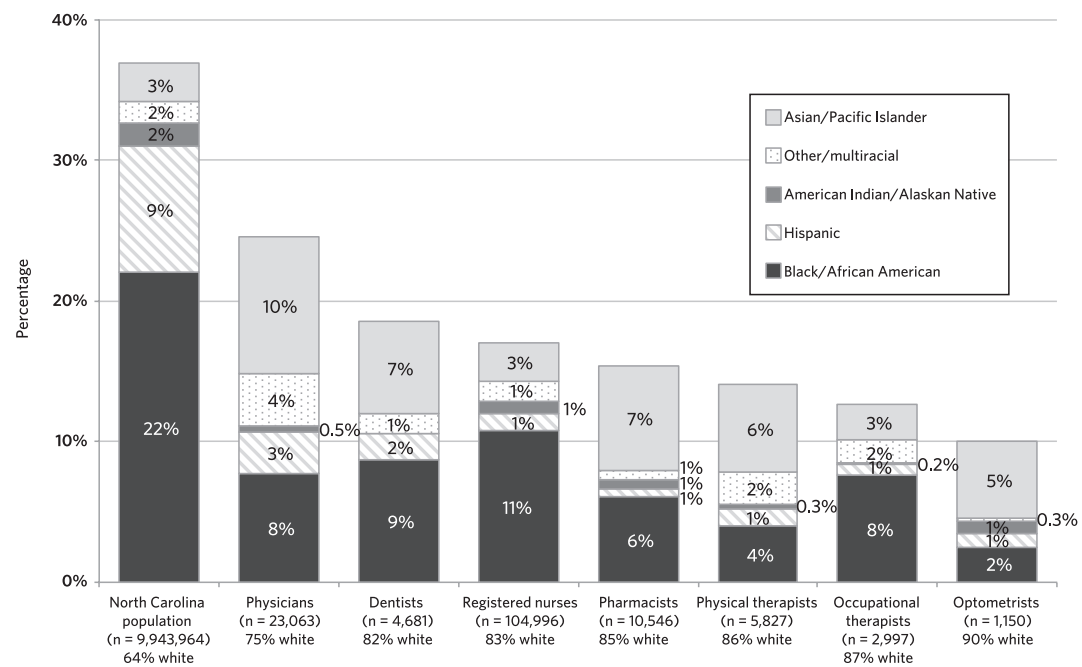
Asians comprise a relatively small percentage (2.7%) of North Carolina's total population (see Figure 1). In 2014, Asians tended to be underrepresented (at about 1%) in professions in which the baseline degree is a diploma or an associate's degree (eg, LPNs, occupational therapy assistants, and physical therapy assistants). In contrast,

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Address correspondence to Ms. Julie C. Spero, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, 725 Martin Luther King Blvd, CB# 7590, Chapel Hill, NC 27599 (juliespero@unc.edu).

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FIGURE 1.
Diversity of the State Population and Selected Health Professions, North Carolina, 2014



Sources: North Carolina Health Professions Data System, with data derived from the North Carolina Medical Board, North Carolina State Board of Dental Examiners, North Carolina Board of Nursing, North Carolina Board of Pharmacy, North Carolina Board of Physical Therapy Examiners, North Carolina Board of Occupational Therapy, and North Carolina Board of Optometry. Data include actively licensed health professionals practicing in North Carolina as of October 31, 2014; in the case of physicians only, data do not include residents in training or federal government employees. Providers with missing race data were excluded from this analysis. Population data were derived from the US Census Bureau 2014 State and County QuickFacts [9].

Asians are overrepresented in professions requiring a doctoral degree. Asians make up 9.7% of physicians, 6.5% of dentists, 7.4% of pharmacists, 6.2% of physical therapists, and 5.4% of optometrists. The exception to this trend occurs among psychologists, of whom just 0.5% identify as Asian.

American Indians and Alaskan Natives (collectively termed “American Indians” for the remainder of this article) also comprise a small percentage (1.6%) of North Carolina’s total population. In 2014, American Indians were underrepresented in all the professions tracked in the HPDS except for respiratory therapists (2.0%), certified nurse midwives (2.0%), and LPNs (1.6%). American Indians made up 1.2% of the nurse practitioner (NP) workforce but comprised less than 1% of all other health professions.

North Carolina’s Hispanic population has increased rapidly over the past quarter century, from 1.2% of the population in 1990 [8] to 9.0% of the population in 2014 [9]. However, the growth of Hispanic health professionals has not kept pace.

Part of the reason for this lack of parity is the relatively young age of Hispanics in North Carolina. The median age of North Carolina’s total population is 38.3 years, while the median age of North Carolina’s Hispanic population is 24.5 years [9]. Thus, half of North Carolina’s Hispanic population is too young to have fulfilled the educational and training requirements for many health professions. Nevertheless, Hispanics are still underrepresented in the health workforce given the demographics of North Carolina. Hispanic health professionals are most well represented among physicians (2.9%), physician assistants (2.7%), and dentists (1.8%).

Unlike the Hispanic population, which has grown rapidly, the proportion of North Carolinians identifying as black has remained stable (at about 22%) over the past 25 years [8, 9]. Although slightly overrepresented in the LPN workforce (27%), blacks are dramatically underrepresented in all other professions, ranging from 12.5% in the respiratory therapist workforce to 2.5% in the optometrist workforce. North Carolina’s data reflect national

trends showing that black providers are underrepresented across a variety of health fields [5].

Despite the low numbers of North Carolina providers who identify as American Indian, black, or Hispanic, longitudinal data indicate that the state's health workforce has diversified over time (see Figure 2). In some professions (eg, registered nurses and dental hygienists), diversification occurred steadily over the study period, while other professions have seen rapid increases in diversity during particular periods. For example, the uptick in NP diversity between 2009 and 2014 was due to a rapid gain in providers identifying as black, with an increase of 130% over this 5-year period (from 216 to 497). Although the NP workforce still falls short of parity with the demographics of North Carolina's population, the diversification trends are encouraging.

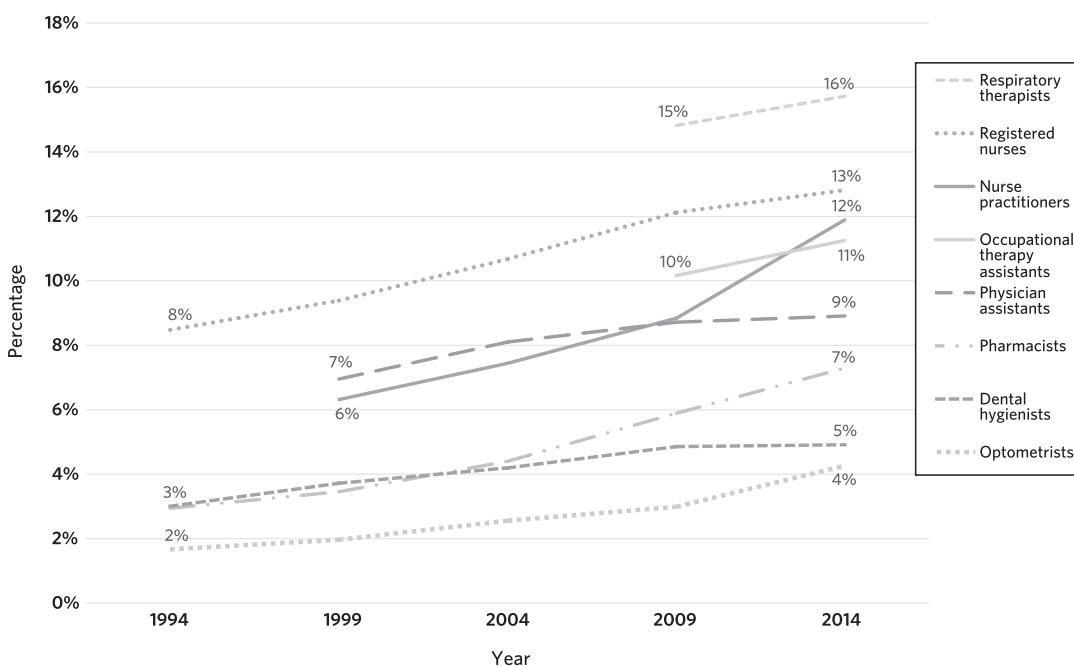
Slower Growth Among Black Male Physicians

In North Carolina, physicians are one of the more diverse health professions. Much of this diversity is

driven by international medical graduates—physicians who practice in North Carolina but who attended medical school outside of the United States. Figure 3 presents a series of charts that examine the growth in the diversity of this workforce over time for male and female physicians; this figure also shows age and sex pyramids by race for 2014. Because white physicians comprise such a large proportion of the physician workforce compared to black, Asian, and Hispanic physicians, it was not possible to use the same scale for all race/ethnicity groups, so readers are advised to attend to the overall trends illustrated in the graphic.

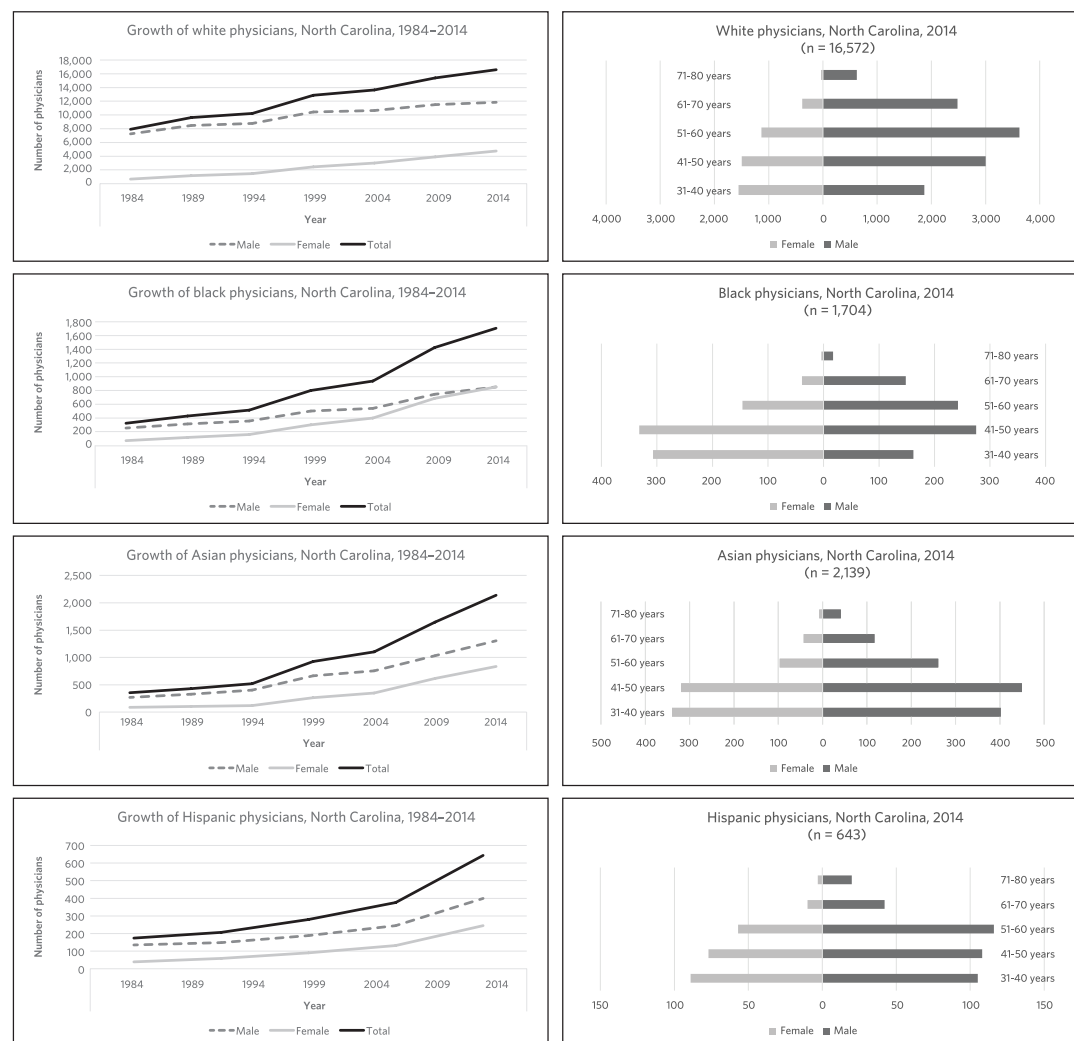
Longitudinal data demonstrate that physician growth patterns in North Carolina have varied by both race and sex. For white physicians, who comprise nearly three-quarters of the state's physician workforce, the growth rate has remained fairly steady. White males make up 51.3% (n = 11,831) of the total physician workforce, and the gender gap between white male and white female physicians remains large (71.4% male). The Asian and

FIGURE 2. Percent of Workforce Identifying as American Indian, Black, or Hispanic for Selected Health Professions, North Carolina, 1994-2014



Source: North Carolina Health Professions Data System, with data derived from the North Carolina State Board of Dental Examiners, North Carolina Medical Board, North Carolina Board of Nursing, North Carolina Board of Occupational Therapy, North Carolina Board of Optometry, North Carolina Board of Pharmacy, and North Carolina Respiratory Care Board. Data include actively licensed health professionals practicing in North Carolina as of October 31st of each year; in the case of physicians only, data do not include residents in training or federal government employees. Providers with missing race data were excluded from this analysis.

FIGURE 3.
Physician Growth Trends and Population Pyramids by Race and Sex, North Carolina



Source: North Carolina Health Professions Data System, with data derived from the North Carolina Medical Board. Data include actively licensed physicians practicing in North Carolina as of October 31st of each year and do not include residents in training or federal government employees. Physicians with missing race data were excluded from this analysis.

Hispanic physician workforces show somewhat greater gender equality; 62% (n = 1,304) of North Carolina’s Asian physicians are male, as are 61% (n = 399) of North Carolina’s Hispanic physicians. Across all 4 race/ethnicity groups, female physicians are younger, on average, than are male physicians.

In 2014, North Carolina’s black physicians were evenly split by sex, at 50.1% (n = 853) male. Historically, there were more black males in the North Carolina physician workforce than black females. However, while the number of black female physicians in North Carolina experienced

the same uptick as did the numbers of male and female Asian and Hispanic physicians, growth of black male physicians was slower. These data suggest that North Carolina’s experience aligns with national trends, which show a decline in the number of black males enrolling in medical school [7].

Roughly 24% (n = 202) of black male physicians practicing in North Carolina in 2014 reported graduating from a North Carolina medical school: 11.0% (n = 94) attended the University of North Carolina, 5.7% (n = 49) attended East Carolina University, 3.8% (n = 32) attended Wake Forest University, and 3.2% (n = 27) attended Duke

University. Nearly 21% (n = 178) graduated from a medical school outside of the United States. A slightly higher percentage of black female physicians practicing in North Carolina in 2014 (28.3%; n = 241) graduated from a North Carolina medical school: 14.5% (n = 123) from the University of North Carolina, 6.2% (n = 53) from East Carolina University, 4.7% (n = 40) from Wake Forest University, and 2.9% (n = 25) from Duke University. Just 10.0% (n = 85) reported graduating from a foreign medical school.

Conclusions and Policy Implications

The underrepresentation of American Indians, blacks, and Hispanics in North Carolina's health care workforce suggests a lack of equity in opportunity to enter the health professions. The positive news from these analyses is that all of the health professions have become more diverse over the past 15 years. It may be worthwhile for professions that have diversified more slowly to examine the workforce pipeline and recruitment practices of professions that have diversified more rapidly.

The large percentage of Hispanics in North Carolina's population compared to the relative dearth of Hispanic health care providers raises concerns about cultural competency and communication during provision of health services, particularly for Spanish-speaking patients. Also of particular concern is the low proportion of black males (3.8% of the workforce) practicing medicine in North Carolina. Despite active engagement in this issue from multiple organizations [10-12], growth of black male physicians has not kept pace with what would be expected based on the state's population. Furthermore, while one-quarter of black male physicians practicing in North Carolina in 2014 graduated from a North Carolina medical school, 1 in 5 graduated from a foreign medical school; this suggests that a large driver of diversification in this demographic has been recruitment from other states and countries, rather than expanded opportunities for local and regional talent.

Improving diversity is a long process that will require intervention at multiple points along a health professional's career path, from early education and pipeline programs to recruitment of diverse health care faculty. Initiatives to improve cultural competency training for all providers in the workforce, as well as ensuring that health professionals have access to translation services for

patients who speak other languages, may help in reducing disparities for patients from diverse backgrounds. **NCMJ**

Julie C. Spero, MSPH research associate, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

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References

1. Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: National Academies Press; 2002.
2. Sullivan Commission on Diversity in the Healthcare Workforce. *Missing Persons: Minorities in the Health Professions*. Alexandria, VA: The Sullivan Alliance to Transform the Health Professions; 2004.
3. Saha S, Shipman SA. *A Rationale for Diversity in the Health Professions: A Review of the Evidence*. Rockville, MD: US Dept of Health & Human Services; 2006.
4. Smedley BD, Butler AS, Bristow LR, eds. *In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce*. Washington, DC: National Academies Press; 2004.
5. National Center for Health Workforce Analysis. *Sex, Race, and Ethnic Diversity of U.S. Health Occupations (2010-2012)*. Rockville, MD: US Dept of Health & Human Services; 2015.
6. Medical school applicants, enrollees reach new highs [press release]. Washington, DC: Association of American Medical Colleges; October 22, 2015. <https://www.aamc.org/newsroom/newsreleases/446400/applicant-and-enrollment-data.html>. Accessed December 3, 2015.
7. Association of American Medical Colleges. *Altering the Course: Black Males in Medicine*. Washington, DC: Association of American Medical Colleges; 2015. https://www.aamc.org/download/439660/data/20150803_alteringthecourse.pdf. Accessed December 3, 2015.
8. United States Census Bureau. 1990 Census of Population and Housing, Public Law 94-171 Data (Official) Age by Race and Hispanic Origin, North Carolina. United States Census Bureau website. <http://censtats.census.gov/cgi-bin/pl94/pl94data.pl>. Accessed November 25, 2015.
9. United States Census Bureau. 2014 State and County QuickFacts. United States Census Bureau website. <http://quickfacts.census.gov/qfd/states/37000.html>. Accessed November 25, 2015.
10. North Carolina Area Health Education Centers (AHEC). *Health careers/workforce diversity*. North Carolina AHEC website. <https://www.med.unc.edu/ahec/community/diversity.htm>. Accessed December 12, 2015.
11. Eastern Area Health Education Center (AHEC). *Health careers and workforce diversity*. Eastern AHEC website. http://eahec.ecu.edu/health_careers.cfm. Accessed December 12, 2015.
12. Office of Special Programs. *About the MED Program*. UNC School of Medicine website. <https://www.med.unc.edu/medprogram/med-program>. Accessed December 12, 2015.