
A Census of Actively Licensed Physicians in the United States, 2014

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ABSTRACT: Marked changes have occurred in health care delivery in the United States with the implementation of the Affordable Care Act (ACA), including the advancement of integrated health systems, the introduction of patient centered medical homes and the creation of accountable care organizations. With millions of Americans newly insured, never has there been a more pressing need for accurate physician workforce information and planning. Opinions vary about the nature and degree of anticipated physician shortages, and health care workforce determinations are fraught with variables and uncertainties that are challenging to address definitively. Identifying accurate information about the nation's currently licensed physician workforce, however, is an important starting point.

This article reviews data received in 2014 by the Federation of State Medical Boards from the nation's state medical and osteopathic boards about the current supply of actively licensed physicians in the United States and the District of Columbia. Our census data demonstrates the total population of licensed physicians (916,264) has increased by 4% since 2012, and the nation, on average, added 12,168 more licensed physicians annually than it lost. The average physician is now older (by a year), predominantly male (but increasingly female at entry level) and increasingly a graduate of a medical school in the Caribbean. Meanwhile, the percentage of physicians with a single state medical license has remained constant at 79%.

Keywords: Physician Workforce, Medical Licensure Data, Physician Supply Estimates, Health Workforce Planning

Introduction

Since the beginning of this millennium, there have been persistent concerns about a worsening shortage of physicians in the United States and its impact on the nation's health care needs. U.S. health care reform proposals beginning in 2008 highlighted the issue further as anticipation of a surge in health care demand led to anxiety about how the nation should adequately prepare for, and adjust where possible, health care supply.

With the adoption of the Affordable Care Act (ACA), an estimated 20 million Americans have gained health insurance coverage from 2010 to 2015, including eight million who have enrolled through individual state or federal marketplaces, six million who have enrolled in Medicaid or the Children's Health Insurance Program, five million who have purchased plans directly from a private health insurer and one million young adults between 19 to 25 years of age who are now covered under a parent's policy. It is projected that by 2017, the number of uninsured people in the U.S. will decrease by more than 26 million individuals as a result of the ACA.¹

A marked increase in health care demand as a result of millions of newly insured individuals is likely to place added stress on patients seeking care and the health care providers and systems available to them. The aging of the general population is an additional stressor to the U.S. health care system. According to U.S. Census Bureau projections, the number of individuals who are 65 years and older is expected to more than double in size from 43 million to 92 million between 2012 and 2060.² As a result, physician specialties that cater to predominately older populations, such as geriatrics, cardiology and other internal medicine specialties, are all expected to face increased demand in the near and distant future.

The primary source for new physician supply in the United States, the nation's medical schools, has been trying to keep pace with health care demands by gradually increasing the number of first-year enrolled U.S. medical school students at an average annual rate of approximately 2% since 2002.³ Supporting greater increases in physician supply requires an understanding of the competitive, costly, demanding and lengthy training regimen required of physicians, from their point of entry at

medical school to the time when they complete their training and become licensed physicians able to treat patients without supervision.

The entry of individuals into the physician pipeline follows two parallel paths, one for those who graduate from U.S. allopathic (MD) or osteopathic (DO) medical school programs and the other for those who are International Medical Graduates (IMGs). Both pathways require medical students and graduates to pass multi-step licensure examinations, such as the United States Medical Licensing Examination (USMLE) or the Comprehensive Osteopathic Medical Licensing Examination (COMLEX-USA), and completion of one or more years of an accredited graduate medical education (GME) program as required by a specific jurisdiction.⁴ Across the period of time representing the continuum of medical education, from baccalaureate to graduate medical education, it typically takes more than nine years after entering college to successfully become a licensed physician in the United States.⁵

Anticipation of a physician shortage is a topic of continuing concern among many stakeholders, including health policymakers, academic medical communities and public health researchers. Yet the complexity, uncertainty and dynamic changes that are happening in the nation's health care system (i.e., more integrated health systems, patient-centered medical

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homes, team-based care, accountable care organizations, etc.) make it difficult to accurately model the appropriate balance of physician supply and demand. This is why, in part, research groups have reported different projected physician workforce numbers. Conservative estimates predict physician shortages of less than 50,000 by 2020,⁶ while less optimistic estimates project a future gap upwards of 159,300 full-time equivalents (FTEs) by 2025.^{7,8} A recent projection estimate reported by the Association of American Medical Colleges (AAMC) was updated to include a shortfall of between 46,100 and 90,400 physicians by 2025, using 2013 as a baseline.⁹ The Institute of Medicine, meanwhile, reports a physician shortage only in rural and underserved areas in the United States in the years ahead but not overall.¹⁰ The large variation stems from the use of different

calculation models as well as different demand estimates and baseline numbers of physician supply. As pointed out by Staiger and colleagues, it is challenging to predict the physician workforce due to the uncertainties about estimates from the past as well as assumptions about the future.⁸

Having an accurate baseline estimate of the current physician supply, however, is a fundamental starting point for any understanding of physician workforce planning. An important indicator of future physician availability is the annual number of first-time licensed physicians entering the workforce, a number that reflects an inflow into the health care workforce that can be accurately charted over time. Simultaneously, there exists an outflow of physicians due to job changes, disability, retirement or death. A regularly issued census of actively licensed physicians that includes first-time licensed physicians and excludes physicians who are no longer actively licensed provides a valuable resource and offers multiple insights for health policy planners. As with the two previous physician censuses, in 2010¹¹ and 2012,¹² the Federation of State Medical Boards (FSMB) continues to contribute to this broader conversation by providing such information. Results from the present census serve as a resource for state and federal policymakers, state medical and osteopathic boards and researchers who are interested in health care workforce assessments, predictions and planning.

This article provides a summary, analysis and discussion of the most recent physician licensure data, collected in 2014 by the FSMB from information provided by each of the state medical and osteopathic boards in the United States and the District of Columbia. As in previous years, this work offers a useful snapshot of the current physician workforce, suggesting trends over time that may benefit many different stakeholders.

Methodology

The FSMB maintains a comprehensive, central repository of data from every state medical and osteopathic board involved with the licensing and discipline of physicians in the United States. The database contains comprehensive biographical, educational and disciplinary information about every licensed allopathic and osteopathic physician. The repository is unique in that it is the only national database containing the most current information from U.S. state and territorial jurisdictions that have granted physicians a license, or renewal of a license, to practice medicine in this country. The FSMB's database, known as the Physician Data

Center (PDC) and first developed in 2004, is continuously updated and contains more than 1.8 million physician records, including information about physicians who are currently licensed, no longer licensed or deceased. To obtain an accurate count and precise information about physicians possessing an active, current license to practice medicine, we conducted a census using the most recent data received by the PDC during the 2014 calendar year.

Licensure data is continuously provided throughout the year to the PDC by the 51 state and territorial medical boards that regulate both allopathic and osteopathic physicians and the 14 state osteopathic boards that only regulate osteopathic physicians in the United States and the District of Columbia. State licensing boards are specifically authorized by each of their Medical Practice Acts to license and discipline physicians. Four additional territorial medical boards (Guam, U.S. Virgin Islands, Commonwealth of Northern Mariana Islands and Puerto Rico) are also member boards of the FSMB but their physician data was excluded from the analysis (as it was in 2010 and 2012) because current data from these jurisdictions was not available. Because of differing capacities and resources, state boards submit information to the PDC at varying intervals throughout the year. The majority (93%) of state boards electronically provide medical licensure information to the PDC on a monthly or quarterly basis, with some boards providing data weekly or even daily (e.g., Alaska State Medical Board, Iowa Board of Medicine, Maine Board of Licensure in Medicine, Maryland Board of Physicians, Minnesota Board of Medical Practice, New York State Board for Medicine, Oklahoma State Board of Medical Licensure and Supervision and Vermont Board of Medical Practice).

A physician record in the PDC is typically initiated when a U.S. medical school student or an International Medical Graduate (IMG) registers to take the United States Medical Licensing Examination (USMLE), an assessment program created in 1992 that is co-sponsored by the Federation of State Medical Boards and the National Board of Medical Examiners and required of U.S. allopathic and IMG physicians for licensure eligibility determination by state medical boards. For U.S. osteopathic medical students who do not register for the USMLE* and for all physicians who were first licensed prior to the introduction of the USMLE and the Comprehensive Osteopathic Medical Licensure Examination (COMLEX-USA) in the early 1990s, licensure files

from state boards serve as the initial PDC record and as the primary source for a physician's record of successful completion of a licensure examination, which may include older assessments like the examinations of the National Board of Medical Examiners (NBME) or the National Board of Osteopathic Medical Examiners (NBOME) or the FSMB's Federation Licensing Examination (FLEX).

When the PDC receives additional physician data, such as disciplinary information or reports of additional state medical licenses having been acquired, each record is matched to a master physician identity table using a set of algorithms developed by the FSMB. To assure accurate physician identity matching, five data elements are used, including name, date of birth, the last four digits of the social security number, medical school name and medical school graduation year. If there is a physician-record match by name and at least two additional data elements, the information is automatically entered. When there are fewer than two additional data elements that match, the information is sent to the FSMB's Data Integration Department for manual review and matching. More than 95% of physician records received in files from state boards are typically matched automatically. This process enables tracking of physicians across multiple jurisdictions throughout their careers.

Though physicians in the United States are not licensed based on their specialty or practice focus, and specialty board certification is not an absolute requirement for medical licensure, the PDC receives and supplements licensure data provided by state boards with specialty and subspecialty certification information from the American Board of Medical Specialties (ABMS).** The ABMS represents 24 independent specialty boards that certify physicians in more than 145 specialties and subspecialties of medicine and surgery.^{1,3} Deceased physicians are also identified and flagged in the PDC by cross-referencing physician records with the Death Master File of the Social Security Administration (SSA), a federal database that contains more than 83 million records of reported deaths.

* Doctors of Osteopathic Medicine (D.O.) usually take the Comprehensive Osteopathic Medical Licensure Examination (COMLEX-USA), offered by the National Board of Osteopathic Medical Examiners and accepted in all states and territories of the United States for licensure eligibility.

** Osteopathic physicians trained in the United States can also obtain specialty certification by the American Osteopathic Association's Bureau of Osteopathic Specialists (AOA-BOS). Information about which osteopathic physicians are certified by the AOA-BOS was not available for this report.

Results

Table 1 summarizes the population and demographic characteristics of actively licensed physicians in the United States and the District of Columbia based on data collected in 2014. According to this data, there are 916,264 physicians with an active license to practice medicine, a net increase of 38,070 physicians (approximately 4%) compared to 2012, when there were 878,194 actively licensed physicians. Between 2012 and 2014, a total of

141,892 new medical licenses were issued by state medical boards, a count that includes those issued for a first license or multiple licenses. More specifically, of the new licenses issued, 50,983 physicians received their first medical license from a state medical board, accounting for 36% of all newly issued licenses. There were 26,647 physicians who were actively licensed in the 2012 census but are no longer actively licensed in 2014. On average over the past two years, the United States added 12,168 more licensed physicians annually than it lost.

Table 1
Population Characteristics

Physicians with an Active License to Practice Medicine in the U.S. and the District of Columbia, 2012 and 2014	2012		2014	
	Counts	Percentages	Counts	Percentages
Total	878,194	100.0%	916,264	100.0%
Degree Type				
Doctor of Medicine (MD)	812,019	92.5%	841,321	91.8%
Doctor of Osteopathic Medicine (DO)	63,045	7.2%	72,961	8.0%
Unknown	3,130	0.4%	1,982	0.2%
Medical School Type				
U.S. and Canadian Graduates (MD or DO)	661,996	75.4%	687,187	75.0%
International Medical Graduates	196,573	22.4%	207,840	22.7%
Unknown	19,625	2.2%	21,237	2.3%
Age				
Less than 30	12,047	1.4%	7,025	0.8%
30–39 years	182,536	20.8%	181,452	19.8%
40–49 years	216,234	24.6%	223,472	24.4%
50–59 years	214,936	24.5%	216,643	23.6%
60–69 years	152,175	17.3%	182,918	20.0%
70+ years	78,794	9.0%	99,554	10.9%
Unknown	21,472	2.4%	5,200	0.6%
Gender				
Male	578,478	65.9%	604,926	66.0%
Female	264,846	30.2%	293,565	32.0%
Unknown	34,870	4.0%	17,773	1.9%
Certified by an ABMS Specialty Board^a				
Yes	671,755	76.5%	724,919	79.1%
No	206,439	23.5%	191,345	20.9%
Number of Active Licenses				
1	688,781	78.4%	720,599	78.6%
2	138,274	15.7%	142,023	15.5%
3 or more	51,139	5.8%	53,642	5.9%

a. The FSMB matched physician license data with ABMS certification data to obtain counts and percentages of physicians with a full and unrestricted license in the U.S. and District of Columbia who also hold one or more active specialty or subspecialty certificates from an ABMS member board. Based on this matching process, counts included in this census may vary from counts reported by the ABMS. ABMS Board Certification counts measure a broader geographic base and additional specialty related degrees. As with all counts and percentages in the 2014 FSMB Census, resident physician licenses were excluded when such licenses could be identified.

Source: 2014 FSMB Census of Licensed Physicians.

As in 2012, the vast majority (92%) of actively licensed physicians in 2014 are allopathic physicians (MDs), while osteopathic physicians (DOs) account for 8% of the actively licensed population. Although there are substantially fewer physicians with a DO

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degree compared to those with an MD degree, the osteopathic medical profession is growing at a faster rate. The number of actively licensed physicians with a DO degree increased by 16% compared to a 4% increase in the number of licensed physicians with an MD degree.

In 2014, 75% of actively licensed physicians are graduates of U.S. or Canadian medical schools, 23% are international medical graduates (IMGs), and for 2% of physicians, the medical school could not be determined because the information was not provided to the PDC. The actively licensed physicians identified in the 2014 census graduated from 1,933 medical schools in 166 countries. Table 2 lists the 10 U.S. allopathic and osteopathic schools with the largest number of graduates who have an active license in the United States and the District of Columbia. The table shows New York Medical College now in the tenth position (up from eleventh in 2012) and the University of Texas Southwestern Medical Center no longer ranked in the top 10. From 2012 to 2014, the number of actively licensed physicians graduating from U.S. or Canadian medical schools increased by 4%, and the number graduating from international medical schools increased by 6%.

Table 2
U.S. Medical Schools and Colleges of Osteopathic Medicine

U.S. Medical Schools and Colleges of Osteopathic Medicine with the Largest Number of Graduates Having an Active License to Practice Medicine in the United States and the District of Columbia, 2014	City and State	Number of Actively Licensed Physicians
Medical School		
Indiana University School of Medicine	Indianapolis, IN	11,105
University of Minnesota Medical School	Minneapolis, MN	10,084
Wayne State University School of Medicine	Detroit, MI	8,929
Ohio State University College of Medicine and Public Health	Columbus, OH	8,913
SUNY Downstate Medical Center	Brooklyn, NY	8,863
Jefferson Medical College of Thomas Jefferson University	Philadelphia, PA	8,607
University of Illinois College of Medicine	Chicago, IL	8,427
University of Michigan Medical School	Ann Arbor, MI	8,082
University of Texas Medical School at Galveston	Galveston, TX	8,036
New York Medical College	Valhalla, NY	7,813
College of Osteopathic Medicine		
Philadelphia College of Osteopathic Medicine	Philadelphia, PA	7,038
Des Moines University Osteopathic Medical Center	Des Moines, IA	6,378
Kansas City University of Medicine and Biosciences	Kansas City, MO	6,033
Kirkville College of Osteopathic Medicine	Kirkville, MO	5,095
NY Institute of Technology College of Osteopathic Medicine	Old Westbury, NY	4,920
Midwestern University, Chicago College of Osteopathic Medicine	Downers Grove, IL	4,862
Western University, College of Osteopathic Medicine of the Pacific	Pomona, CA	3,839
Nova Southeastern University College of Osteopathic Medicine	Fort Lauderdale, FL	3,332
UNT Health Science Center, Texas College of Osteopathic Medicine	Fort Worth, TX	3,289
Oklahoma State University College of Osteopathic Medicine	Tulsa, OK	2,807

Source: 2014 FSMB Census of Licensed Physicians.

Table 3 summarizes the 10 international medical schools with the largest number of graduates who have an active license in the United States and the District of Columbia, a ranking that remained consistent from 2012 to 2014. Also consistent with the 2012 data is the top five countries or regions with the greatest number of IMGs holding an active license. Of the 207,840 actively licensed IMG physicians, most graduated from India (48,377 or 23%), followed by the Caribbean (30,895 or 15%), the Philippines (14,211 or 7%), Pakistan (11,651 or 6%) and Mexico (10,213 or 5%) (Figure 1).

The data highlights a continued and substantial increase in the number of actively licensed physicians who graduated from a medical school in the Caribbean.[†] As illustrated in Figure 2, the 19% increase from 2012 to 2014 was higher than the 14% increase from 2010 to 2012.¹² Caribbean medical school graduates represent nearly 15% of actively licensed IMG physicians in 2014 compared to 13% in 2012. In total, the number of actively licensed physicians who graduated from Caribbean medical schools has increased by 35% since 2010 (Figure 3). More than half (56%) of the actively licensed IMGs from Caribbean medical schools are U.S. citizens (17,425), an increase of 58% since

[†] Medical schools in Puerto Rico and the U.S. Virgin Islands are not included in the listing of graduates from medical schools in the Caribbean because they are territories of the United States and have medical schools that are accredited by the Liaison Committee on Medical Education.

2010 (11,037), compared with a more modest increase of 14% (11,783) for IMGs from Caribbean medical schools who are not U.S. citizens (Figure 3).

The age composition of the actively licensed physician population continues to display a gradual, significant and certain shift from younger to older. The average age for actively licensed physicians in 2014 is 52 years, compared with an average physician age of 51 years in 2012 and 50 years in 2010. The increase in average age can also be seen in Figure 4, where actively licensed physicians who are 60 years of age or older represent the single largest age category of physicians (31%, up from 26% in 2012).

THE DATA HIGHLIGHTS A CONTINUED AND SUBSTANTIAL INCREASE IN THE NUMBER OF ACTIVELY LICENSED PHYSICIANS WHO GRADUATED FROM A MEDICAL SCHOOL IN THE CARIBBEAN.

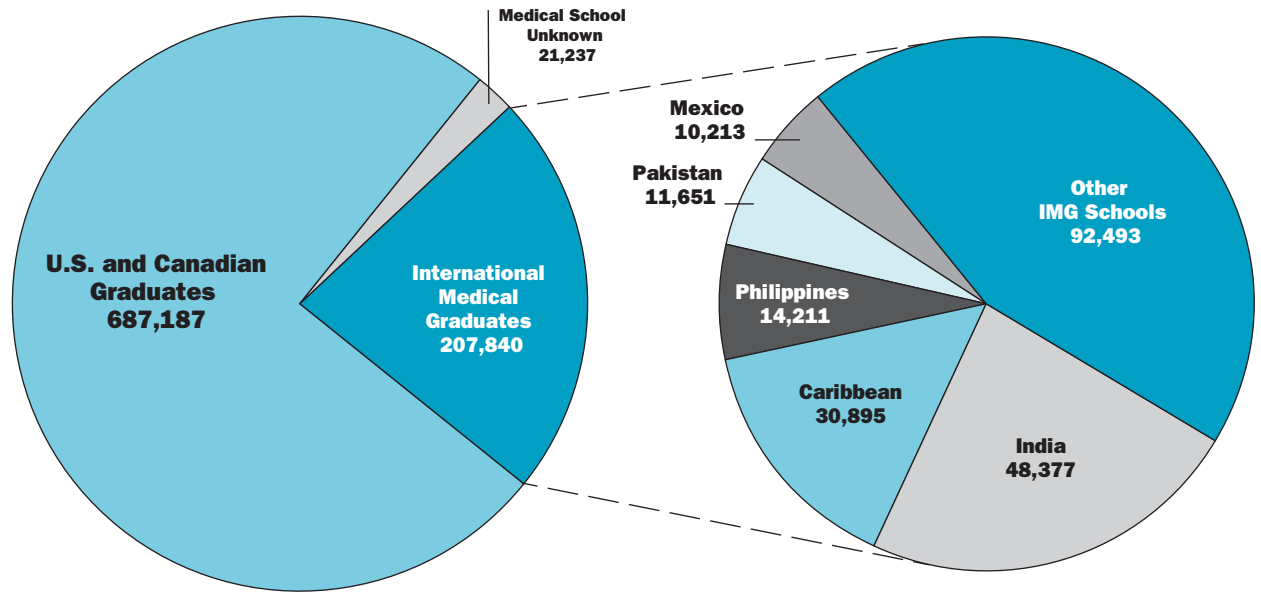
From 2012 to 2014, this older actively licensed physician population (60 years of age and older) increased by 22% compared to 0.3% for the population of physicians who are 49 years of age or younger.

While the nation's physician population is aging on the whole and the total distribution by gender remains static (with males constituting 66% of licensed physicians), some disparities do exist between male and female physicians in different age

Table 3
International Medical Schools

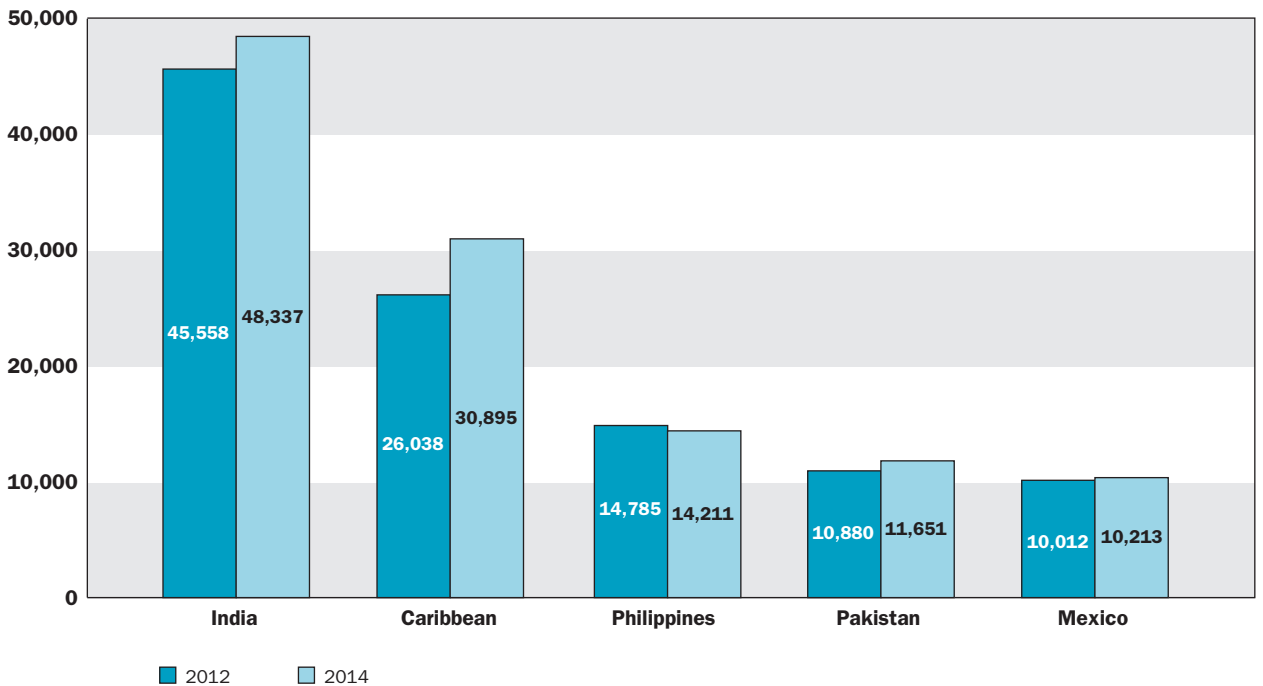
International Medical Schools with the Largest Number of Graduates Having an Active License to Practice Medicine in the United States and the District of Columbia, 2014	Country	Number of Actively Licensed Physicians
International Medical School		
St. Georges University	Grenada	7,780
Ross University	Dominica	7,063
Universidad Autonoma De Guadalajara	Mexico	5,832
University of Santo Tomas	Philippines	4,887
American University of The Caribbean	Saint Maarten	3,839
Dow Medical College, University of Karachi	Pakistan	3,111
University of Damascus	Syria	2,632
University of The East, Ramon Magsaysay Memorial Medical Center	Philippines	2,133
Osmania Medical College	India	2,118
University of the Philippines	Philippines	2,085

Figure 1
Physicians with Active Licenses in the United States and the District of Columbia
by Location of Medical School Graduation, 2014



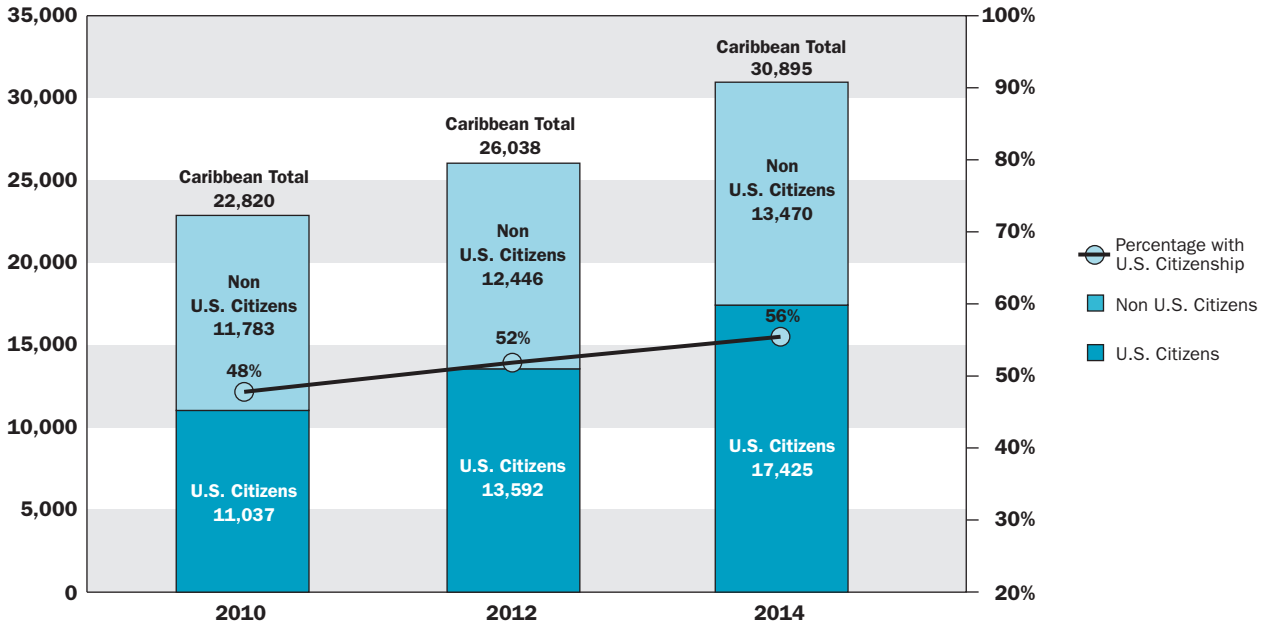
Source: 2014 FSMB Census of Licensed Physicians.

Figure 2
Locations with the Largest Number of International Medical Graduates Actively Licensed in the
United States and the District of Columbia, 2012 and 2014



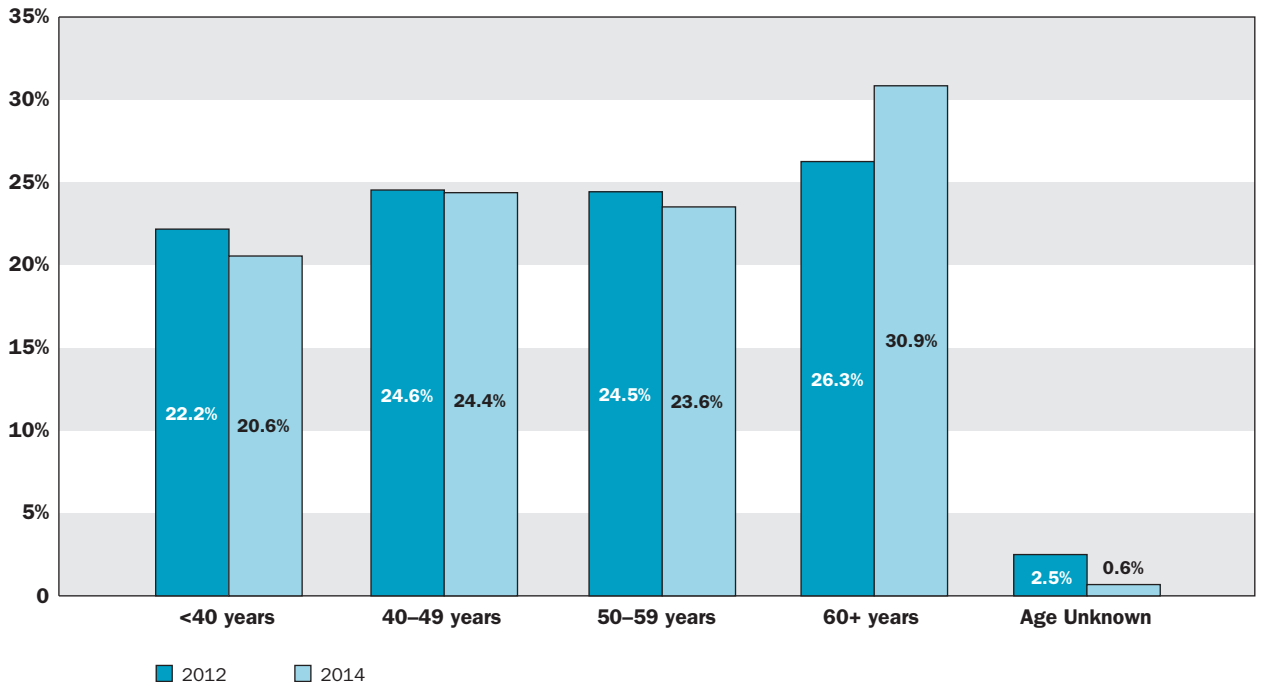
Source: 2014 FSMB Census of Licensed Physicians.

Figure 3
United States Citizenship for Caribbean Medical School Graduates with an Active License in the United States and the District of Columbia



Source: 2014 FSMB Census of Licensed Physicians.

Figure 4
Physicians with an Active License in the United States and the District of Columbia by Age, 2012 and 2014



Source: 2014 FSMB Census of Licensed Physicians.

groups. In 2014, the average age for actively licensed female physicians is 47 years, compared to 55 years for male physicians, a gap of 8 years. From 2012 to 2014, the number of actively licensed physicians who were male increased by 5%, compared to an increase of 11% for female physicians. When looking at further categorizations by age and gender, 30% of female physicians in 2014 are 39 years of age or younger compared with 16% of male physicians. This trend is reversed when looking at older physicians; 37% of male physicians are 60 years of age or older, compared to 16% of female physicians (Figure 5).

According to the 2014 FSMB Census, 79% of actively licensed physicians in the United States and the District of Columbia are certified by an ABMS specialty

board.^{††} Compared with 83% of MDs holding ABMS certification, a much smaller proportion (41%) of DOs are ABMS-certified. Many DOs, however, achieve specialty board certification through the 18 specialty

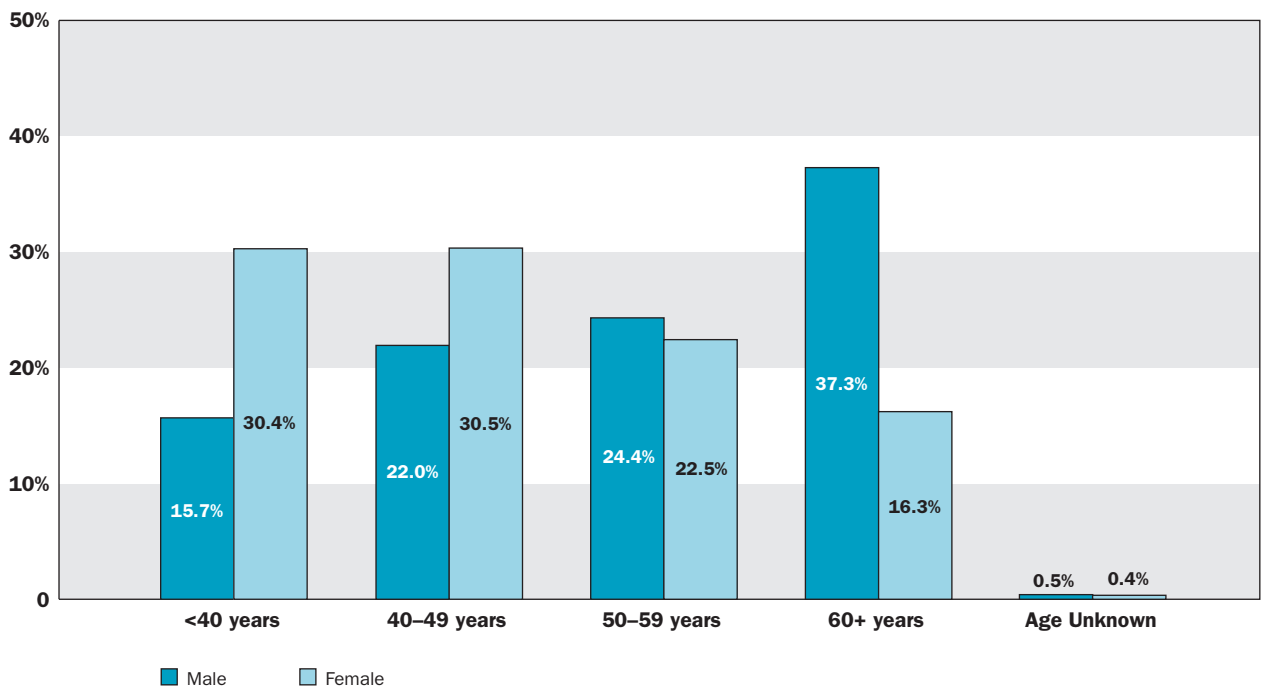
THE AVERAGE AGE FOR ACTIVELY LICENSED PHYSICIANS IN 2014 IS 52.

boards of the American Osteopathic Association's (AOA) Bureau of Osteopathic Specialists. According to the Osteopathic Medical Profession Report published by the AOA in 2013, a total of 26,017 DOs are actively AOA specialty board-certified,¹⁴ which represents about 36% of actively licensed osteopathic physicians in the 2014 census. Assuming all DOs with AOA specialty certifications do not also have ABMS certifications and can be matched to an actively licensed physician record, 77% of the nation's osteopathic physicians are specialty certified by either the ABMS or the AOA, which is close to the percentage of ABMS-certified, allopathic physicians.

Consistent with data from 2012, physicians with an active license who graduated from a U.S. or Canadian medical school have a slightly higher rate of being

†† The FSMB matched physician license data with ABMS certification data to obtain counts and percentages of physicians with a full and unrestricted license in the U.S. and District of Columbia who also hold one or more active specialty or subspecialty certificates from an ABMS member board. Based on this matching process, counts included in this census may vary from counts reported by the ABMS. ABMS Board Certification counts measure a broader geographic base and additional specialty related degrees. As with all counts and percentages in the 2014 FSMB Census, resident physician licenses were excluded when such licenses could be identified.

Figure 5
Physicians with an Active License in the United States and the District of Columbia by Gender and Age, 2014



Source: 2014 FSMB Census of Licensed Physicians.

ABMS-certified (81%) compared to those who graduated from international medical schools (77%). This gap, however, continues to narrow, with a seven percentage point difference in 2010, a five point difference in 2012 and a four point difference in 2014. As demonstrated in Figure 6, the strong and expected relationship between specialty certification and age continues to exist. The percentage of actively licensed physicians with ABMS certifications dramatically increases from 6% for individuals who are less than 30 years old to 70% for those 30 to 39; peaks at 88% for those 40 to 49 and decreases to 69% for physicians 70 years and older.

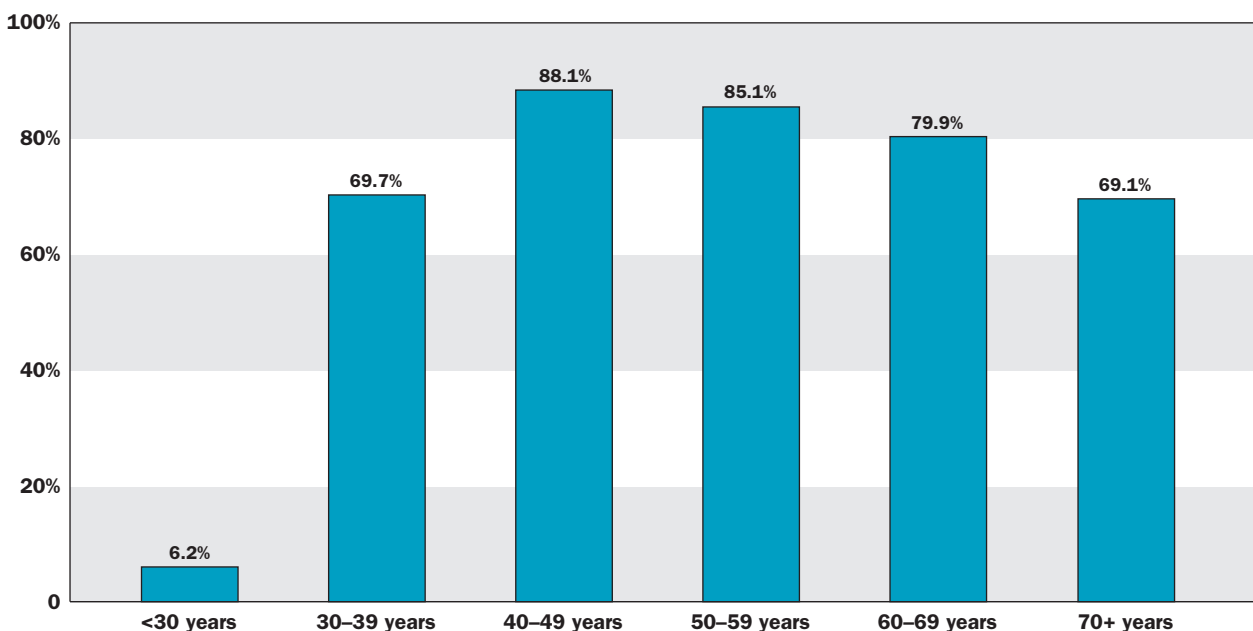
The overall percentage of physicians with multiple active licenses remains relatively static, a surprising finding given advances in technology and interest in telemedicine across state lines. Yet, a closer look at the data shows some differences by ABMS certification status and gender. First, 79% of physicians currently hold one active license, 15% hold two active licenses and 6% hold three or more active licenses, figures essentially unchanged from 2012 (Table 1). Second, 23% of male physicians,

compared with 19% of female physicians, hold more than one license, with a one percentage point decrease for males (24%) and unchanged for females (19%) from 2012. Third, physicians with ABMS certification are more likely to have two or more active licenses (23%) than physicians without ABMS certification (16%), representing a one percentage point decrease for those without ABMS certification (17%) compared to 2012.

Figure 7 shows the nine geographic divisions of the United States by U.S. Census Bureau demarcation, a methodology that is used to illustrate the location of actively licensed physicians in the United States during 2014. As is seen in Figure 8, the largest percent of actively licensed physicians are located in the South Atlantic (19%), followed by the Pacific (17%), Middle Atlantic (16%) and East North Central (15%) regions. Similar to 2010 and 2012, these four divisions accounted for more than two-thirds of the overall population of actively licensed physicians in 2014.

The 2014 state-by-state totals in Table 4 provide additional information about the geographic breakdown of actively licensed physicians in the United States.

Figure 6
Percentage of Physicians with an Active License and ABMS Certification in the United States and the District of Columbia by Age, 2014^a



a. The FSMB matched physician license data with ABMS certification data to obtain counts and percentages of physicians with a full and unrestricted license in the U.S. and District of Columbia who also hold one or more active specialty or subspecialty certificates from an ABMS member board. Based on this matching process, counts included in this census may vary from counts reported by the ABMS. ABMS Board Certification counts measure a broader geographic base and additional specialty related degrees. As with all counts and percentages in the 2014 FSMB Census, resident physician licenses were excluded when such licenses could be identified.

Source: 2014 FSMB Census of Licensed Physicians.

Figure 7
Divisions of the United States; U.S. Census Bureau, 2014

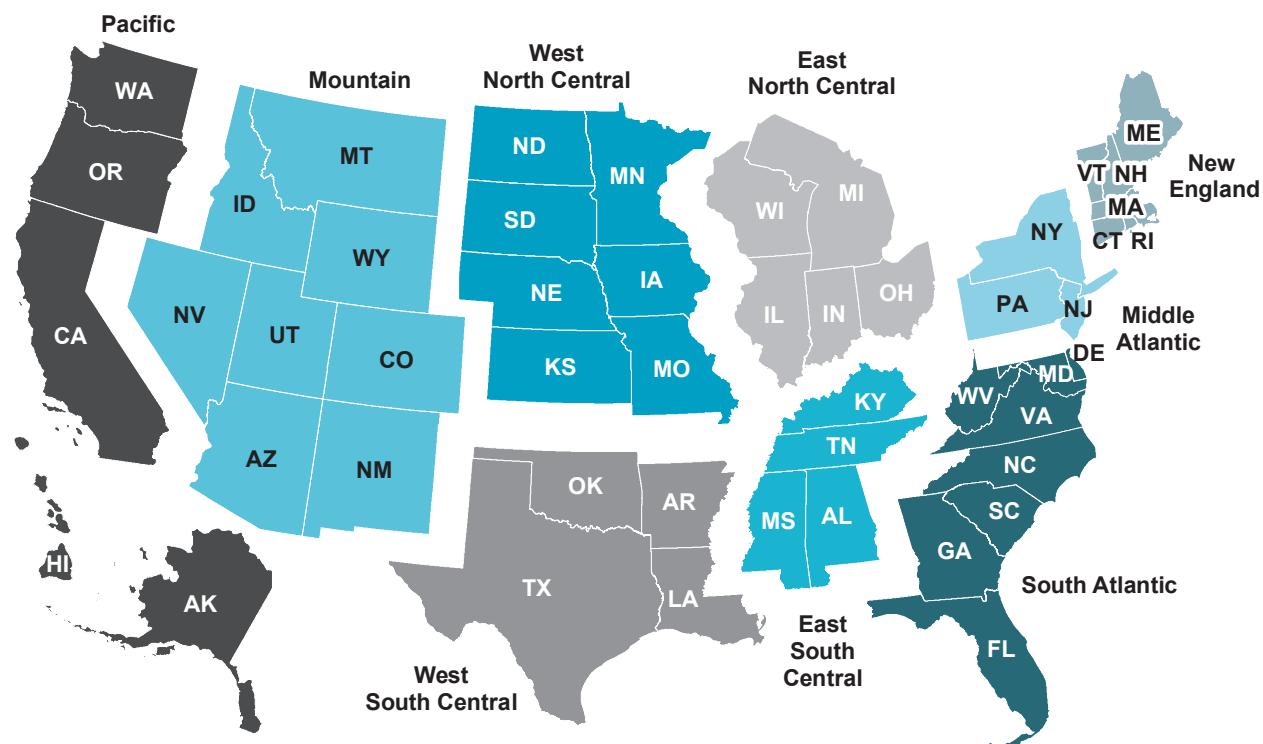
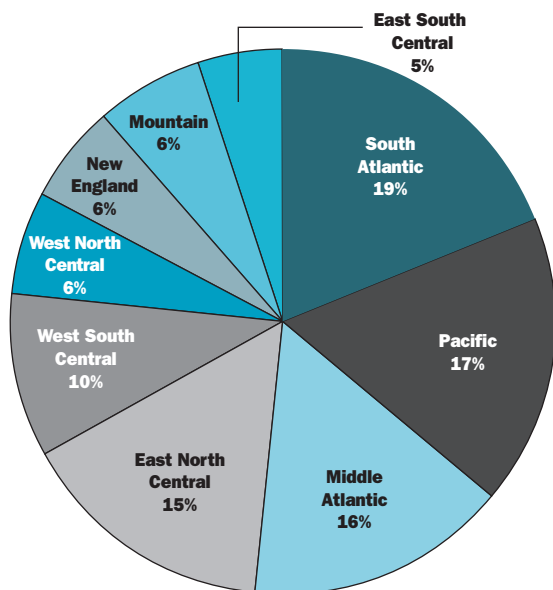


Figure 8
Distribution of Physicians with an Active License in the United States and the District of Columbia by U.S. Census Bureau Division, 2014



Source: 2014 FSMB Census of Licensed Physicians.

The 916,264 physicians with an active license to practice medicine in the United States represent a physician-to-population ratio of 287 actively licensed physicians for every 100,000 people in the United States and the District of Columbia, a figure that has increased from 280 per 100,000 people in 2012.²

Discussion

2014 Census Summary

In general, our 2014 physician census demonstrates many similar patterns to 2012. More specifically, the actively licensed physician population in the United States is steadily growing in total number, slightly aging, with an increasing ratio of female to male physicians in younger age groups and a substantive increase in licensed physicians who graduated from a medical school in the Caribbean.

Although the vast majority of the 916,264 actively licensed physicians hold an MD degree, the number of physicians holding an osteopathic medical degree continues to grow significantly (increasing by 25% from 2010 to 2014). This corresponds with the data reported by the osteopathic medical profession that DOs are one of the fastest-growing

Table 4
Physicians with an Active License by State

Physicians with an Active License by State ^a and the District of Columbia, 2014	Licensed Physicians	Population Counts ^b	Physicians Per 100,000 Population
United States	916,264	318,857,056	287
Alabama	16,064	4,849,377	331
Alaska	3,786	736,732	514
Arizona	24,928	6,731,484	370
Arkansas	9,529	2,966,369	321
California	143,427	38,802,500	370
Colorado	19,897	5,355,866	371
Connecticut	16,678	3,596,677	464
Delaware	5,268	935,614	563
District of Columbia	10,623	658,893	1,612
Florida	71,024	19,893,297	357
Georgia	34,163	10,097,343	338
Hawaii	9,136	1,419,561	644
Idaho	5,687	1,634,464	348
Illinois	43,835	12,880,580	340
Indiana	27,206	6,596,855	412
Iowa	11,224	3,107,126	361
Kansas	9,002	2,904,021	310
Kentucky	17,645	4,413,457	400
Louisiana	16,346	4,649,676	352
Maine	6,364	1,330,089	478
Maryland	28,976	5,976,407	485
Massachusetts	33,965	6,745,408	504
Michigan	45,703	9,909,877	461
Minnesota	21,855	5,457,173	400
Mississippi	9,951	2,994,079	332
Missouri	25,926	6,063,589	428
Montana	4,765	1,023,579	466
Nebraska	8,598	1,881,503	457
Nevada	8,111	2,839,099	286
New Hampshire	6,346	1,326,813	478
New Jersey	35,842	8,938,175	401
New Mexico	8,691	2,085,572	417
New York	91,744	19,746,227	465
North Carolina	33,266	9,943,964	335
North Dakota	3,769	739,482	510
Ohio	44,981	11,594,163	388
Oklahoma	12,491	3,878,051	322
Oregon	14,092	3,970,239	355
Pennsylvania	55,443	12,787,209	434
Rhode Island	4,105	1,055,173	389
South Carolina	17,442	4,832,482	361
South Dakota	3,607	853,175	423
Tennessee	21,151	6,549,352	323
Texas	72,601	26,956,958	269
Utah	9,891	2,942,902	336
Vermont	3,171	626,562	506
Virginia	36,041	8,326,289	433
Washington	26,517	7,061,530	376
West Virginia	7,493	1,850,326	405
Wisconsin	25,774	5,757,564	448
Wyoming	3,360	584,153	575
State and D.C. Totals^c	1,227,500	318,857,056	385

a. State counts are based on physician data recorded by the FSMB using state medical board license files from 2014 and reflect the number of physicians with a full and unrestricted license. Resident physician licenses were excluded when such licenses could be identified.

b. U.S. Census Bureau, Population Division, July 2014

c. Physician counts do not add up to 916,264 because some physicians maintain active licenses in more than one U.S. jurisdiction.

Source: 2014 FSMB Census of Licensed Physicians.

segments of health care professionals in the United States. For example, the total number of osteopathic medical school graduates in 2013 increased by 35% compared to 2010.¹⁴ According to our 2014 census data, the Philadelphia College of Osteopathic Medicine is the school with the largest number of osteopathic graduates, representing about 10% of actively licensed DOs. The 10 colleges of osteopathic medicine with the largest number of actively licensed physicians account for the majority (65%) of the nation's osteopathic physicians. By comparison, the 10 largest allopathic programs have produced roughly 11% of licensed allopathic physicians (Table 2), and the 10 largest international medical schools, in terms of actively licensed physicians, account for about 20% of licensed IMGs in the United States (Table 3).

From 2012 to 2014, the number of actively licensed physicians graduating from international medical schools increased by 6%, which is slightly higher than the increase for U.S. and Canadian medical schools (4%). Among all the IMGs, the number of actively licensed physicians who graduated from a medical school in the Caribbean continues to display significant growth, a 19% increase from 2012 to 2014. Of Caribbean-educated physicians with an active license, growth for those who are also U.S. citizens is considerably higher (28%) compared to non-U.S. citizens (8%). This remarkable increase in the U.S. citizen IMG population corresponds with both the expansion of medical schools in the Caribbean and the increasing number of certificates issued to U.S. citizens by the Educational Commission for Foreign Medical Graduates (ECFMG). From 2000 to 2012, the number of Caribbean medical schools has grown from 38 to 63.¹⁵ Furthermore, the ECFMG reported that 30.8% of its certificates were issued to U.S. citizens in 2013, and a larger number of Caribbean-educated physicians, primarily U.S. citizens, are registering for examinations required for the ECFMG Certification.¹⁶ As the number of accredited and funded graduate medical education positions gradually fails to keep pace with increased U.S. medical school enrollment in the years ahead, it will be helpful to track the impact that it has on IMG entry into the United States and whether or not the IMGs are U.S. citizens.

Beyond the changes by medical school degree and type, gradual but significant shifts in the age and gender composition of the actively licensed physician population continue and will likely have a substantial impact on the U.S. health care system in the years to

come. First, our findings indicate that nearly one-third of actively licensed physicians are women, and the average age for female physicians (47 years) is considerably younger compared to their male counterparts (55 years). Although males still constitute the majority (66%) of all actively licensed physicians, the increase in the number of female physicians since 2012 is twice that of male physicians (11% and 5%, respectively). Second, 31% of all actively licensed physicians are 60 years of age or older, a remarkable increase from 26% in 2012, reflecting either deferred retirement or license retention without practice and signaling a need for increasing the supply of younger physicians as older physicians ultimately exit the workforce. Third, the proportion of female physicians gradually declines as age increases, while the proportion for males grows. In particular, the percentage of female physicians who are less than 40 years old (30%) is almost double that of their male counterparts (16%). This is in sharp contrast with physicians who are 60 years of age or older, where the percentage of male physicians is more than twice that of female physicians (37% vs. 16%). These findings are consistent with what one might expect in light of historical data and trends. For example, more females have been joining the physician population in the past few decades, with their numbers growing from 25,000 in 1970 to more than 235,000 in 2004.¹⁷ Similarly, we are seeing a diminution of a predominantly male physician workforce that characterized the United States in the 1970s, when women represented a much smaller percent of matriculants into medical schools (11% to 24%).¹⁸

Health Workforce Planning

At the time of our last census in 2012, the Affordable Care Act (ACA) had been enacted and upheld by the U.S. Supreme Court but was yet to be fully realized. In 2014, the number of insured individuals in the U.S. has increased substantially through the implementation of the ACA. With an increase in the number of insured individuals and an aging population, the need for more actively licensed physicians to meet this demand will be pressing. Physician shortages have been a debated topic, on which agreement has not been reached.^{19, 20} Due to dynamic changes in the health care supply system, physician workforce planning is challenging in this era of health care reform.¹⁹ According to our census, several trends about the actively licensed physician population are noteworthy when considering health workforce planning and a potential physician shortage.

First, both the aging actively licensed physician population and the shift in gender composition could

have a considerable impact on health workforce determinations, considering the different work patterns ascribed to both male and female physicians. Research using data from the U.S. Census Bureau's Current Population Survey (CPS) indicates that male physicians are generally less active than their female counterparts in the latter part of their career (55 to 64 years) while female physicians are less active in the early stages of their career (25 to 34 years).⁸ A recent nationwide survey of 13,575 physicians indicated that 22% of physicians over the age of 40 years old work 40 hours a week or fewer, compared with 15% of physicians who are 40 or younger. A breakdown by gender in that survey showed 27% of female physicians working 40 hours a week or less, compared to 18% percent of male physicians.²¹ Similar results are also found in a recent analysis of survey data for physicians in Florida and Maryland.⁹ According to an analysis of an Association of American Medical Colleges/American Medical Association survey of physicians less than 50 years of age, most gendered-time differences can be explained by the fact that men disproportionately are represented in specialty fields that tend to have higher averages of hours worked weekly, while female physicians tend to value family and personal time to a greater degree than male physicians.^{6, 7, 22, 23} In a similar manner, an analysis of data from the New York State Survey of Residents Completing Training concluded "the growing number of female physicians will probably create a new set of provider preferences that includes more predictable schedules and

...BOTH THE AGING ACTIVELY LICENSED PHYSICIAN POPULATION AND THE SHIFT IN GENDER COMPOSITION COULD HAVE A CONSIDERABLE IMPACT ON HEALTH WORKFORCE DETERMINATIONS...

less time pressures on other aspects of life."²⁴ As younger physicians replace a retiring generation of physicians, a greater number of physician FTEs are anticipated to be needed in order to provide a sufficient supply of physicians.^{7, 25}

Second, there continues to be great interest in U.S. citizens who receive their medical education abroad. As our census shows, the number of actively licensed physicians who graduated from international medical schools, particularly those in the Caribbean region, is growing at a rapid rate. Significant increases in the number of IMGs helps,

to a certain degree, provide a steady physician supply and accommodate greater health care demands. Although a greater reliance on IMGs may alleviate immediate and long-term physician shortages in the U.S.,²⁶ this poses larger issues of whether it is ethical for the U.S. to amass IMGs only to compound other nations' physician shortages.^{27, 28} Furthermore, there has been a concern about the quality of care provided by physicians who are educated from international medical schools.²⁹ Some researchers are interested in whether medical schools that have participated in quality-assurance review produce better physicians.³⁰ One study focusing on Caribbean medical graduates' performance on the USMLE Step 2 Clinical Skills examination affirms that attending accredited schools, as opposed to those that are non-accredited, is associated with better performance on standardized tests.³⁰ Another study confirms a statistically significant inverse relationship between performance on the Step 2 Clinical Knowledge examination and the mortality rate of patients receiving care from international medical school graduates.²⁹ On the other hand, in a study based on the analysis of 244,153 hospitalizations due to congestive heart failure or acute myocardial infarction in Pennsylvania, patients cared for by doctors who are IMGs and not U.S. citizens had significantly lower mortality rates than patients cared for by doctors who are IMGs and U.S. citizens; however, no significant mortality difference was found when comparing all IMGs with all U.S. medical school graduates.³¹ In sum, studies evaluating the quality of care and performance of IMGs provide evidence that IMGs are comparable to U.S. graduates in terms of patient care outcomes and achieving satisfactory performance on licensure exams—facts that may be helpful measures to ensure quality medical care.

Third, our census provides data on the distribution of physicians by state and the substantial variation that exists in the ratio of physicians to patients across states. Some states, such as Hawaii and the District of Columbia, have a much higher ratio of physicians to patients compared to other states, such as Texas. Considering the maldistribution of physicians and the wide geographic variations in patterns of clinical practice, questions remain about what is the appropriate ratio of physicians to patients.²⁷ Tracking the geographic distribution of physicians and physician migratory patterns over time with a regular census, however, will help to better monitor physician distribution and formulate appropriate policies for improving or maintaining a sufficient physician-supply at the state level.

Fourth, a team-based approach to care has attracted increasing interest in the hope of elevating our nation's health care system to a more effective and efficient level.^{32, 33} The American Medical Association (AMA) launched a campaign advocating Physician-Led Team Based Care in an effort to support a catered health care delivery system.³⁴ Most medical societies surveyed by the AMA Advocacy Resource Center identified ensuring physician-led, team-based care as a top priority for 2014.^{35, 36} A team-based model is also embodied in the concept of the patient-centered medical home (PCMH), which is increasing in prevalence across the United States.³⁷ A study on the PCMH found that the team-based model decreased health care costs by about 60%, in large part by reducing the number of emergency visits.³⁸ The successful experience of

A LARGE NUMBER OF PRIMARY CARE DEMANDS MAY BE ACCOMMODATED BY INCREASING THE USE OF NON-PHYSICIAN CLINICIANS FOR CERTAIN ASPECTS OF CARE.

applying the team-based model to a PCMH at San Francisco General Hospital (SFGH) inspired the primary care providers at SFGH's Family Health Center to adopt this model formally.³⁷ Team-based care operates with the principle that a group of health care providers is responsible for the patient's care: from doctors, nurses, physician assistants, community health workers and mental-health specialists to pharmacists.^{32, 37} A large number of primary care demands may be accommodated by increasing the use of non-physician clinicians for certain aspects of care. Team-based care or physician-led team-based care is expected to be an important component of reducing the need for a greater number of primary care doctors in the future. Physicians, however, usually serve as a team driver of this new health care delivery system and play an important leadership role.^{20, 36} Therefore, an accurate estimate of the physician workforce may be a key to better planning for other non-physician primary care providers in a team-based care model.

Future Work

Our findings in this article build upon baseline physician-census data we reported in 2010 and 2012 and continue to highlight the need for a better understanding and accurate assessment of the current supply of physicians. As more state medical and osteopathic boards begin to implement

a Minimal Data Set of questions about physician practice patterns, greater clarity may be achieved in understanding how many actively licensed physicians are practicing medicine and to what extent.^{39, 40} The 2014 physician census data is an important starting point, however, for future studies comparing and analyzing patterns and trends of the nation's physician population. The demographics of actively licensed physicians, where they are licensed and the dynamic changes in the physician population over three time periods are important contributions to the health workforce conversation, but these data elements and analysis only provide a limited picture. Further detailed analyses on specific populations or demographics — such as the first-time physician population, Caribbean-educated physicians, retiring physicians and the actively licensed physicians in certain geographical regions — are needed to better understand the physician pipeline. Explorations of the distribution of physicians by gender, age group and whether and how the current population structure could help to maintain the physician workforce at a healthy and sustained level are also worthy of further investigation. ■

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