Rural Regions

A Look at Rural Hospital Closures

Rural hospital closures have received a good bit of media attention in recent months. Stories of community loss and often personal tragedy in the face of increased distances to healthcare are heart wrenching. Healthcare is a critical service needed by almost every person at some point. While it is not a purely economic good, healthcare is subject to the allocation of scarce resources—or economics.

The purpose of this research note is to provide additional information on some relevant economic and regional considerations in evaluating the provision of health services in rural areas. This note does not advocate for either the maintenance or closure of any single facility or rural health services in general.

The Cecil G. Sheps Center for Health Services Research at the University of North Carolina publishes a list of rural hospital closures. This list, which currently notes 80 closures since 2010, is often referenced by the media and industry sources. The list forms the basis for the paper's analysis as well. Additional data were collected from other sources: hospital locations - Google Maps; Population - Census Bureau; State Medicaid Expansion status - FamiliesUSA and Advisory Board). The reader is encouraged to access the spreadsheet containing data and calculations accompanying this research note.

There are certainly important economic aspects to these closures, and there is a regional nature to many of these aspects. First, supply slopes upward, and demand slopes down. Providers are unwilling and unable (economically) to provide more health services at lower prices. That is one reason many administrators cited Medicare and Medicaid reimbursement rates and states' decisions not to expand Medicaid as factors in the decision to close a hospital. Medicaid expansion would have increased (shifted out) consumers' demand for care, which would have increased the quantity of services provided in the market but could have increased prices. At the same time, reduced indigent care costs could have shifted the supply curve out, allowing hospitals to both decrease prices and increase service provision. In non-expansion states, none of that happened. Indeed, the rate of hospital closures in expansion and non-expansion states was more similar prior to 2014, and more closures have occurred in non-expansion states post-ACA. However, expansion states have also seen closures since 2013, and the three hospitals that have reopened are in non-expansion states.

Supply and demand curves are rarely stationary. At lower levels of reimbursement, hospitals need to see more patients; rural areas often don't have enough people to create the volume that overcomes lower "prices". Forty-nine of the 80 closed hospital (and 2 of the 3 reopened ones) were located in counties that lost population between 2010 and 2015 (Census Bureau), with an average population loss of 1.8%. The remaining 31 closures were in counties with an average growth of 2.0%, somewhat below US growth of 2.5%.

Other factors may reduce demand for rural hospital services as well. Some administrators noted that residents were utilizing services at other, usually larger, locations, which reduced use of the local facility. This Tiebout (1956) migration, or voting with feet, indicates effects of regionalism and economics. The idea is that people choose locations based on their preferences. Of course, when selecting healthcare providers, preference may not be the only factor involved. Many rural hospitals no longer deliver babies for financial reasons, but as families establish maternal and perhaps pediatric care at a larger hospital, they may not return to the local practice.

Healthcare provision has also changed dramatically. Doctors can now treat and cure diseases that were fatal in past decades, but many of the necessary procedures are performed by specialists in large, urban hospitals. One hospital administrator noted that many issues that previous required hospitalization are now outpatient procedures. That is likely a good thing for patients and families for financial and emotional reasons. The effects on communities may be mitigated by the fact that more locations have clinics than hospitals. But these changes in the structure of care may contribute to rural hospital closures.

Voting with feet works well as long as you're on your feet. But often the people who need healthcare the most are the least able to travel. The idea of the "Golden Hour" in accessing medical services within an hour of trauma to reduce morbidity and mortality is commonly accepted. The importance of that hour is not fully established (Lerner and Moscati, 2001), although studies point to the conclusion that timely access is important (Ertl et al., 2017). A recognition that rural West Texas is unlikely to achieve hospitals within an ideal parameter of 30-miles from a patient points to the challenges of balancing the critical nature of healthcare with the realities for demand among a sparse population and supply of scare labor and financial resources. In remote rural areas, voting with feet also works best with a car, meaning low income and older people may be disproportionally affected by closures.

Still, it is helpful to know the distance to the nearest hospital following a closure. By mapping the location of the closed hospital and searching for nearby hospitals in Google Maps, I attempted to create such a measure. Admittedly, the measure is imperfect. I clearly ignored animal hospitals and believe I excluded facilities that were, upon further inspection, merely clinics, emergency rooms, or urgent care facilities. However, the nearest hospital in some cases does not provide a full spectrum of services. I know this because I usually visited the nearby facilities' websites. In a few cases, I bypassed a facility with extremely few services for a facility a few miles down the road. In other words, I tried to be reasonable in finding comparable or better care. However, because the mileage is the road distance to the hospital nearest the closed location, it is possible that residents in another part of the county would find another hospital nearer. These distances serve as an approximation of distances to care within the region. In retrospect, I wish I'd also collected the number of hospitals within some radius as several locations had multiple hospitals with very similar distances and travel times. And, as stated previously, urgent cares, ERs and clinics were excluded although they provide valuable local resources in many cases. The data set is here.

Distance from Closed Hospital to Nearest Available Hospital (miles)

Average	18.5
Median	16.4
Min	0.1
Max	105

Closure count by distance to next hospital

Less than 5 miles	9
5-9.99	5
10-14.99	20
15-19.99	18
20-24.99	10
25-29.99	10
30-34.99	3
35-39.99	2
40-44.99	1
45-49.99	0
50-99.99	1
100+ miles	1
Hospital count	80

On average, the nearest hospital was 18.5 miles from the closed facility, which was similar to the median distance of 16.4 miles. The farthest distance was 105 miles in Nye County, Nevada, which saw a telemedicine clinic established in 2016. Seventy-two of the 80 closed hospitals were within 30 miles of another hospital.

The Sheps Center provides a count of 2,244 acute care rural hospitals in 2016. The rural hospital count includes critical access hospitals in urban areas. If 80 hospitals closed between 2010 and 2017, that is 3.5% of rural acute care hospitals. If the 131 rural specialty hospitals are included in the tally, the closure rate is approximately 3.2%. Both the Kaufman Family Foundation and Statista show a decline in all hospitals (both rural and urban and including specialty hospitals, such as pediatric and rehabilitation) between 2010 and 2015 (2.5% and 3.3%, respectively) as well as since 1975. Rural hospitals have closed at a rate only slightly higher than the national rate.

For perspective, 606,871 business establishments closed between 2013 and 2014, according to the Census Bureau's latest available Statistics of US Businesses. That is a loss of 9.0% of establishments in one year's time. Of course, that figure includes start-ups, many of which fail. Furthermore, many hospitals are more stable long-standing institutions, non-profits, or even community-owned. But it puts an 8-year closure rate of 3.5% over eight years into perspective. The rural acute closure rate based on the Sheps Center data for 2016, which is the latest complete year, would be 0.6%. Additionally, hospital closures do not happen in a vacuum. While they may be a result of mergers of nearby facilities, they can also be a consequence of economic decline in other sectors. Hospital closures can then exacerbate decline as healthcare professionals leave the community for work elsewhere.

Looking more closely at often-cited data and examining that data alongside other information can provide a clearer picture of conditions. Together, these perspectives can contribute to decisions about how to best allocate scarce resources for critical services in the face of changing demand. However, many data sources and considerations remain for further research.

References (additional materials linked in the text):

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