
FSMB Census of Licensed Physicians in the United States, 2020

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ABSTRACT: There are 1,018,776 licensed physicians in the United States and the District of Columbia, representing a physician workforce that is 20% larger than it was a decade ago, according to data from 2020 compiled by the Federation of State Medical Boards (FSMB). The licensed physician population has grown in number relative to the total population, but concerns about a doctor shortage remain as both the general and physician populations age. Late career physicians generally work fewer hours and retire at higher rates, as younger physicians place more emphasis on work-life balance that may also limit work hours, even as many older physicians have delayed retirement in recent years. The mean age of licensed physicians is now 51.7 years, a year higher than it was in 2010. The physician workforce is increasingly mixed in gender and type of physician, with more women and more individuals with Doctor of Osteopathic Medicine (DO) degrees, specialty board certification and international medical degrees than a decade ago. The ability to inventory a nation's health care workforce across all specialties and jurisdictions is essential to the delivery of quality health care where it is needed most. This paper marks the FSMB's sixth biennial census of licensed physicians in the United States and the District of Columbia and provides valuable information about the nation's available physician workforce, including information about medical degree type, location of undergraduate medical education, specialty certification, number of active licenses, age and sex. As the impact of the COVID-19 pandemic on the United States is not yet fully known, this report should help state medical boards as they consider changes to their statutes and regulations to facilitate telemedicine and licensure portability after the pandemic ends and before another national public health emergency.

Introduction

It has long been maintained in the United States that the practice of medicine occurs where the patient is physically located, whether the care they receive is delivered by a licensed health care provider in person or, in modern times, by telemedicine. State medical boards (the term used to describe state and territorial medical and osteopathic boards in the United States) regulate the practice of medicine by licensing qualified physicians, physician assistants and other health care professionals. Each state medical board is governed and statutorily regulated by a Medical Practice Act. To legally practice medicine, physicians must hold an active medical license that is issued by a state or territory where their patients are located.

The Federation of State Medical Boards (FSMB) supports state medical boards in their ongoing efforts to promote patient safety and protect the public through assessment, education, advocacy, data and research and by fostering innovative approaches in medical regulation and sharing best practices. One way in which the FSMB has contributed to these objectives is through the compilation, beginning in 2010, of a biennial census of licensed physicians^{1,2,3,4,5}.

Together with the general population of the nation, the physician community has been aging and growing in number. Within the next nine years, all Baby Boomers (those born between 1946 and 1964) in the United States will be older than age 65, putting 20% of the nation's population at or near retirement age.⁶ As late career physicians who

AS LATE CAREER PHYSICIANS WHO ARE BABY BOOMERS BEGIN WORKING FEWER HOURS AND RETIRE AT HIGHER RATES, REPLACING THEIR PRODUCTIVITY WILL BE A CHALLENGE...

are Baby Boomers begin working fewer hours and retire at higher rates, replacing their productivity will be a challenge as physicians who are Millennials (those born between 1981 and 1996) place more emphasis on work-life balance.⁷ The COVID-19 pandemic has added to this uncertainty, as some physicians have retired early or are planning to retire earlier than anticipated.⁸

The importance of a licensed physician census for the nation has never been greater. An essential tool

to determine a nation's health care needs within and across local and regional jurisdictions is the ability to periodically inventory the available physician workforce and identify primary and specialty care providers. While physician shortages and the value of telemedicine and telehealth have been a part of health care workforce discussions for well over two decades, the onset of the COVID-19 pandemic due to the SARS-CoV2 virus has added to the uncertainty of whether there will be enough physicians available to care for a growing and older population.

This paper summarizes key findings from the FSMB's latest census of licensed physicians in the United States, including information about the type of medical degree, location of undergraduate medical education, specialty certification status, number of active licenses, age and sex. Noteworthy findings from comparisons to the first FSMB physician

FINDINGS FROM THE 2020 PHYSICIAN CENSUS SHOW THAT THERE ARE 1,018,776 PHYSICIANS, WHO HOLD A TOTAL OF 1,442,454 LICENSES TO PRACTICE MEDICINE ACROSS THE UNITED STATES AND THE DISTRICT OF COLUMBIA.

census a decade ago are included, and a report containing additional details will be made available on FSMB's website (fsmb.org) later this year.

Methodology

Data for this census was obtained principally from the FSMB's Physician Data Center (PDC), a national repository of demographic, educational, licensure and sanction data for all physicians licensed to practice medicine in the United States, including the District of Columbia and its territories (i.e., Guam, Northern Mariana Islands, Virgin Islands, and Puerto Rico). The American Board of Medical Specialties (ABMS) and the American Osteopathic Association (AOA) regularly supplement physician-record information in the PDC with updated medical specialty and subspecialty certification data. Although specialty certification is not a requirement for physicians to receive a medical license in the United States, the credential is recognized by all states and territories and provides useful information to licensing boards and the public about a physician's training and expertise in one or more primary and specialty care areas.

Physician licensure data compiled for this census comes directly from all of the state medical boards in the United States (including the District of Columbia) during the 2020 calendar year. The FSMB also receives data from U.S. territories, but this data is sometimes received on an inconsistent basis, which is why it has not been included in this or previous FSMB censuses. Only physicians with current, unrestricted licenses to practice medicine in the United States and the District of Columbia are included in the analyses. Temporary, limited and training licenses were excluded when such licenses could be identified. This methodology is consistent with previous physician censuses published by the FSMB and allows for better comparisons between them.

Results

Findings from the 2020 physician census show that there are 1,018,776 physicians, who hold a total of 1,442,454 licenses to practice medicine across the United States and the District of Columbia. This number represents a 20% increase—the addition of 168,691 physicians—since the FSMB's 2010 census, which recorded 850,085 licensed physicians. These licensed physicians serve a national population of 331 million people, reflecting a physician-to-population ratio of 307 licensed physicians per 100,000 people, an increase from 277 in 2010. Growth of the physician population, as in previous years, is largely derived from newly licensed physicians entering the workforce pipeline.

State medical boards issued a total of 197,809 first-time medical licenses and licensure renewals during the 2019 and 2020 calendar years. State medical boards issued first-time medical licenses to 51,071 physicians during this two-year period, accounting for 26% of all medical licenses issued in this period.⁹ Nearly one-quarter (23%) of the nation's physicians currently hold two or more active licenses from state medical boards.

During the past decade, the licensed physician population has grown in number and continues to reflect changes in medical degree type, location of undergraduate medical education, specialty certification, age and sex (Table 1). The vast majority of physicians (90%) have a Doctor of Medicine (MD) degree, while 10% have a Doctor of Osteopathic Medicine (DO) degree. Although licensed physicians with an MD degree continue to dominate the physician workforce, the number of licensed physicians with a DO degree continues to grow at a rapid rate.

Table 1
Population Characteristics

Licensed Physicians in the United States and the District of Columbia	2010		2020	
	Counts	Percentages	Counts	Percentages
Total	850,085	100.0%	1,018,776	100.0%
Degree				
Doctor of Medicine (MD)	789,788	92.9%	917,940	90.1%
Doctor of Osteopathic Medicine (DO)	58,329	6.9%	100,379	9.9%
Unknown	1,968	0.2%	457	0.0%
Medical School				
U.S. and Canadian Medical Graduates	649,736	76.4%	783,639	76.9%
International Medical Graduates	188,598	22.2%	233,177	22.9%
Unknown	11,751	1.4%	1,960	0.2%
Age				
Less than 40 years	200,639	23.6%	244,152	23.9%
40-49 years	214,595	25.2%	236,876	23.3%
50-59 years	215,541	25.4%	216,873	21.3%
60-69 years	138,815	16.3%	197,471	19.4%
70+ years	75,627	8.9%	120,510	11.8%
Unknown	4,868	0.6%	2,894	0.3%
Sex				
Men	583,315	68.6%	642,960	63.1%
Women	252,861	29.7%	369,139	36.2%
Unknown	13,909	1.6%	6,677	0.7%
Certified by an ABMS/AOA Specialty Board^a				
Yes	653,299	76.9%	843,753	82.8%
No	196,786	23.1%	175,023	17.2%
Number of Active Licenses				
1	657,208	77.3%	786,618	77.2%
2	142,423	16.8%	159,406	15.6%
3 or more	50,454	5.9%	72,752	7.1%

a. The FSMB matched physician license data with ABMS and AOA certification data to obtain counts of physicians with a license in the United States and District of Columbia who also hold active specialty or subspecialty certificates from an ABMS or AOA member board. The counts included in this census may vary from counts reported by the ABMS and AOA. The number of certified physicians for 2010 was updated by adding the number of physicians with AOA certification, which was estimated based on 2020 AOA data. The FSMB did not receive AOA certification data until 2015. Board Certification counts can measure a broader geographic base and additional specialty-related degrees.

Between 2010 and 2020, the number of licensed osteopathic physicians in the United States increased by 72%, compared with an increase of 16% for MDs. Specialty certification by either the ABMS or the AOA has also grown among physicians. In 2020, 83% of licensed physicians are board certified by either the ABMS or the AOA, up from 77% in 2010.

The licensed physician population continues to represent a broad geographic cross-section in terms of where they received their (undergraduate)

medical school education. More than three-quarters (77%) of licensed physicians are U.S. or Canadian medical graduates (collectively referred to as USMGs) and 23% are international medical graduates (IMGs). Between 2010 and 2020, the number of licensed USMGs increased by 21%, while the increase in the number of IMGs was slightly higher at 24%.

Highlighting the international diversity of medical schools that educate America's physicians, licensed physicians in the United States graduated from

2,200 medical schools in 169 countries around the world. The largest number of licensed IMGs in the United States graduated from medical schools in India (n = 51,696; 22%), followed by the Caribbean (n = 44,283; 19%), Pakistan (n = 13,943; 6%), the

OVER THE LAST DECADE, THE LICENSED FEMALE PHYSICIAN POPULATION HAS INCREASED BY 46%, COMPARED TO 10% FOR MALE PHYSICIANS.

Philippines (n = 12,153; 5%) and Mexico (n = 10,036; 4%) (Figure 1). Graduates from medical schools in the Caribbean have had the largest percentage growth (94%) of any category of physicians between 2010 and 2020, increasing from 22,820 to 44,283 physicians. There has also been an increase in licensed physicians from the Caribbean who are U.S. citizens, rising from 48% to 65% between 2010 to 2020.

The average age of licensed physicians has risen since 2010. In 2020, the mean age of licensed physicians is 51.7 years, a full year higher than the mean age reported in 2010. The number of licensed physicians age 60 years and older also

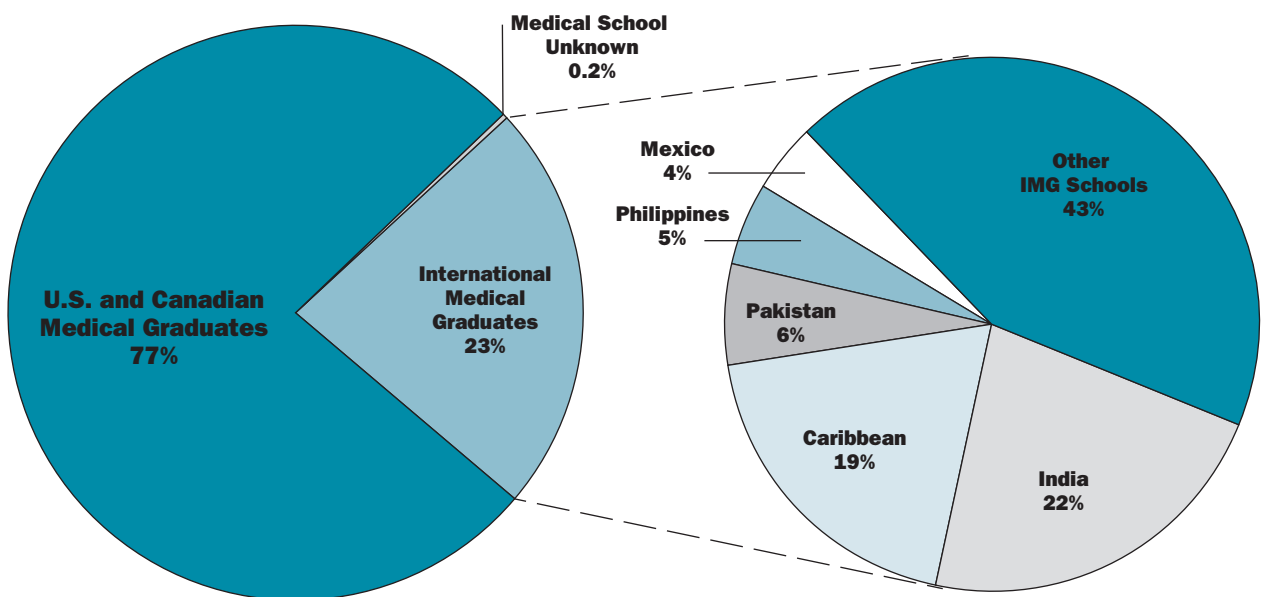
increased by 48% between 2010 and 2020, compared with only a 16% increase for those physicians age 49 years and younger.

The percentage of licensed female physicians continues to increase, although men still comprise the majority. In 2020, 36% of licensed physicians are women, compared to 30% of the physician population in 2010. Over the last decade, the licensed female physician population has increased by 46%, compared to 10% for male physicians. Accordingly, licensed female physicians are on average seven years younger (47.3 years) than their male counterparts (54.1 years). Additional analysis of the data by sex and age shows that a greater percentage of female physicians fall within younger age categories than male physicians. In 2020, 32% of female physicians are under the age of 40, compared to 20% for male physicians. By contrast, 38% of male physicians are age 60 years and older, compared to only 18% of female physicians (Figure 2).

Discussion

While predictions about physician supply and demand have been a part of health workforce discussions for years, the onset and extent of the global COVID-19 pandemic has highlighted the value to emergency preparedness and response of

Figure 1
Licensed Physicians in the United States and the District of Columbia by Location of Medical School Graduation, 2020



a nationwide census documenting the country's available physician workforce. Comparisons with 2010 data are instructive and enlightening, and this report helps capture and summarize how the licensed physician population in the United States and the District of Columbia has grown and changed during the past decade.

Growing and aging populations. The licensed physician population has shown steady gains over the past decade, growing by 20% from 850,085 physicians in 2010 to 1,018,776 physicians in 2020. Much of this increase may be attributed to the growth in the number of medical students during the past ten years. Medical school enrollment increased by 20% for MD-granting schools and 63% for DO-granting schools between 2010 and 2020.^{10,11} While the licensed physician population has grown relative to the population it serves, the general population also continues to grow in number and age.¹² The U.S. population, currently estimated at 331 million,¹³ is projected to reach more than 355 million by 2030.¹⁴ Within nine years, all Baby Boomers will be older than age 65, meaning that one out of every five Americans will be at what is now considered their retirement age.¹⁵ The physician community is also aging. During the past decade, the average age of the licensed physician population increased by a full year, and the licensed

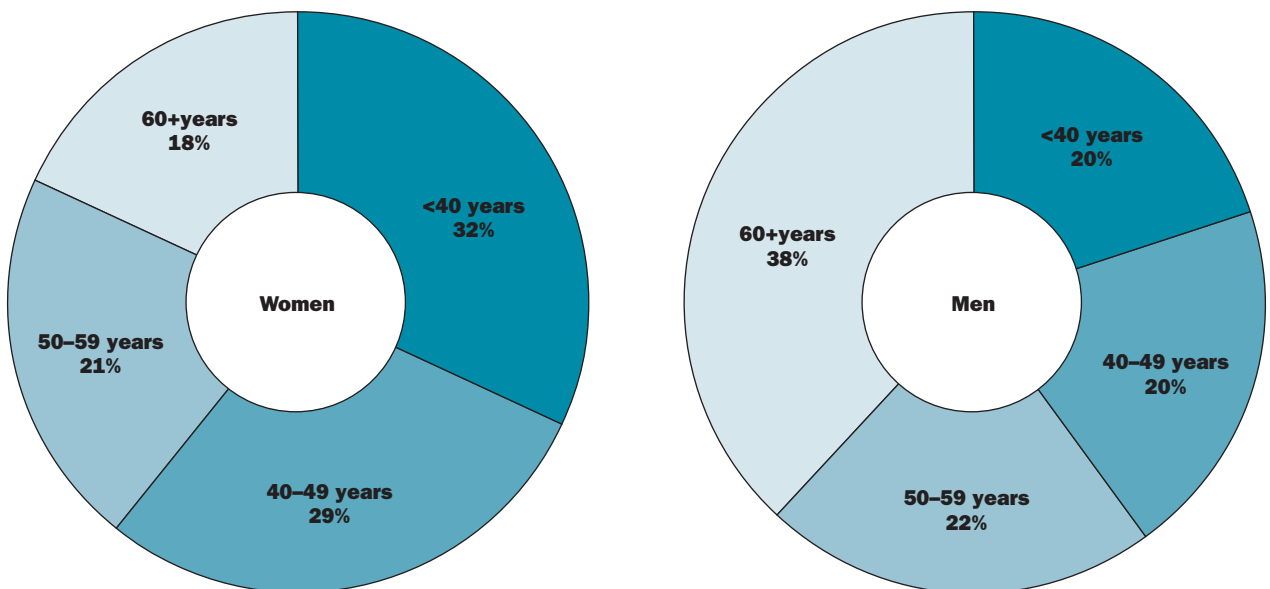
physician population that is age 60 years and older increased from 25% in 2010 to 31% in 2020.

Physician shortages have been a debated topic for a number of years, and researchers have yet to reach a consensus on whether there will be a shortage and, if so, how severe.¹⁶ While earlier projections by workforce researchers anticipated physician shortages to reach upwards of 159,300 physicians by 2025, more recent predictions suggest there will be a reduced shortage, between 37,800 and 124,000 physicians by 2034.^{17,18,19} Ongoing revisions to predictions are to be expected with

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changes to physician supply, practice patterns and advances in health care delivery that may reduce the need for as many physicians. The physician shortage, and especially the COVID-19 pandemic, has highlighted the maldistribution of health care delivery across the United States, underscoring

Figure 2
Licensed Physicians in the United States and the District of Columbia by Sex and Age, 2020



the lack of access to minority populations, rural communities and those without health insurance.²¹

Changing practice patterns. The demographic shifts throughout the country have been accompanied by changing and, in some instances, uncertain physician practice patterns. A 2017 survey showed that physicians on average intend to retire at age 68. The most common reasons associated with working beyond age 65 have been enjoyment of the practice of medicine, social aspects of work and a desire to maintain their existing lifestyle.²⁰ More recent data suggests, however, that physicians in late adulthood have experienced distinct hardships during the pandemic. In a 2020 nationwide survey of more than 2,000 physicians, 43% of physicians age 46 years and older indicated they would like to retire within the next year, compared with 21% of those age 45 years and younger.²¹ When late career physicians work fewer hours and retire at higher rates, replacing their productivity becomes difficult—compounding the challenge.

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Health care recruiters are finding that Millennial physicians place more emphasis on work-life balance (and therefore fewer work hours) than do their older colleagues.²²

Evolving health care delivery. As the COVID-19 pandemic began to rapidly spread across the United States in 2020, elective surgical procedures were postponed,²³ national medical licensing exams were temporarily suspended^{24,25} and health systems implemented or expanded telemedicine capabilities at a swift pace.²⁶ Elective procedures²³ and licensing exams^{24,25} have since resumed with noteworthy changes. The Step 2 Clinical Skills portion of the United States Medical Licensing Examination (USMLE) examination has been permanently discontinued, and the Level 2 Performance Evaluation of the COMLEX-USA for osteopathic medical students has been indefinitely postponed. Although the volume of telehealth visits has declined, it will likely remain above pre-pandemic levels in the foreseeable future.²⁶ A recent survey found that 88% of Americans prefer to continue

using telehealth services after the pandemic for non-urgent consultations.²⁷

Even before the pandemic, integrated health care delivery models had been receiving greater attention as an option to help meet the increasing demand for health services and improve outcomes.^{28,29,30,31} The American Medical Association's Physician Practice Benchmark Survey of 2020 reveals another notable change in health care delivery as the percentage of physicians in private practice dropped below 50% for the first time in the survey's history. The survey also showed that 70% of physicians age 40 and younger, compared with only 42% of physicians age 55 and older, practice medicine as employees rather than as owners or independent contractors of a private practice.³²

Diversifying physician population. Amid these changes, diversity, equity and inclusion have moved to the forefront of the nation's conscience in 2020. The physician community continues to become more diverse in many, but not all areas. The U.S. licensed physician population is more diverse, with licensed physicians in 2020 having received degrees from 2,200 medical schools in 169 countries around the world, an increase of 274 medical schools and eight countries since 2010. During the last decade, the female physician workforce has expanded by 46% and women now represent 36% of licensed physicians—a figure that is expected to grow as female medical students increasingly represent a majority of medical school applicants, matriculants and total enrollments in schools.³³ Although medical school enrollment is slowly increasing among students identifying themselves as Black or African American, Hispanic, Latino

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or Spanish origin, and American Indian or Alaska Native, the efforts lag behind those related to gender diversity³⁴—at a time when research consistently demonstrates that patients of a racial or ethnic minority benefit when managed by physicians who are also of a minority group.^{35,36,37,38,39,40}

Conclusion

A periodic census of the available physician workforce provides insight and updated demographic information to help guide policymakers and health care organizations better address the nation's current and future health care needs. Since the FSMB conducted its first physician census in 2010, there have been substantial changes to the supply and composition of the available physician workforce,

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as well as a continued transformation in the delivery of health care from in-person care to telehealth. The gradual, but inevitable, aging of the general and physician populations will likely impact numerous areas of health care, and the adoption of integrated health care delivery models is likely to continue, as will the increased use of telehealth that has been accelerated by the pandemic. These and other factors leave the United States with a fluid health care system facing extensive challenges, including the persistence of COVID-19 and the possibility of another pandemic in the years ahead. ■

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References

1. Young A, Chaudhry HJ, Rhyne J, Dugan M. "A Census of Actively Licensed Physicians in the United States, 2010," *Journal of Medical Regulation*, Vol. 96, No. 4: 10-20, 2011.
2. Young A, Chaudhry HJ, Thomas JV, Dugan M. "A Census of Actively Licensed Physicians in the United States, 2012," *Journal of Medical Regulation*, Vol. 99, No. 2: 11-24, 2013.
3. Young A, Chaudhry HJ, Pei X, Halbesleben K, Polk DH, Dugan M. "A Census of Actively Licensed Physicians in the United States, 2014," *Journal of Medical Regulation*, Vol. 101, No. 2: 8-23, 2015.
4. Young A, Chaudhry HJ, Pei X, Arnhart K, Dugan M, Snyder GB. "A Census of Actively Licensed Physicians in the United States, 2016," *Journal of Medical Regulation*, Vol. 103, No. 2: 7-21, 2017.
5. Young A, Chaudhry HJ, Pei X, Arnhart K, Dugan M, Steingard SA. "FSMB Census of Licensed Physicians in the United States, 2018," *Journal of Medical Regulation*, Vol. 105, No. 2: 7-23, 2019.
6. Vespa J, Medina L, Armstrong DM. "Demographic Turning Points for the United States: Population Projections for 2020 to 2060," 2018.[Online]. Available at: <https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf>.
7. Wolters Kluwer. "Recruiting Millennial Physicians: Myths and Realities," 2019. [Online]. Available at: <https://www.wolterskluwer.com/en/expert-insights/recruiting-millennial-physicians-myths-and-realities>.
8. The Physicians Foundation. "2020 Survey of America's Physicians: COVID-19 Impact Edition," 2020. [Online]. Available at: <https://physiciansfoundation.org/wp-content/uploads/2020/08/20-1278-Merritt-Hawkins-2020-Physicians-Foundation-Survey.6.pdf>.
9. An improved algorithm was used to identify first-time licenses in 2020 compared to previous censuses.
10. Association of American Medical Colleges. "2020 Fall Applicant, Matriculant, and Enrollment Data Tables, 2020. [Online]. Available at: <https://www.aamc.org/media/49911/download>.
11. American Association of Colleges of Osteopathic Medicine. "AACOM Reports on Student Enrollment," [Online]. Available at: <https://www.aacom.org/reports-programs-initiatives/aacom-reports/student-enrollment>.
12. Association of American Medical Colleges. "The Complexities of Physician Supply and Demand: Projections From 2019 to 2034," 2021. [Online]. Available at: <https://www.aamc.org/media/54681/download>.
13. U.S. Census Bureau. "First 2020 Census Data Release Shows U.S. Resident Population of 331,449,281, 2021. [Online]. Available at: <https://www.census.gov/library/stories/2021/04/2020-census-data-release.html>.
14. Vespa J, Medina L, Armstrong DM. "Demographic Turning Points for the United States: Population Projections for 2020 to 2060," 2018.[Online]. Available at: <https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf>.
15. Ibid.
16. Gudbranson E, Glickman A, Emanuel EJ. "Reassessing the Data on Whether a Physician Shortage Exists," *JAMA*, Vol. 317, No. 19:1945–1946, 2017.

17. Association of American Medical Colleges. "The Complexities of Physician Supply and Demand: Projections From 2019 to 2034," 2021. [Online]. Available at: <https://www.aamc.org/media/54681/download>.
18. Dill MJ, Salsberg ES. "The Complexities of Physician Supply and Demand: Projections through 2025," 2008. [Online]. AAMC Center for Workforce Studies.
19. Association of American Medical Colleges. "The Complexities of Physician Supply and Demand: Projections From 2019 to 2034," 2021. [Online]. Available at: <https://www.aamc.org/media/54681/download>.
20. CompHealth. "Physician Views on Retirement," 2017. [Online]. Available at: https://comphealth.com/resources/wp-content/uploads/2017/07/CPHY20200_PhysicianViewsOnRetirementReport_rw_v1.pdf.
21. The Physicians Foundation. "2020 Survey of America's Physicians: COVID-19 Impact Edition: Part Two of Three: COVID-19's Impact on Physician Wellbeing," [Online]. Available at: <https://physiciansfoundation.org/wp-content/uploads/2020/09/2020-Physicians-Foundation-Survey-Part2.pdf>.
22. Wolters Kluwer. "Recruiting Millennial Physicians: Myths and Realities," 2019. [Online]. Available at: <https://www.wolterskluwer.com/en/expert-insights/recruiting-millennial-physicians-myths-and-realities>.
23. COVIDSurg Collaborative. "Elective Surgery Cancellations Due to the COVID-19 Pandemic: Global Predictive Modelling to Inform Surgical Recovery Plans," *British Journal of Surgery*, Vol. 107, No. 11: 1440-1449, 2020. <https://bjssjournals.onlinelibrary.wiley.com/doi/full/10.1002/bjs.11746>.
24. NBME. "Coronavirus (COVID-19): Assessment Information and Updates," [Online]. Available at: <https://www.nbme.org/news/coronavirus-covid-19-assessment-information-and-updates>.
25. NBOME. "COVID-19 Resources." [Online]. Available at: <https://www.nbome.org/covid-19/>.
26. Koonin LM, Hoots B, Tsang CS, et al. "Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic—United States, January–March 2020," 2020. [Online]. Available at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6943a3.htm#:~:text=Approximately%201%2C629%2C000%20telehealth%20encounters%20occurred%20in%20the%20first,same%20period%20in%202019%20%2850%25%20increase%20overall%3B%20p%3C0.05%29>.
27. Sykes. "How Americans Feel About Telehealth: One Year Later," 2021. [Online]. Available at: <https://www.sykes.com/resources/reports/how-americans-feel-about-telehealth-now/>.
28. Enthoven AC. "What is an Integrated Health Care Financing and Delivery System (IDS)? and What must would-be IDS Accomplish to Become Competitive with them?" *Health Econ Outcome Res*, Vol. 2, No. 2: 115, 2016.
29. Watling A, Doucet J, Zohrabi M, et al. "Impact on Cardiac Surgery Volume of a Comprehensive Partnership with Integrated Health Solutions," *Can J Surg*, Vol. 63, No. 5: E374-E382, 2020.
30. Sanko S, Eckstein M. "Mobile Integrated Health Care in Los Angeles: Upstream Solutions to Mitigate the Covid-19 Pandemic," *NEJM Catalyst Innovations in Care Delivery*, 2021. [Online]. Available at: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0383>.
31. Lin JC, Kavousi Y, Sullivan B, Stevens C. "Analysis of Outpatient Telemedicine Reimbursement in an Integrated Healthcare System," *Annals of Vascular Surgery*, Vol 65: 100-106, 2020.
32. Kane CK. "Policy Research Perspectives: Recent Changes in Physician Practice Arrangements: Private Practice Dropped to Less Than 50 Percent of Physicians in 2020," 2021. [Online]. Available at: <https://www.ama-assn.org/system/files/2021-05/2020-prp-physician-practice-arrangements.pdf>.
33. Association of American Medical Colleges. "Enrollment Up at U.S. Medical Schools," 2020. [Online]. Available at: <https://www.aamc.org/news-insights/press-releases/enrollment-us-medical-schools>.
34. Ibid.
35. Traylor AH, Schmittiel JA, Uratsu CS, Mangione CM, Subramanian U. "Adherence to Cardiovascular Disease Medications: Does Patient-Provider Race/Ethnicity and Language Concordance Matter?" *J Gen Intern Med*, Vol. 25, No. 11:1172-1177, 2010.
36. Strumpf EC. "Racial/Ethnic Disparities in Primary Care: The Role of Physician-Patient Concordance," *Med Care*, Vol. 49, No. 5: 496-503, 2011.
37. Persky S, Kaphingst KA, Allen Jr VC, Senay I. "Effects of Patient-Provider Race Concordance and Smoking Status on Lung Cancer Risk Perception Accuracy among African-Americans," *Ann Behav Med*, Vol. 45, No. 3:308-17, 2013.
38. Saha S, Beach MC. "Impact of Physician Race on Patient Decision-Making and Ratings of Physicians: A Randomized Experiment Using Video Vignettes," *J Gen Intern Med*, Vol. 35: 1084–1091, 2020.
39. Penner LA, Dovidio JF, Gonzalez R, et al. "The Effects of Oncologist Implicit Racial Bias in Racially Discordant Oncology Interactions," *J Clin Oncol*, Vol. 34, No. 24:2874-2880, 2016.
40. Hagiwara N, Slatcher RB, Eggly S, Penner LA. "Physician Racial Bias and Word Use during Racially Discordant Medical Interactions," *Health Commun*, Vol. 32, No. 4:401-408, 2017.