Findings Brief
NC Rural Health Research Program

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News Media Coverage of Rural Hospital Closures and the Causes

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BACKGROUND

Between January 2010 and December 2022, there were 141 rural hospital closures and conversions (referred to as "closures" hereafter).[1,2] Media coverage of rural hospital closures sometimes includes descriptions of strong emotional reactions among local residents and community leaders. Three case studies of communities that experienced a rural hospital closure found that 1) the closures reduced access to emergency care; 2) many physicians and other providers left the community immediately following the rural hospital closure; 3) closures can have a significant impact on access to primary care, but some communities can fill these gaps; 4) the hospital closures exacerbated gaps in access to specialty care; 5) hospital closures result in job losses and have other ripple effects in the surrounding community; and 6) hospital closures can make it more challenging for rural communities to attract employers.[3]

However, rural hospital closure is a complex phenomenon. One study found that specific community-level sociodemographic characteristics (unemployment and uninsurance rates) are positively associated with the likelihood of closure, and concluded that social policies addressing these issues should emphasize their broader relationship with the local health sector.[4] Another study found that rural hospital closures often have adverse effects on local economic outcomes, particularly among Prospective Payment System hospitals, but effects can be attenuated when the closed hospital is converted to another type of health care facility, allowing for the continued provision of services other than inpatient care.[5] Nevertheless, the vulnerability of rural populations exacerbates the severity of these closures, as rural residents are more likely than urban residents to be older, unemployed, living in poverty, in poor health, uninsured, or reliant on public insurance programs such as Medicare and Medicaid.[6]

KEY FINDINGS

The purpose of this study is to augment previous research with findings from a structured framework of attributed causes of closures through the analysis of news media reports.

- **Financial causes were the most frequently reported reasons for closure of rural hospitals**. Unprofitability was cited in over half of the media reports, and revenue insufficiency and expense burden were also frequently reported as causes of rural hospital closures.
- **Low patient volume and patient demographics were reported as major risk factors for rural hospital closures**. Low patient volume was cited in over half of the media reports.
- **The causes of rural hospital closures were numerous, complex, and varied by community**. Probably the most salient finding from this study is that the causes of rural hospital closures were nuanced and multidimensional.

The onset of the COVID-19 pandemic introduced a new set of financial and operational challenges for rural hospitals. In response, Congress enacted the Coronavirus Aid, Relief, and Economic Security (CARES) Act in March 2020.[7] The Department of Health and Human Services allocated $10 billion from the CARES Act specifically to support rural health providers.[8] The Public Health Emergency (PHE) funding was an important financial lifeline for many rural hospitals, and the support may have contributed to the decline in rural hospital closures during 2021 and 2022.[9] However, the PHE funding is now fully distributed and there is concern that rural hospitals are facing a return to the financial stresses they faced before the pandemic.[10]

The health care access and community consequences of closures make it important for policymakers to be informed about the key causes of closures. Previous studies of closures have been based on quantitative analysis of secondary data.[11] The purpose of this study is to augment previous research with findings from a structured framework of

attributed causes of closures through the analysis of news media reports. Media reports of closures offer a qualitative dimension that goes beyond numbers, allowing us to understand the deeper context surrounding a hospital closure, the perspectives of rural residents who experience a hospital closure in their community, and the feelings that people experience even when data don't show measurable changes. Study findings may aid in developing strategies and interventions that will sustain the viability of rural hospitals and ensure continued access to health care services for rural communities.

METHODS

We used closed rural hospital data from the NC Rural Health Research Program's Rural Hospital Closures database available on the UNC Sheps Center website.[2] The website uses the 2022 HRSA definition of rural.[12] A rural hospital is defined as a closure if the hospital stops providing inpatient services. We included 141 closures between January 2010 and December 2022 in our initial sample. We could not find media reports for four hospitals, which reduced our sample to a total of 137 closures.

The analytical method is depicted below:

For data collection on the closed hospitals, we conducted primary qualitative content analysis of publicly available media reports. We searched the web to find media reports on the hospital closures, and we cross-referenced with the Nexis Uni database if we could not find articles in our web search. From these media reports, we recorded quotes that illuminated hospital-specific, attributed causes of closure. We also extracted keywords describing the cause of closure. We collected at least one closure quote and corresponding keyword for all hospitals in the study sample that closed (except for four closures that did not have any media reports), with most hospitals having several attributed closure quotes and keywords. In total, we identified 70 different keywords from media reports.

We grouped the keywords into categories of attributed causes of closures. We calculated the frequencies of the attributed causes of closure and used a tetrachoric correlation for binary data to determine correlation among attributed causes.[13] Most hospitals had multiple attributed causes of closure; we rarely found a single reason cited for a closure. Finally, we grouped the attributed causes into three categories for ease of presentation.

RESULTS

Keywords and Attributed Causes of Rural Hospital Closures

Table 1 shows:

- 70 keywords we gleaned from media reports;[14]
- 10 groups of attributed causes of closure (unprofitability, revenue insufficiency, expense burden, low patient volume, demographics, malfeasance and mismanagement, consolidation, staffing, facility and equipment, and other); and
- three high-level categories of closure (financial causes, patient-related causes, and other causes).

Financial causes. We used three terms to capture financial causes mentioned in media reports: unprofitability, revenue insufficiency, and expense burden. We used "*unprofitability*" to describe media reports of hospitals that were filing for bankruptcy, struggling financially, or had negative profit margins. News media frequently reported hospitals were unable to make payroll. We used "*revenue insufficiency*" when media reported low reimbursements and loss of services that provide large revenue streams. This occurred most often when media reported a hospital was no longer performing surgeries, delivering babies, or providing other specialized services. We used "*expense burden*" to describe media references to costs of operating the hospital, debt levels, and rising costs of supplies, labor, facility operations, and charity care.

Patient-related causes. We used two terms to capture patient-related causes mentioned in media reports: low patient volume and demographics. *"Low patient volume*" includes media reports that cited fewer inpatients and outpatients because of patient bypass, competition, and rerouting of Emergency Management Services (EMS) patients. We use the term *"demographics"* to capture a wide range of patient age group, payer, and health status references in media reports, such as "older", "poorer", and "sicker."

Other causes. We use the term *"other"* as a category for attributed causes of closure with relatively few references, including malfeasance and mismanagement, consolidation, staffing, and facility and equipment. *"Other"* included unique situations that applied to a few hospitals, such as natural disasters (e.g., location in a flood zone), and loss of CAH designation.

Table 1. Media Reported Keywords Grouped by Attributed Causes of Rural Hospital Closures

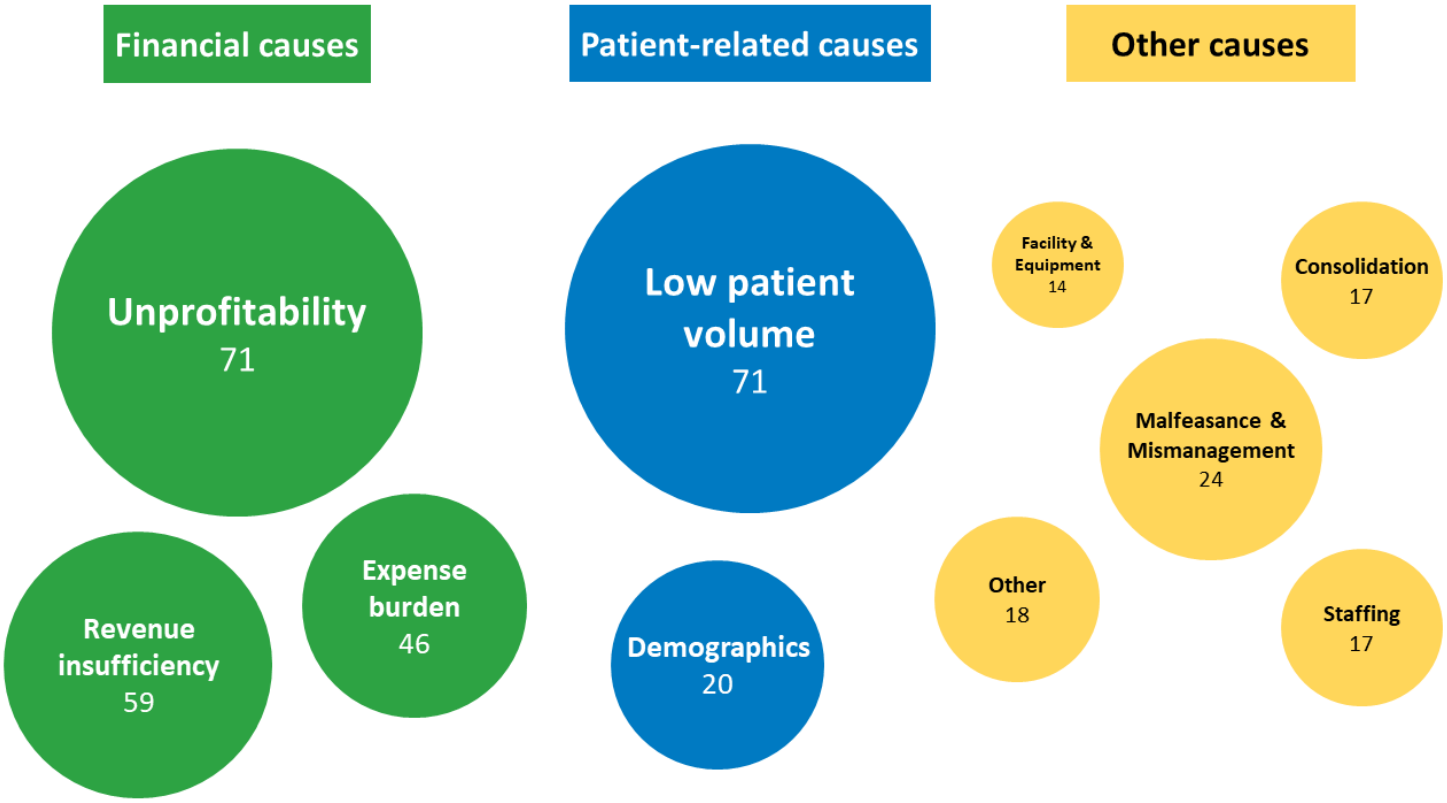
Financial Causes			Patient-related Causes	
Unprofitability	**Revenue insufficiency**	**Expense burden**	**Low patient volume**	**Demographics**
Finances	Decreasing revenue	COVID-19	Hospital bypass	Shrinking rural population
Bankruptcy	Elective procedures deferral	Cyber-attack	Competition	Sicker patients
Unprofitable	Grant money exhausted	Debt service	Low patient volume	Elderly patients
Operating loss	Lack of funding	High cost of labor	Rerouting patients	Medicare/Medicaid patients
Under-capitalized	Low reimbursement	High costs	Fewer prisoner surgeries	Low income patients
Bad cash flow	Medicare/Medicaid cutbacks	High operating costs	Unable to provide many services	Uninsured patients
Unable to make payroll	Lack of Medicaid expansion	High supply costs		Demographics
		Lease expiration		Unemployed patients
		Pension obligations		
		Property lease		
		Recovery costs		
		Charity care		

Other Causes				
Malfeasance & Mismanagement	**Consolidation**	**Staffing**	**Facility & Equipment**	**Other**
Billing fraud	Consolidation	Staff shortage	Building deterioration	Fund reallocation
Fraud	Conversion	Staff unwilling to relocate	Expensive upgrades	Loss of CAH designation
Health violations	Merger	Merger	Lack of technological expertise	New licensing required
Lab fraud			Technology issue	No buyer
Investment loss			Regulations	Split from city
Contract disagreement				Flood zone location
Legal trouble				Natural disaster
Medicare fraud				
Medicare/Medicaid termination				
Poor management				
Potential fraud				
Safety violations				

Frequency of Attributed Causes of Closure

Figure 1 shows the frequency of the 10 attributed causes of closure grouped by category. We found *unprofitability* (cited 71 times) and *low patient volume* (71) were the most frequently cited causes of closure, followed closely by *revenue insufficiency* (59) and *expense burden* (46).

Figure 1. Frequency of Attributed Causes of Closure



To download a list of categories by specific hospitals, see Appendix 1 available at: https://www.shepscenter.unc.edu/download/26507/.

Correlation among Attributed Causes of Closure

Table 2 shows the five most frequently co-occurring attributed causes of closure. *Unprofitability* and *low patient volume* were reported together for 25.6% of hospital closures, as were *revenue insufficiency* and *unprofitability*.

Table 2. Highest Frequency Co-occurring Attributed Causes of Closure

Combined Reasons for Closure	% of Hospitals
Unprofitability & low patient volume	25.6%
Revenue insufficiency & unprofitability	25.6%
Revenue insufficiency & low patient volume	24.8%
Expense burden & unprofitability	22.6%
Expense burden & revenue insufficiency	21.2%

Table 3 shows the correlation matrix between each of the 10 different attributed causes of closure. Correlation is a statistical measure that expresses the extent to which two variables are related. Correlation can range from +1 to -1: a positive correlation exists when one variable decreases as the other variable decreases, or one variable increases while the other increases. A negative correlation exists when one variable increases as the other variable decreases, or one variable decreases while the other increases. The highest correlations (highlighted in table 3) exist between *revenue insufficiency* and *demographics* (0.50) and between *low patient volume* and *malfeasance and mismanagement* (-0.50). Hospitals for which revenue insufficiency was reported as a cause of closure also tended to have patient demographics reported as a cause. Hospitals for which low patient volume was reported as a cause of closure seldom had malfeasance and mismanagement also reported as a cause.

Table 3. Tetrachoric Correlation Matrix for Attributed Causes of Closure Categories

	Consolidation	Demographics	Expense burden	Facility & equipment	Malfeasance & mismanagement	Other	Revenue insufficiency	Staff	Unprofitability	Low patient volume
Consolidation	1									
Demographics	-0.42	1								
Expense burden	-0.27	0.19	1							
Facility & equipment	-0.16	0.29	-0.33	1						
Malfeasance & mismanagement	-0.44	-0.06	0.23	-0.07	1					
Other	-0.37	0.05	-0.19	0.20	0.12	1				
Revenue insufficiency	-0.30	0.50	0.45	-0.11	-0.16	0.03	1			
Staff	0.00	0.08	-0.28	0.06	-0.45	-0.38	-0.12	1		
Unprofitability	-0.24	0.13	0.36	-0.33	0.05	0.06	0.21	-0.24	1	
Low patient volume	-0.14	0.21	-0.23	-0.02	-0.50	-0.27	0.16	0.39	-0.08	1

DISCUSSION

There are three principal findings from this study.

Financial causes were the most frequently reported reasons for closure of rural hospitals. *Unprofitability* was cited in over half of the media reports, and *revenue insufficiency* and *expense burden* were also frequently reported as causes of rural hospital closures. These findings are consistent with quantitative studies that show poor financial condition is a major cause of rural hospital closures. For example, one study found that rural hospitals that closed between 2011-17 had a median overall profit margin of -3.2 percent in their final year before closure.[15]

"The hospital, like many others across the country, has been hemorrhaging money and faces financial uncertainty ahead."[16]

"Sadly, we are not immune to those trends. Business decisions are made on the corporate level based on profits and losses. The profitability challenges that rural hospitals face, and the difficulty in attracting specialists is a never-ending challenge for our small hospitals."[17]

Low patient volume and demographics were also reported as major risk factors for rural hospital closures. *Low patient volume* was cited in over half of the media reports, and adverse *demographic* trends were also frequently reported as a cause of rural hospital closures. A previous study found that factors such as Medicare payment type, ownership type, total margin, whether the hospital was located in a Medicaid expansion state, and population demographics were significant predictors of declining inpatient volumes.[18] Another study found that even when controlling for distance to the nearest rural hospital (which reflects hospital closures), rural patients were increasingly likely to be admitted to an urban hospital.[19]

> "He said with such low patient traffic, staff are either unwilling to come or unwilling to stay."[20]

> "But the hospital's net revenue was slashed in half as administrators halted nonessential procedures and visits to the emergency room plummeted from about 800 to 300 a month."[21]

The causes of rural hospital closures are numerous, complex, and vary by community. Probably the most salient finding from this study is that the causes of rural hospital closures are nuanced and multidimensional. Hospitals often cited multiple reasons for closure, and every hospital closure presented with a unique set of circumstances. With rural communities being comprised of populations with different characteristics and health care needs, there is no blanket reason for why rural hospitals are closing. However, this brief highlights several risk factors that frequently pertain to the closure of rural hospitals.

Finally, some media reports included quotes about the long-term viability of current models of organization and funding of rural hospitals.

> "The inpatient model is kind of broken in rural America. It's difficult to finance and get the staffing resources in small communities and so the movement migration is towards outpatient care."[22]

Several rural hospital executives of closed hospitals stated that Medicare payment rules results in significant barriers to rural hospital viability. As the percentage of services provided on an outpatient basis grows and with some hospitals transitioning to Rural Emergency Hospitals (REHs),[23, 24, 25] existing payment models may not be as appropriate as they were in the past.[3]

Benefits and Challenges of Using Media Reports

Benefits

The use of media reports as the primary data source in a study presents distinct advantages compared to relying solely on quantitative data. Media reports offer a qualitative dimension that goes beyond mere numbers, allowing us to understand the deeper context surrounding a hospital closure. It is evident that there is no perfect, systematic way to categorize hospital closures, as it is a complex issue that requires nuanced analysis. By using media reports, we were able to supplement quantitative facts with community perspectives, anecdotal evidence, and more thorough explanations than can be found in a secondary database. By collecting an archive of media reports related to almost all rural hospital closures between 2010 - 2022, we developed the first public database that attempts to document the attributed causes of rural hospital closures in the United States.

Challenges

It is important, however, to acknowledge and consider the limitations associated with using media reports as the primary data source. Media reports may lack comprehensive coverage and depth, leading to incomplete information on the true reasons for closure. Media reports can also contain speculation, unclear wording, and vague attributions for why hospitals close, making it difficult to develop a standardized system of categorizing hospital closures. For instance, if an article states that the hospital was "financially struggling," we are unable to discern the specific financial reason that may have driven the hospital to closure. Despite these limitations, this brief offers valuable insights into the issue and can serve as a basis for further research and policy considerations regarding rural hospital closures.

REFERENCES AND NOTES

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