

Crises Collide

The COVID-19 Pandemic
and the Stability of the Rural
Health Safety Net



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When The Chartis Center for Rural Health released [“The Rural Health Safety Net Under Pressure: Rural Hospital Vulnerability”](#) in February 2020, a decade of downward pressure on rural health safety net revenue was rapidly accelerating a rural hospital closure crisis.

At the time, each of the key indicators monitored by The Chartis Center for Rural Health pointed in the same direction — a difficult situation was worsening. Today the stability of the rural health safety net is even more tenuous. Rural hospital closures now stand at 135,¹ and our research indicates that another 453 are vulnerable to closure.²

The rapid spread of COVID-19 in rural communities has further destabilized the ability of rural hospitals to meet the needs of their communities. Through analysis conducted by The Chartis Center for Rural Health, we know rural communities to be older, less healthy, and less affluent than their urban counterparts, and they face declining access to services. Our analysis also informs us as to the breadth of the financial and operational hurdles rural hospitals face when combating the virus in their communities.



According to our analysis, 62 percent of rural hospitals do not have any intensive care unit (ICU) beds. In fact, there are fewer than 6,000 ICU beds in rural communities, which means that for approximately every 10,000 Americans living in a rural community, there is just a single ICU bed. To their communities, rural hospitals provide access to vital outpatient services. For the average rural hospital, 77 percent of total revenue is associated with outpatient services. As the pandemic has progressed, many rural providers have suspended or limited outpatient procedures, further compounding financial instability. In addition, our analysis has shown that the average rural hospital has 33 days cash on hand.

In the spring of 2020, urban areas across the country were viral hot spots during the early stages of the pandemic in the United States. By the start of 2021, however, rural counties had moved to the forefront, disproportionately straining the capacity of the rural health safety net. During the first week of January 2021, for example, nearly a quarter of a million new cases of COVID were reported in rural counties along with a record 4,084 COVID-related deaths.³ Our analysis of data released by the Department of Health and Human Services indicates that at the start of the new year, 35 percent of adult hospitalizations at rural hospitals were COVID-related and 83 percent of staffed adult ICU beds in rural hospitals were occupied. Among urban hospitals, these metrics were 27 percent and 84 percent, respectively, for the same period.⁴

This study builds upon our existing research into the stability of the rural health safety net and provides the clearest picture yet of the extent to which the pandemic has impacted rural hospitals and their ability to deliver care within their communities. Through the close examination of newly released and updated data, and the results of a rural hospital executive survey conducted by The Chartis Center for Rural Health and the National Rural Health Association, this report aims to:

- Expand our understanding of the intersection between rural hospital closures, vulnerability, and the realities brought about by the COVID-19 pandemic.
- Examine the impact of COVID-19 on hospital operations and finances.
- Identify rural hospital leadership concerns for the short- and long-term impact of COVID-19 on the rural health safety net.
- Outline considerations and strategic imperatives for maintaining dual models of care.

A PANDEMIC CONVERGES WITH A CRISIS

Over the course of the last decade, America’s rural health safety net has been caught in a downward spiral. In rural communities across the country, a variety of factors have collided to put pressure on rural hospitals. Within rural communities, hospitals must deal with the negative effects of population migration, socioeconomic disparity, and difficulty recruiting and retaining healthcare professionals. At the same time, the unintended consequences of policy decisions in Washington, D.C., have reduced

reimbursements, which have been compounded by resistance of nearly one-third of states to expand Medicaid under the Affordable Care Act.⁵

As part of our ongoing research into the stability of the rural health safety net, The Chartis Center for Rural Health conducted a longitudinal evaluation to provide clarity into the operational and financial strength of rural hospitals across the nation. The financial baseline performance of rural hospitals, hospital closures and a multilevel regression analysis of hospital vulnerability indicate that the downward pressure on rural hospitals is continuing at an accelerated pace. Furthermore, where rural hospitals survive, in many cases they do not thrive, having shed critical service lines needed by their communities. The nationwide loss of obstetrics, for example, underscores the breadth of the crisis and the impact on rural communities in which hospitals are able to keep the doors open.

Rural Hospital Operating Margin

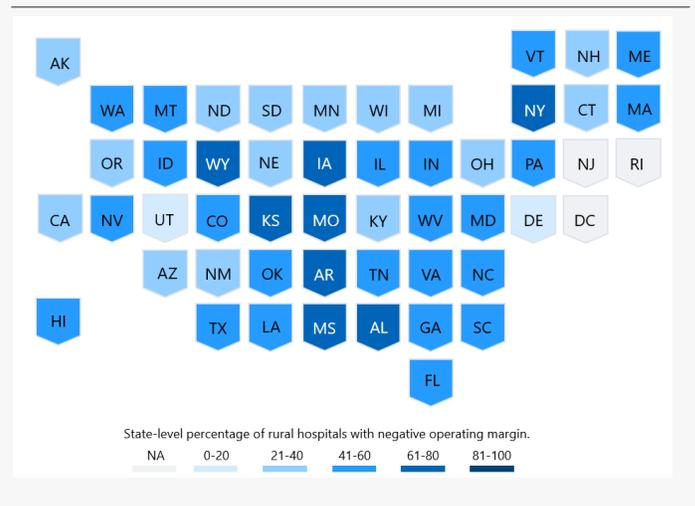
In 2015, 39 percent of America’s rural hospitals were operating in the red. Today, 46 percent of rural hospitals have a negative operating margin. The states with the highest percentage of rural hospitals with a negative operating margin are Alabama (78 percent), Kansas (71 percent), Mississippi (68 percent), Arkansas (67 percent), and Wyoming (65 percent) (*Figure 1*).

Historically, our analysis has shown that rural hospitals in states that have expanded Medicaid under the Affordable Care Act have outperformed rural hospitals in states that have resisted expansion. In the last year, for example, the median operating margin for a rural hospital in an expansion state rose slightly from 0.8 percent to 1.1 percent. In non-expansion states, however, operating margin is once again in the red at -0.1 percent. In expansion states, the total percentage of rural hospitals with a negative operating margin is 43 percent, while in non-expansion states, the total percentage of facilities with a negative operating margin is 50 percent (*Figure 2*).⁶

Rural Hospital Closures

While the first few years of the rural hospital closure crisis yielded a relatively small number of closures (e.g. 2010-2012), the pace of closures began to accelerate in 2013. Over the course of the next eight years (2013-2020) the number of yearly closures never dipped below 10, twice reached 17 (in 2015 and 2020), and set a single year record

Figure 1: Today 46 percent of rural hospitals are in the red. In several states, the percentage exceeds 60 percent.



in 2019 with 18 closures. From January 1, 2015, to January 1, 2021, the number of rural hospital closures jumped from 47 to 135.⁷

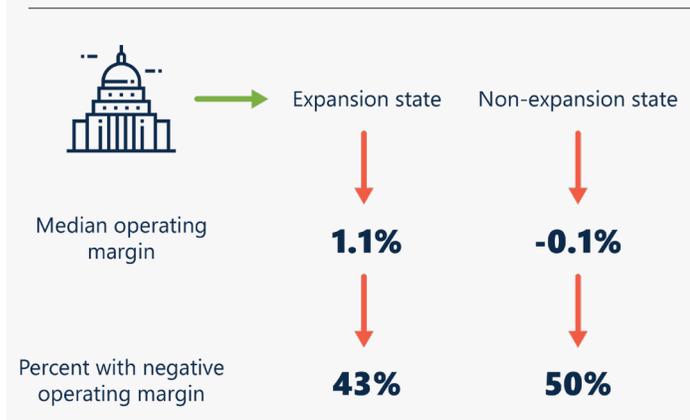
The greatest number of hospital closures have occurred in Texas (21 closures), Tennessee (15 closures), and Georgia (8 closures). These states are followed by Kansas, Missouri, Oklahoma, and North Carolina (with 7 closures each), Alabama (6 closures), and Florida (5 closures). Among these nine states, only Missouri and Oklahoma have agreed to adopt Medicaid expansion under the Affordable Care Act, although the states are not due to implement until later in 2021.⁸ The other seven states all continue to resist Medicaid expansion efforts.

When a rural hospital closes, the repercussions reverberate across the community. [Analysis conducted by The Chartis Center for Rural Health](#) as the closure crisis eclipsed 100 rural hospital closures revealed the loss of approximately 10,000 hospital-related jobs and approximately 3,000 additional jobs within the community.⁹

Declining Access to Services: Obstetrics

The loss of a rural hospital creates an immediate gap in services available to the local community, forcing people to travel further to seek and receive treatment. Our analysis of rural hospital closures and drive time, for example, has shown that when a rural hospital closes, people in a majority of these communities must drive 30

Figure 2: States that have expanded Medicaid under the Affordable Care Act outperform counterparts in non-expansion states.



minutes or more to reach the nearest facility.¹⁰ Across the country, however, significant service deserts are emerging — and not just in areas in which a rural facility has closed. Between 2011 and 2018, our analysis reveals that 166 rural hospitals eliminated obstetrics (OB) as a patient service. This trend of rural hospitals eliminating OB to stay open has continued, and across the nation, 54 percent of all rural hospitals now lack OB services. This access is disappearing at the rate of 24 rural hospitals (communities) each year.¹¹ For women in communities that lose access to OB services, it means significantly more time in the car. In our 2019 analysis of drive times related to declining access to OB, we found that women in 59 percent of the communities that had lost OB services faced drives of up to 30 minutes more. Women in the remaining 41 percent faced drives of up to 60 minutes or more.

166 rural communities no longer have access to OB services due to declining access to services and closures.

States with sizable rural hospital footprints that have seen the largest decline in access to OB in our updated analysis are West Virginia (45 percent), North Dakota (38 percent), and Pennsylvania (30 percent). In each of these instances, the percentage of hospitals that have ceased to provide this service line is 30 percent or more. As a percentage of rural hospitals in a given state without OB, the states with the highest percentage are North Dakota

(86 percent), Louisiana (79 percent), West Virginia (78 percent), Mississippi (73 percent), and Illinois (70 percent). Conversely, the states in which rural access to OB services is greatest are Connecticut (100 percent with OB), Utah (95 percent with OB), Alaska (94 percent with OB), Vermont (83 percent with OB), and Massachusetts (80 percent with OB).

Declining Access to Services: Chemotherapy

Our analysis shows that access to chemotherapy within rural communities is in decline. Across the country, 18 percent (252 rural hospitals) of the nation’s rural hospitals that used to provide chemotherapy services during the baseline period (2014-2017) ceased to provide access to these services by 2018.¹² The number of rural providers offering this service line declined from 1,378 to 1,126. For any given year, between 70 and 100 rural hospitals went from providing chemotherapy (e.g., having at least one Medicare outpatient encounter) to not registering an encounter the following year.

Loss of chemotherapy at the state level was greatest in Arizona, where 50 percent of the state’s rural hospitals dropped the service line. This was followed closely by Tennessee at 47 percent and Alabama and Florida at 45 percent each. South Carolina, Texas, and Mississippi are the only other states with deterioration of equal to or greater than 40 percent. This service line disappeared at 21 rural hospitals in Texas and 21 in Kansas, which are tied for most in the nation. Three other states — Georgia, Missouri, and Iowa — have 12, 12, and 11 rural hospitals, respectively, no longer providing this service. It is interesting to note that across the various views related to the loss of access to chemotherapy, the majority of states identified have all declined to expand Medicaid under the Affordable Care Act.

Rural Hospital Vulnerability

Given the accelerated pace with which rural hospitals have closed in recent years, The Chartis Center for Rural Health developed a rigorous statistical model that identified key indicators most likely to impact a hospital’s ability to sustain operations during the critical tipping point window (e.g., two years prior to closure); identified the number of open rural hospitals vulnerable to closure that are quantitatively similar across selected covariates to rural hospitals that closed since January 2010; and explored the performance levels of these open hospitals that are vulnerable to closure.

This analysis, which uses data from the Medicare Hospital Cost Report Information System, Medicaid Expansion Status according to the Kaiser Family Foundation, and the Area Deprivation Index, produced the probability of closure for 1,844 open rural hospitals based on metrics for the two most recent financial reporting years available. Of the 16 indicators identified as an important predictor of hospital closure, nine were determined to be statistically relevant.

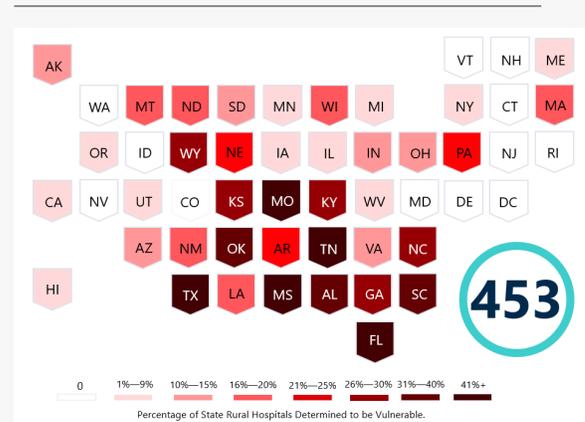
With this model, The Chartis Center for Rural Health determined that 453 rural hospitals (i.e., Critical Access Hospitals and Rural and Community Hospitals) are vulnerable to closure, based on performance levels that are similar to rural hospitals at the time of their closure. Through this analysis, we are able to see with specific clarity the true extent of how unstable the rural health safety net has become (Figure 3).

The highest levels of rural hospitals identified as vulnerable exist in states such as Texas (77 vulnerable), Kansas (31 vulnerable), Oklahoma (28 vulnerable), Mississippi (27 vulnerable), and Missouri (26 vulnerable). Not surprisingly, some of these states feature prominently in our analysis of hospital closures and rural hospital operating margins. Looking at vulnerability as a percentage of a state's rural hospitals, states that have not yet expanded Medicaid dominate the list. Tennessee has the highest state percentage of rural hospitals vulnerable with 52 percent, followed by Texas (51 percent), Florida (43 percent), Missouri (43 percent), and Mississippi (42 percent). Among the top 10 states with the highest percentage, only Missouri and Oklahoma have adopted Medicaid expansion, though neither will implement until later in 2021.

THE COVID PANDEMIC RATCHETS UP THE PRESSURE ON RURAL PROVIDERS

At the onset of the COVID-19 pandemic in the United States, The Chartis Center for Rural Health published ["The Rural Health Safety Net Under Pressure: Understanding the Potential Impact of COVID-19,"](#) which provided a rural perspective into important pandemic topics, such as the ability of existing healthcare infrastructure to withstand surges in positive cases, and the ability of hospitals to withstand the suspension or long-term loss of outpatient services.

Figure 3: States with the highest percentage of rural hospitals vulnerable to closure include Tennessee, Texas, Florida, and Missouri.



In the early stages of the pandemic, access to ICU beds quickly became a marker for determining the severity of local cases and the sustainability of local healthcare infrastructure. Today, the total number of rural ICU beds is 5,908. This means there is approximately one ICU bed for every 10,000 people in rural America.

As part of our analysis, we also reviewed cost report data for approximately 2,100 rural hospitals (1,300 Critical Access Hospitals and 800 Rural and Community Hospitals) in an effort to understand how significant outpatient service-related revenue was to a rural hospital's total revenue, given the suspension of these types of services as a means of slowing the spread of the virus. Our analysis reveals that the national median for outpatient revenue, as a percentage of total revenue, is 77 percent.

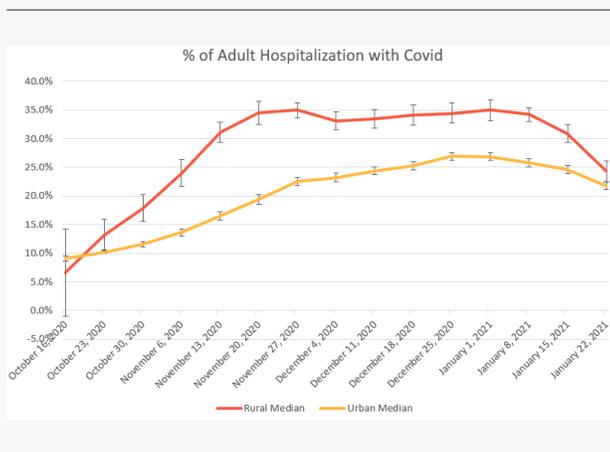
77% OF TOTAL REVENUE TIED TO OUTPATIENT SERVICES

Our analysis of rural provider days cash on hand further underscored the financial impact of a growing pandemic. At the national median, rural hospitals have 33 days cash on hand. More than a dozen states (13) occupy our lowest band of zero to 19 days cash on hand. This band includes states such as Alabama, Oklahoma, Pennsylvania, and Tennessee.

COVID Pushes the Rural Health Safety Net to the Brink

During the early months of the pandemic, infection rates remained highest in non-rural counties. But by summer 2020 and into the fall, new cases were surging in rural America. For the week of June 6, the number of new cases in rural counties was 16,039. By the week of August 8, the weekly total exceeded 50,000 (53,390), and by the week of November 21, it had eclipsed 200,000 for the first time. Similarly, COVID-related deaths for the week of August were 1,171, rising to nearly 4,000 (3,818) by the week of December 12. Consequently, both metrics — number of new weekly cases and number of COVID-related deaths — reached all-time highs for rural counties the week of January 9, 2021, with 232,239 and 4,084, respectively.¹³

Figure 4: In mid-October, the percentage of adult COVID-related hospitalizations surpassed those of non-rural hospitals and quickly exceeded 30 percent.

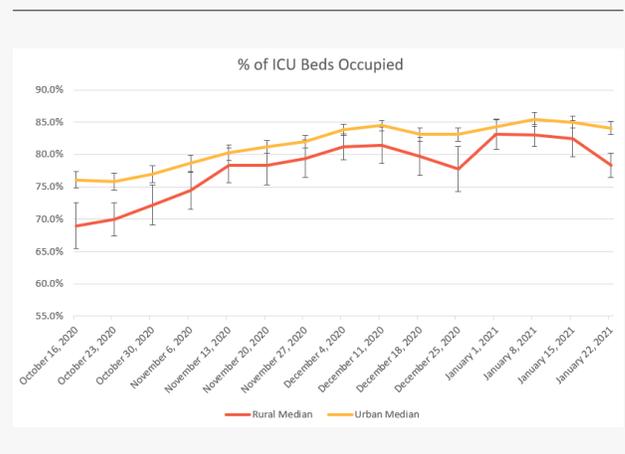


This dramatic jump in COVID infection across rural communities has pushed capacity within the rural health safety net to its breaking point. Our analysis of data provided by the Department of Health and Human Services reveals from October 2020 to January 2021, rural hospitals experienced a higher percentage of adult hospitalizations from COVID — both suspected and confirmed — than non-rural hospitals (Figure 4). COVID-related adult hospitalizations at rural hospitals during this period increased from a median of 6.6 percent of all adult hospitalizations on October 16, 2020, to 34.2 percent on January 8, 2021. Among non-rural hospitals, the median

percentage of COVID-related adult hospitalizations rose from 9.1 percent on October 16, 2020, to 25.8 percent on January 8, 2021.¹⁴

The analysis also reveals that rural hospitals saw an increase in median occupied ICU beds from October 16, 2020, to January 1, 2021. On October 16, 2020, for example, at the median 69 percent of rural hospitals' staffed adult ICU beds were occupied. By January 8, 2021, however, the percentage had risen to 83 percent (Figure 5). It's important to remember that 62 percent of rural hospitals do not even have ICU beds available for COVID patients who develop severe illness requiring that level of care. As a measure of comparison, the median percentage of occupied ICU beds at non-rural hospitals rose similarly from 76 percent on October 16, 2020, to 84.1 percent on January 8, 2021. The sharp rise in the number of COVID-19 cases in rural counties has a cascading effect on COVID-related hospitalizations, occupied ICU beds in rural hospitals, and ultimately COVID-related deaths. These four interconnected measures illustrate just how dire the situation became in rural communities during the last several months of 2020 and the first week of 2021.

Figure 5: By early January, 83 percent of the staffed adult ICU beds in rural hospitals were occupied.



In an effort to further understand this moment in time, and the intersection of the rural health safety net crisis and the COVID-19 pandemic, The Chartis Center for Rural Health surveyed rural hospital leaders from across the country. The survey, conducted between October 26, 2020,

and January 11, 2021, was designed to shed new light on the suspension of outpatient services, highlight the financial impact of suspending these services, and identify short- and long-term concerns related to the pandemic.

When asked how long their facility had suspended outpatient services, a majority of respondents (36 percent) indicated a three-month suspension, while 34 percent were forced to cease outpatient services for two months. Approximately 16 percent of respondents suspended outpatient services for one month, and nearly 10 percent endured a four-month suspension of outpatient services. In total, 86 percent of survey responses reveal an outpatient service suspension of one to three months. An overwhelming majority of survey respondents (82 percent) revealed that the suspension of outpatient services resulted in up to \$5 million per month in lost revenue. For 12 percent of respondents, the estimated loss was between \$5 million and \$10 million per month, while 4 percent indicated that figure to be between \$10 million and \$15 million per month.

Outpatient surgery was cited as the most widely effected service by 55 percent of respondents. This was followed by family practice with 22 percent and specialty clinics with 9 percent. When asked to comment on outpatient service demand recovery, 100 percent of respondents indicated that their facilities were once again offering outpatient services. A majority of respondents (60 percent) categorized outpatient service demand recovery as "slower than expected," while 40 percent said recovery had been "faster than expected."

The resumption of outpatient services means many rural hospitals are now in a dual mode of operation; they are moving forward with "normal" operation and services while simultaneously testing and treating COVID-19 patients. When asked to consider the long-term implications of the pandemic on hospitals' operations, an overwhelming majority of survey respondents ranked "staffing and burnout" No. 1, followed by "prospect of suspending outpatient services," "access to PPE and other resources," "ability to continue to offer specific services," and "increased use of/reliance on telehealth."

Staffing-related issues clearly emerged as the leading cause of concern for survey respondents. Our survey

provided respondents with the opportunity to answer two questions ("What is your biggest concern regarding the short-term implications of COVID-19?" and "What is your biggest concern regarding the long-term implications of COVID-19?") in a free-form fashion.

In the question regarding short-term implications, references to "staff" appear in 50 percent of the responses. It is the single most common word across all responses. "Patients" ranked second in references at 13 percent, and "staff burnout" was third at 11 percent. With regard to long-term implications, "staff" again featured prominently, appearing in 26 percent of all responses, while terms such as "services" (13 percent) and "financial impact" (10 percent) also appeared with a high rate of frequency. The following is a sampling of some of the responses these two questions generated:

Staff burnout ranked No.1 long-term concern by survey respondents.

- "The stress of both internal and external COVID issues is getting to the staff. We are stressed as an organization, but our biggest concern is the staff."
- "What is the new normal going to look like?"
- "Ability to keep staff from burning out and keeping up with policy changes. We need freedom just to stay alive financially. Constant changes in regulations and shifts in decisions are causing us to financially become insolvent."
- "We won't learn from this. The Government will not waive or stop the policies that are killing rural hospitals (all of them)."

MOVING FORWARD WITH DUAL SYSTEMS OF CARE

From January 17 to January 23, 2021, new COVID-19 infections decreased in rural counties by 20 percent for the second consecutive week. The number of COVID-related deaths also fell during the same period, perhaps signaling a shift in the rapid increases in infections and deaths we've seen since early fall of 2020.¹⁵ If these metrics continue to ease, rural hospitals will move beyond the immediacy of the pandemic and into a more consistent rhythm of

providing dual systems of care (that is, providing care to non-COVID patients while also accommodating waves or a steady stream of COVID-19 patients). As we more firmly move into a period of dual systems of care, we believe rural hospitals can expect:

- Deteriorated patient financial profiles
- Reduced market size for the foreseeable future
- Evolved clinical care delivery models (e.g., telehealth)
- Higher marginal cost of care
- Worsened community health status

To date, government intervention efforts during the pandemic have relieved some of the pressure the pandemic is exerting on rural hospitals. However, there continues to be some level of uncertainty surrounding CARES Act-related funds, and many of the pre-pandemic realities for rural hospitals have yet to be addressed. Rural hospital margins have been eroding over several years, and our analysis of rural hospitals vulnerable to closure does not yet include any pandemic-period metrics as that data will become available as the year progresses. Based on our interaction with rural hospital leadership teams, large health systems with rural footprints, and state offices of rural health, we have identified a series of key considerations that, when combined with [insights from across The Chartis Group](#), offer guidance for navigating the aftermath of what has been an intense 12 months:

- Engage consumers and other referral sources in order to re-engage patients
- Identify opportunities to reduce the cost base
- Improve access and quality of care through clinical integration
- Explore partnerships, both horizontal and vertical, traditional, and non-traditional
- Restructure the physician enterprise
- Identify opportunities to maintain momentum and adoption of virtual care
- Consider alternative payment models that emphasize value
- Leverage data and rural-relevant research to inform strategic governance

The road ahead will be not easy. Many rural hospitals may find the post-pandemic landscape far more challenging as the long-term effects of the pandemic may result in more closures and push more hospitals into the realm of vulnerability. The data and perspective discussed in this paper should provide a useful tool for rural health advocates and political leaders at the national and state levels as they seek to alleviate the distress of the pandemic and return a measure of stability back to the nation's rural hospitals and communities.

SOURCES

1. The Cecil G. Sheps Center for Health Services Research, Feb. 5, 2021.
2. The Chartis Center for Rural Health, The Rural Health Safety Net Under Pressure: Rural Hospital Vulnerability, 2020.
3. The Daily Yonder, "Record Levels of Infections and Deaths Return to Rural Counties," January 13, 2021.
4. Department of Health and Human Services, [COVID-19 Reported Patient Impact and Hospital Capacity by Facility](#). Data based on 7-day average.
5. The Chartis Center for Rural Health.
6. CMS Healthcare Cost Report Information System, 2015-2019.
7. The Cecil G. Sheps Center for Health Services Research, Feb. 5, 2021.
8. Kaiser Family Fund: Status of State Medicaid Expansion Decisions, Feb. 4, 2021.
9. The Chartis Center for Rural Health, Research Update: Rural Hospital Closures Eclipse the Century Mark, March 2019.
10. The Chartis Center for Rural Health, 2019.
11. CMS Healthcare Cost Report Information System (HCRIS), 2011-2018.
12. Standard Analytical Outpatient Data, 2014-2018.
13. The Daily Yonder, "Record Levels of Infections and Deaths Return to Rural Counties," January 13, 2021.
14. Department of Health and Human Services, [COVID-19 Reported Patient Impact and Hospital Capacity by Facility](#). Data based on 7-day average.
15. The Daily Yonder, "Rate of New Infections, Deaths Declines in Rural Counties," January 26, 2021.

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