

Provider Supply and Demand Issues

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Key Takeaways:

1. For decades, experts have debated the extent of the U.S.'s provider shortage. Contributing factors include not only the volume of doctors, but also geographic distribution, primary/specialty mix, ineffective scheduling, and outdated models of care.
2. Physician supply depends in part on graduate medical education funding, which is largely tied to Medicare. Many question whether this federal funding is necessary and if it is successful in creating a physician pipeline to meet national demand and improve health outcomes.
3. The COVID-19 pandemic has intensified the U.S.' nurse shortage. Though most health systems have been affected, the impact will be felt most strongly by patients in rural and underserved areas.
4. The COVID-19 pandemic led to rapid growth in telemedicine utilization. Although this was initially intended to allow for safer visits, it also mitigated provider mix and geographic problems. The future of the regulatory flexibilities that allowed for that uptake, including insurance reimbursement and state licensure, remains unclear.
5. Advanced practice providers such as nurse practitioners and physician assistants can help address workforce issues, if utilized effectively.
6. The COVID-19 pandemic has exacerbated burnout among health care workers. Many health care systems are struggling with workforce challenges as providers resign.

Overview

The COVID-19 pandemic has put significant strain on the U.S. healthcare system, pushing providers to their limits. Healthcare workers report increasing rates of burnout and are more likely to be considering retirement or a change in career. Patients, in turn, report greater difficulty accessing timely care. This mismatch has renewed interest in understanding provider supply and demand. In this brief, we focus on physicians, advanced practice providers and nurses along with the variables that affect them. We recognize the importance of other health professionals including dentists, therapists and health aides but do not cover them here.

Physician Supply

According to the Association of American Medical Colleges (AAMC), there were a total of 938,980 physicians actively practicing in the U.S. in 2019.¹ This amounts to approximately 440,000 primary care physicians and 480,000 specialists with 353 patients per physician.^{1,2} However, according to the U.S. Health Resources & Service Administration, an additional 13,758 primary care physicians and 6,100 psychiatrists would have been needed to remove Health Professional Shortage Area (HPSA) designations.² At least another 160,000 would be needed if marginalized populations, patients in rural areas and the uninsured used as much medical care as those facing few barriers to access care.

The AAMC projects this trend will worsen over time. In the next decade, 40% of physicians will be 65 or older and ready for retirement.³ Simultaneously, the U.S. population is projected to grow 10.6% from 328 to 363 million by 2034, while the number of patients aged 65 and above increases by 42.4%. Primary care will have a shortage of 17,800 to 48,000 physicians while other specialties lack between 21,000 and 77,1000 physicians **(Table 1)**.¹ These projections raise concerns about the stability of the future U.S. healthcare system, motivating increases in the number of accredited medical schools and residency programs.

Table 1. Projected Physician Shortages by 2034

Specialty Area	Shortage Range
Primary Care (e.g., family medicine, general pediatrics, geriatric medicine)	17,800 - 48,000
Surgical specialties (e.g., general surgery, obstetrics and gynecology, orthopedic surgery)	15,800 - 30,200
Medical specialties (e.g., cardiology, oncology, pulmonology)	3,800 - 13,400
Other specialties (e.g., anesthesiology, neurology, emergency medicine, addiction medicine)	10,300 - 35,600

Source: American Association of Medical Colleges

However, some argue there is no shortage. Gudbranson et al. note that even with 12% of primary care physicians work part time, there are more than 388,000 full-time primary care physicians with a median and average panel is 1906 and 2184 patients, respectively.² If each physician had a panel of 1500 patients, they could care for 583 million people (the U.S. population is 330 million people). Calculations from the demand side similarly suggest there are enough physicians for U.S. patients. Their findings are not necessarily unique. Provider shortages have been predicted before without coming to pass. Between 2002 and 2006, at least three unique studies predicted a shortage of 85,000 to 200,000 physicians by 2020 –far greater than the 20,000 needed to remove all HPSAs. This disconnect between theoretical capacity and projections is significant.^{2,4} Contributing factors include:

- Uneven distribution of physicians: there is a clear mismatch in physician supply and demand. While 20% of U.S. patients live in rural areas, only 10% of physicians maintain practices there.
- Ineffective scheduling: evidence shows that many healthcare facilities use outdated or inefficient scheduling practices that are exacerbated by high no-show rates. The issue is not only limited to outpatient clinics, but operating rooms as well.
- Insurance coverage: Practices may limit the number of patients they take from programs like Medicaid, reducing access to care.
- Rigid care models: Most care is delivered by medical doctors. However, advanced practice providers can play a role in addressing capacity.
- Suboptimal productivity: Physicians spend more than a third of their time documenting patient care. This trend is worsening with a rise in health record inbox messaging.⁵ This time is an inefficient use of labor and could be spent seeing patients.
- Potential conflict of interest: The most widely cited projections on physician shortages typically come from the AAMC. It would be remiss to not recognize that the AAMC directly benefits from an increase in the number of physicians being trained.

Nursing Supply

More broadly accepted is the concern surrounding nursing shortages. A survey of rural hospitals found that 96% have had trouble finding nurses during the COVID-19 pandemic.⁶ One in four have had to suspend routine services, while an additional one in five have considered similar changes. This shortage is only expected to worsen.

The U.S. has 4.2 million registered nurses (RNs) and 950,000 licensed practical nurses (LPNs) and licensed vocational nurses (LVNs).⁷ RNs typically have more training and greater autonomy to assess and treat patients. LVNs and LPNs provide basic patient care but are supervised by RNs or physicians. In 2020, the median age of RNs and LPNs/LVNs was 52 and 53 years, respectively.⁷

Studies predict over one million of these nurses will retire by 2030, but COVID-19 may have accelerated that trend.⁸ When hospitals stopped performing elective procedures and had lower volume during the pandemic's initial waves, many furloughed employees. This may have pushed some nurses to retire instead of returning to work. The job itself has also gotten more stressful, with nurses taking on increasing workloads and patients more openly threatening or bullying healthcare workers.⁹

Retention is also a significant issue within the existing workforce. Traveling nurses, who temporarily join hospitals experiencing staffing shortages, earn higher salaries than permanent nurses who likely have greater experience and institutional knowledge. The difference is dramatic with rural nurses earning approximately \$1,200 a week while traveling nurses make as much as \$5,000.¹⁰ Profitable healthcare systems can afford to increase salaries or pay bonuses, but this likely exacerbates disparities in access to care as facilities treating underserved patients lack the same resources.

Graduate Medical Education

Graduate medical education (GME) is funded by the Centers for Medicare and Medicaid Services (CMS) through both Direct Graduate Medical Education (DGME) and Indirect Medical Education (IME) funding.¹¹ DGME payments are based on a hospital's proportional Medicare patient load and number of resident physicians. They cover the direct costs of GME such as residency and teaching faculty salaries and administrative costs. IME payments are added to Medicare inpatient reimbursements based on the number of residents and inpatient beds to offset the higher costs that hospitals have when teaching trainees. These funds were never intended to cover teaching costs for non-Medicare patients but largely shape the discourse around GME funding as Medicaid and the Veterans Health Administration contribute far less.¹²

Congress has historically attempted to contain GME funding by limiting the number of federally funded residency spots. The Balanced Budget Act of 1997 capped the number of positions at 1996 levels (approximately 85,000), while the Balanced Budget Refinement Act of 1999 restricted both the ceiling (140%) and floor (70%) of reimbursement relative to the national average per resident to reduce disparities in funding.¹³ In December of 2020, Congress approved the addition of 1000 positions at hospitals in rural and underserved communities.¹⁴ This was the first time new seats were added in over two decades.

More recently, significant debate has focused on whether the current system for GME funding is necessary or fair. Although hospitals argue GME funding is absolutely necessary to offset the costs of training, some stakeholders, including Congress and the Medicare Payment Advisory Committee, have suggested cutting GME funding to reduce healthcare spending and improve the Medicare Trust's solvency.¹⁵ Many economists agree with this position and argue that GME funding is unnecessary since residents offset the costs of their training by accepting lower wages.¹² If their labor was not profitable, hospitals would not



have created more 15,000 unfunded residency positions since 2003.¹⁶ Similarly, Hahnemann Medical Center's 550 government-funded residency positions would not have sold for a winning bid of \$55 million.

Others argue this oversimplifies the issue. When broken down by specialty, the number of unfunded residency positions has largely increased for those that are well-reimbursed.^{13,17} Between 2003 and 2018, the number of residents increased by 209% in plastic surgery, 190% in neurosurgery, and approximately 150% in dermatology, otolaryngology, and radiation oncology.¹⁷ Positions in internal medicine, family medicine, and pediatrics had much slower growth, suggesting increases in unfunded GME have favored specialty training –and hospital goals –over primary care.¹⁸

Rather than eliminate all federal GME funding, policymakers may seek reform or regulations to create a physician pipeline that meets national needs and optimizes health outcomes. Otherwise, healthcare markets may not adequately address issues of supply.

Telehealth

Telehealth is often viewed as a solution to the suboptimal geographic distribution of physicians; it is not always necessary for doctors to be in the same location as their patients to provide quality care. However, Medicare restricted reimbursement for telehealth prior to the COVID-19 pandemic. To qualify for payment, encounters had to be between physicians and patients in rural areas and both had to complete the call from a certified clinic or facility. This 'originating site' requirement limited overall utilization: only 0.1% of all Medicare primary care visits were conducted through telehealth before February of 2020.¹⁹

The pandemic pushed regulators to eliminate red tape, reimbursing telehealth visits and remote patient monitoring in parity to encourage social distancing.²⁰ Utilization rose sharply, with telehealth making up almost 20% of weekly visits for large practices (101+ providers).²¹ Patients could more easily see their physicians, which was reflected in lower no-show rates.

However, in a post-pandemic world, the telehealth landscape is more complicated. Though telehealth increases access to care, that same convenience makes it ripe for abuse. For example, with the current expansion, physicians could more easily schedule unnecessary follow-ups, and patients could similarly make appointments for more minor concerns such as a cold when they would have not come to the office before. There are also instances where a physical exam is necessary and virtual care is impractical.

Payers have long struggled with this issue, seeking to identify scenarios where telehealth is substitutive and not additive. So far, CMS has limited permanent expansion to extremely specific use cases.²² If parity ends, this may reduce incentives for many to invest in telehealth. Otherwise, providers may switch back to in-person care. Data already suggest

this: the number of virtual visits has significantly declined since the pandemic's initial wave.²³

Even if telehealth's expansion persists, it is worth noting that it does not completely fix issues surrounding access to care. Telehealth requires reliable internet or cellular data for patients to engage, and data from 2018 shows that more than a quarter of Medicare beneficiaries lack digital access.²⁴ The disparity is worse for those with low socioeconomic status or in communities of color.

State Licensure

State licensure restrictions also present a challenge to provider shortages. Prior to the pandemic, states medical boards licensed physicians according to each state's respective medical practice act.²⁵ Physicians were required to be licensed in the state where the patient is located; a physician in California could not have a telehealth visit with a patient in North Carolina, unless they had a license in North Carolina. However, the pandemic led almost every state to modify licensure requirements and renewal policies so that physicians could see patients across state lines. This enabled a significant proportion of the growth and interest in telehealth. Unfortunately, most states no longer have emergency declarations in place. As of July of 2021, only 17 states continue to have licensure flexibilities with a handful considering laws to allow out-of-state physicians to provide telehealth services.²⁶ These changes increase barriers to care. When the pandemic began, Johns Hopkins was serving more than 330,000 patients through telehealth. Approximately 10% of patients were located in states without Johns Hopkins facilities, and presumably where their physicians were not licensed.²⁵

State Licensure Reforms to Improves Access to Care:

1. Make it easier for physicians to obtain out-of-state licensing (i.e., Interstate Medical Licensure Compact)
2. State reciprocity to recognize out-of-state licenses as mandated within the VA system
3. License the practice of medicine according to the physician's location alone and not the patient's, similar to the policy of TriCare, the military health plan.
4. Create a federal license to practice medicine instead of going through state boards

This has spurred debate over states' authority around medical licensing. Many argue that state-based licensure is no longer practical given the growth of regional and national health systems and increased used of telehealth.²⁷ Broader licensing systems such as those suggested by Mehrotra et al. (2021) would allow for improved access to care.²⁷ Broader competition may also incentivize higher value care, with improvements in quality or cost.

However, many argue that state licensing boards are unlikely to cede their authority. They have decades of experience and play a significant role in disciplinary activities to maintain patient safety and quality. Licensing –and taxes for the revenue generated by physicians – are also a source of funding for states. Therefore, incremental changes such as reciprocity are more likely to be accepted than broad overhauls like federal licensure.

Advanced Practice Providers

Advanced practice providers (APPs) such as nurse practitioners (NPs) and physician assistants (PAs) emerged in the 1960s to address shortages in the physician workforce.²⁸ NPs are registered nurses who complete at least 1000 hours of clinical practice in areas such as adult or pediatric medicine to earn a masters or doctoral degree. Almost half of all states allow NPs to practice without physician oversight. PAs are not required to have previous clinical experience, but study for two years to complete a master’s degree. To graduate, they must complete at least 2000 hours of clinical practice. They can practice in a variety of specialties, through PA residency is not required. Laws regarding oversight of PAs vary by state. In comparison, physicians must complete four years of medical school and at least three years of residency to practice, logging 15,000 to 16,000 clinical hours.²⁹

This training arguably allows physicians to provide more comprehensive care, but their training is longer and more expensive. Some argue it is easier to train and increase the number of APPs to address the provider shortage. Compared to physicians, APPs are also more likely to practice in rural settings and treat underserved populations, helping concerns regarding provider distribution.³⁰

However, groups representing physicians and APPs often have conflicting opinions regarding their respective roles.³¹ Physicians believe they provide higher quality care, while APPs disagree and believe they should be allowed greater autonomy (i.e. admitting privileges, practice without oversight). Studies comparing the two groups offer mixed results. Some show physicians provide fewer unnecessary antibiotics, order fewer diagnostic tests, and make fewer specialist referrals. However, others show similar utilization and outcomes suggesting the two provide comparable care. Further research is needed to understand how to optimize APPs with healthcare teams. Work should be conducted in broader settings (i.e., outside the VA or academic centers) and consider confounders such as variation in training and physicians’ roles in collaborating with or supervising APPs.

“The Great Resignation”

Before COVID-19, two out of five physicians reported burnout.¹ Now, the pandemic has only exacerbated the issue with almost 20% of healthcare workers quitting their jobs since February of 2020 and a third considering leaving.³² Many worry that the increase in clinical burnout will cause doctors to reduce hours or retire sooner. Those working past 65 or

considering it may also have personal health concerns that push them to end their practice instead of furthering their exposure to COVID-19.

Similarly, almost 50% of nurses report burnout.³³ With the pandemic, 11% have indicated an interest in leaving their current positions while 20% are undecided or considering.³⁴ Approximately 2% have decided to leave the entire profession, and 8% are undecided or considering it. Unlike physicians, nurses have less autonomy in their day-to-day jobs and cannot easily make changes to change their schedules or increase safety (i.e., treat patients remotely through telehealth). Considering differences in income as well, it is perhaps less surprising to see nurses leave the workforce at higher rates.

The National Academy of Medicine has called for immediate action.³⁵ They argue that greater emphasis must be placed on the human aspect of care to reduce burnout. Rather than spend time on administrative tasks (i.e., documentation or insurance), policies should encourage face time with patients. Recommendations range from investing in more research on clinician well-being to enabling technology solutions and providing clinicians and trainees with greater support systems. Without significant change, the U.S. healthcare system may struggle to retain its existing provider workforce.

Discussion Questions

1. Should the government continue to fund GME? What issues, if any, would be created if teaching hospitals funded GME themselves? If the government continue to subsidize GME, should it use its influence to encourage better specialty and geographic distribution?
2. Is there really a physician shortage? A nursing shortage? What can we do to improve access to providers across specialties and locations?
3. Should insurers continue to reimburse telehealth in parity? What approaches or restrictions would ensure appropriate use?
4. How should state licensure be reformed, if at all?
5. What is the ideal role of advanced practice providers? Should the U.S. focus on increasing the number of NPs and PAs instead of MDs?
6. How can we reduce burnout among health care workers? What barriers exist?

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