

Hospital Closures: Drivers, Adaptations, and Public Impacts

Soroush Saghafian, Ph.D., M.S., Harvard University

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A concerning number of hospitals have closed in the US in recent years, averaging 21 hospitals annually between 2010 and 2015, with 47 closures in 2019 alone (Saghafian et al., 2022). The COVID-19 pandemic made this concerning trend more prominent, raising further concerns about the potential impacts of hospital closures.

Main Drivers of Hospital Closures

There are various drivers that contribute to the increasing trend of hospital closures in the US. The first driver is related to the financial challenges. Specifically, hospitals operate on tight margins and face financial pressure from a variety of sources, including reduced reimbursement rates from government payers like Medicare and Medicaid, uncompensated care for uninsured patients, and rising costs for supplies, technology, and labor. Financial challenges are particularly acute for rural hospitals, which typically have smaller patient populations and struggle to attract and retain physicians. Financial challenges were exacerbated for many hospitals during the COVID-19 pandemic, in part because they had to stop more profitable services (e.g., elective surgeries) and shift their resources towards less profitable COVID-19 patients.

The second driver is related to changes in healthcare policy. Healthcare policy changes—at the state or federal level—can have a significant impact on hospitals. For example, changes to Medicare reimbursement rates or eligibility criteria can affect hospital revenues. In parallel, states' Medicaid expansion decisions can affect the number of insured patients their hospitals serve. The US government, however, has had a few mechanisms in place to provide funding for hospitals facing challenging circumstances. Examples include the Disproportionate Share Hospital (DSH) payment that supplements the cost of uncompensated care, and the Critical Access Hospital (CAH) program aimed at covering the high fixed costs that rural hospitals often face.

These funding mechanisms, however, have been subject to various changes (Saghafian et al., 2022, Song and Saghafian, 2023). For example, recent healthcare reforms have attempted to cut the DSH fund by \$35.1B between FY2017 and FY2024, and there have been various efforts to make the CAH program's eligibility stricter. The COVID-19 pandemic, however, forced the US government to increase its support for hospitals that have been struggling. Specifically, the government provided additional federal support such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act, devoting \$175B for providers hit hard by COVID-19. The Department of Health and Human Services has also expanded the Medicare Accelerated and Advance Payment program—a loan program that helps hospitals with disruptions in cash flow. These supporting mechanisms have enabled some struggling hospitals to “take a breath,” enabling them to acquire essential equipment, recoup lost revenues, and most notably, stay open. Nevertheless, funds are restricted and largely constrained. What is more, the US government in some cases— especially

with regards to stimulates packages such as CARES Act—has not been able to implement effective mechanisms that ensure the funds go to hospitals that are at utmost need—and not the wealthier ones that did not face significant financial or operational challenges during the pandemic.

The third driver of hospital closures is a rapid growth in industry consolidation and vertical integration. By and large, the healthcare industry has been consolidating at a rapid speed, with more powerful hospital systems acquiring smaller, independent hospitals. Similarly, medicine in the US is becoming more vertically integrated with larger hospitals acquiring independent physician practices (Saghafian et al., 2023). These concerning changes can lead to closures of smaller facilities that are no longer financially viable or competitive, or those that are deemed redundant by the larger healthcare systems.

The fourth driver is related to the demographic shifts. Changes in population demographics can also affect hospital viability in significant ways. For example, as populations age, there is an increased demand for certain types of healthcare services (e.g., long-term care), while other services may face a decreased demand. These changes in demand, caused by changes in population demographics, create significant issues for some hospitals, pushing them to close entirely or at least shut down some of their services. Some of the lock-down policy interventions implemented by the US government during the early stages of the COVID-19 pandemic (see, e.g., Bolori and Saghafian, 2023) also reduced the mobility of some patients, making them less likely to travel to hospitals.

Finally, there are various technological advances that affect care delivery models and hospital operations. For example, the rise of telemedicine post COVID-19 has made it easier for patients to receive care remotely, reducing the need for in-person visits and potentially leading to lower demand for certain types of hospital services. Mobile Health (MHealth) technologies that are now more common than before—thanks to advancements in smart phones, sensors, and IoT enabled devices— have also reduced the need for patients to go to hospitals, thus, reducing the demand for some of their services (Saghafian and Murphy, 2021). And a reduction in demand often has important revenue related consequences for hospitals, pushing some closer to closure.

In addition to understanding these drivers, to better comprehend the impact of hospital closures, , we also need to consider how providers—physicians and remaining hospitals—adapt when a hospital closes.

Physicians Adaptation to Hospital Closures

When a hospital closes, physicians who practice there may face a variety of challenges as they seek to adapt to the new circumstances. Overall, adapting to a hospital closure can be a complex and challenging process for many physicians, requiring a significant amount of patience, flexibility, and resilience, among others.

Some of the most common ways for physicians to adapt—besides relocating to a new area or commuting to a different hospital—include exploring alternative practice models, considering opening a new practice, and retiring or leaving the profession.

Specifically, many physicians may explore alternative practice models, such as telemedicine or concierge medicine, that allow them to provide care outside of the traditional hospital setting. New internet-enabled technologies also allow them to be hired in location-independent roles, including serving as a tele-triage physician (Saghafian et al., 2018).

To adapt, some physicians may consider opening their own practice or joining a small group practice. This can provide greater autonomy and control over their work, but also comes with the burden of managing a business. In addition, for some physicians, a hospital closure may be a signal to retire or leave the profession altogether. This can be particularly true for physicians who are close to retirement, or those who are reluctant to start over in a new healthcare system.

But can physicians easily keep their career going after their hospital closes? In some cases, there may be many opportunities available, and physicians may be able to transition to a new hospital or practice without much hassle. In other cases, it may be more exigent to find new employment opportunities, particularly in rural areas where there may not be any other hospital nearby. The ease of switching also depends on the current setting in which a physician is practicing. For example, some physicians already use telemedicine, tele-triage, or other related technological advancements to serve multiple hospitals, and hence, they may not face much trouble when one of their hospitals closes.

In addition, physicians' professional network and financial resources can also play a significant role in how they can response to their hospital being closed. Thus, there are various individual level differences that can play a role as well.

It is also essential to note that hospital closures can have ripple effects throughout the healthcare system, and the impacts may not be limited to specific specialties. For example, primary care physicians who refer patients to the hospital for specialty care may have to refer them to different hospitals after a closure, which can impact their patient relationships and continuity of care.

Nonetheless, hospital closures often affect those specialties that rely heavily on hospital-based services more than others. For example, some hospitalists often work exclusively in the hospital setting and do not have any private practice outside of the hospital. When a hospital closes, hospitalists may have to find new jobs or relocate to another hospital. Emergency medicine physicians also often work primarily in a hospital emergency department (ED), although even in that case there are various inter-physician differences among them (Traub et al., 2018). When a hospital closes, its ED also closes, forcing its ED physicians to relocate to another hospital.

Another group of physicians that are often affected by closures are anesthesiologists who provide anesthesia services for patients undergoing surgery or other procedures in the hospital. When a hospital closes, there may be fewer opportunities for anesthesiologists to practice in the area due to the nature of their specialty. Similarly, hospital closures often affect OB/GYNs providers in charge of women during pregnancy, childbirth, and postpartum. When a hospital with a labor and delivery unit closes, OB/GYNs may also need to relocate. And the relocation of physicians can change demand vs. supply ratios, mainly because the patients move their healthcare needs "locally," while physicians might move out of state or relocate to further locations. Such changes in demand vs. supply can in turn have various negative impacts.

Nearby Hospitals Adaptation to Hospital Closures

When a hospital closes its nearby hospitals face the challenge of handling a sizable demand spike, since the needs of patients of the closed hospital are added to their typical workloads. So how do such hospitals adapt to the spike demand?

Our analyses of over 14 million patient visits (Song and Saghafian, 2023) suggested that the nearby hospitals on average improve their operational efficiency. That is, without adding much additional capacity, they end up serving more patients. However, they do so via a speed-up response. That is, by reducing their average service duration instead of lowering their average bed idle time. What is more, this speed-up response negatively affects some aspects of quality of care such as the 30-day mortality rate (Song and Saghafian, 2023). These “spillover” effects of hospital closures are less understood but are highly important to take into account by policymakers and other authorities who want to mitigate the negative consequences of hospital closures.

Finally, it is equally important to note that these spillover effects of hospital closures are highly heterogeneous. For example, nearby hospitals that are often considered more desirable (e.g., high-quality, urban, and teaching hospitals) tend to experience more prominent spillover effects on their operations. What is more, these heterogeneous effects often magnify social disparities by enlarging the existing efficiency gaps between the more and less desirable hospitals.

More research is needed to get a better picture of the entire impact of hospital closures. But what we know is that their impact goes well beyond the typical discussion on patients’ access to care. Notably, hospital closures have serious impacts on providers—physicians and the nearby hospitals. Limiting the discussion to access to care is not only a disservice to providers and the entire healthcare sector, but could also mislead potential policy solutions.

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Author Information

Soroush Saghafian, Ph.D., M.S., is an Associate Professor at Harvard Kennedy School, Harvard University. He is the founder and director of the Public Impact Analytics Science Lab (PIAS Lab) at Harvard. He also serves as the Faculty Affiliate of Harvard Center for Health Decision Science, Harvard Ph.D. Program in Health Policy, Harvard Mossavar-Rahmani Center for Business and Government, Harvard Data Science Initiative, and Harvard Belfer Center for Science & International Affairs.

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Correspondence

Questions or comments should be directed to Soroush Saghafian at:

Soroush_saghafian@hks.harvard.edu.