



Financial Distress and Closure of Rural Hospitals

G. Mark Holmes, Brystana G. Kaufman,
and George H. Pink

Rural Health Research Gateway webinar

September 21, 2017

This work is funded by federal Office of Rural Health Policy, Award #U1GRH07633

Agenda

- The rising rate of rural hospital closures
- Predicting financial distress and closure in rural hospitals
- Trends in risk of financial distress among rural hospitals
- Characteristics of communities served by hospitals at high Risk of financial distress
- Summary

JRH article of the year because of

THE JOURNAL OF **RURAL HEALTH**



ORIGINAL ARTICLE

The Rising Rate of Rural Hospital Closures

Brystana G. Kaufman, MSPH;¹ Sharita R. Thomas, MPP;¹ Randy K. Randolph, MRP;¹ Julie R. Perry;¹
Kristie W. Thompson, MA;¹ George M. Holmes, PhD;^{1,2} & George H. Pink, PhD^{1,2}

¹ North Carolina Rural Health Research Program, Cecil G. Sheps Center for Health Services Research, University of North Carolina, Chapel Hill, North Carolina

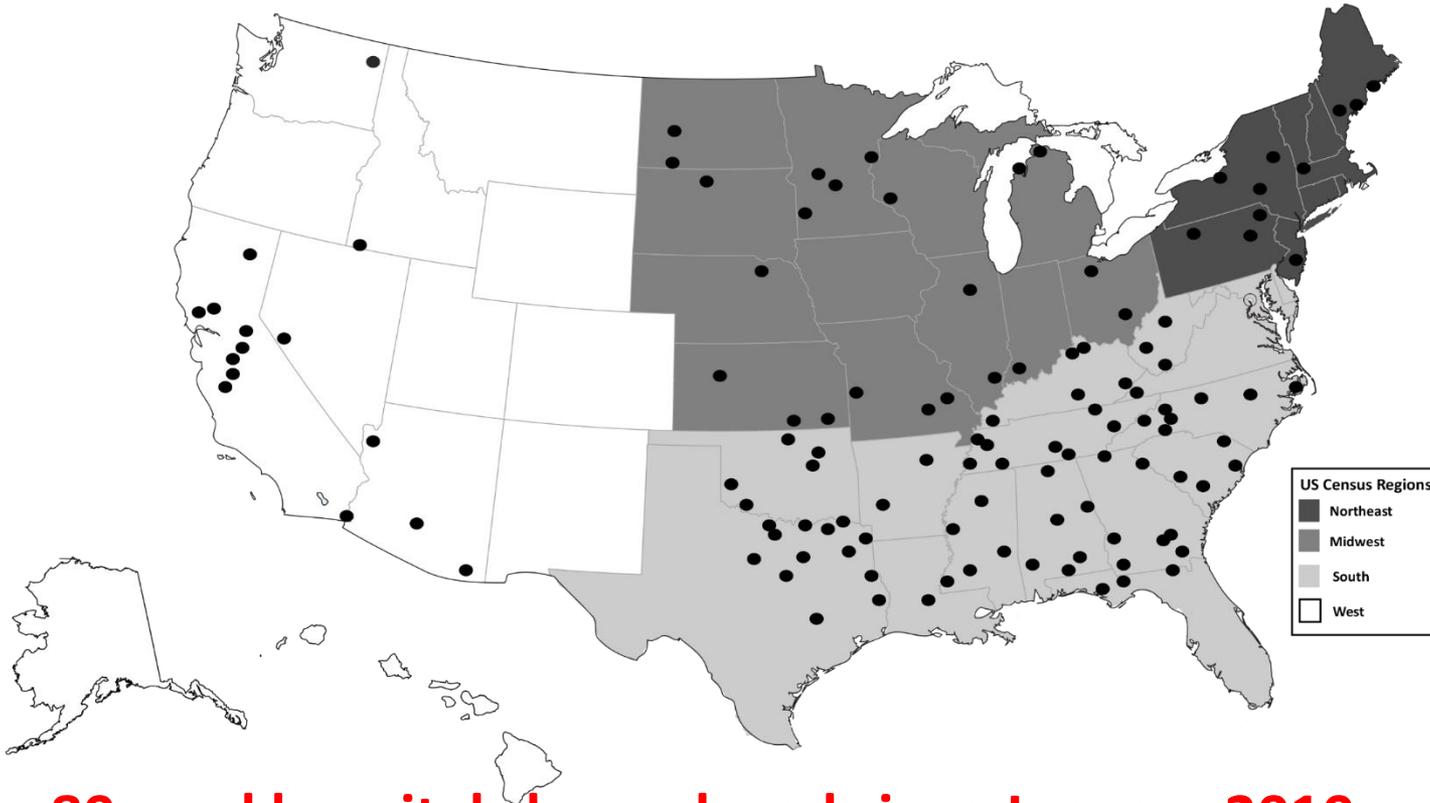
² Department of Health Policy and Management, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, North Carolina

Not this guy

What is a hospital closure?

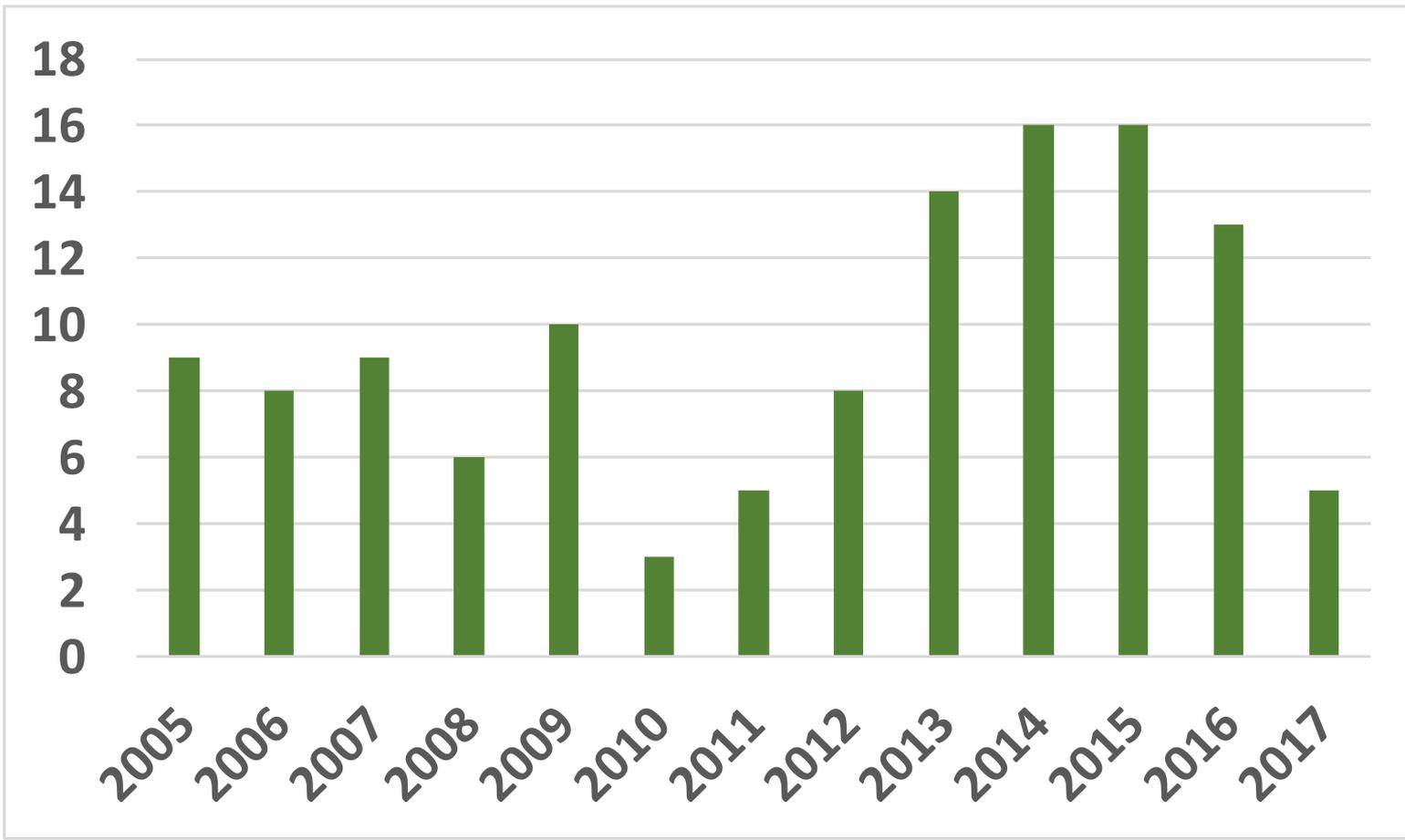
- Sometimes difficult to identify because:
 - Open, closed, open, closed
 - No media coverage because it is a community non-event or part of a system reconfiguration
 - Inpatient stays open, but ER closes, inpatient closes, but ER stays open, and other permutations
 - Hospital is being replaced by a new facility
- For this study, we defined closure as permanent cessation of acute inpatient care

2005-17 rural hospital closures: Where were they?

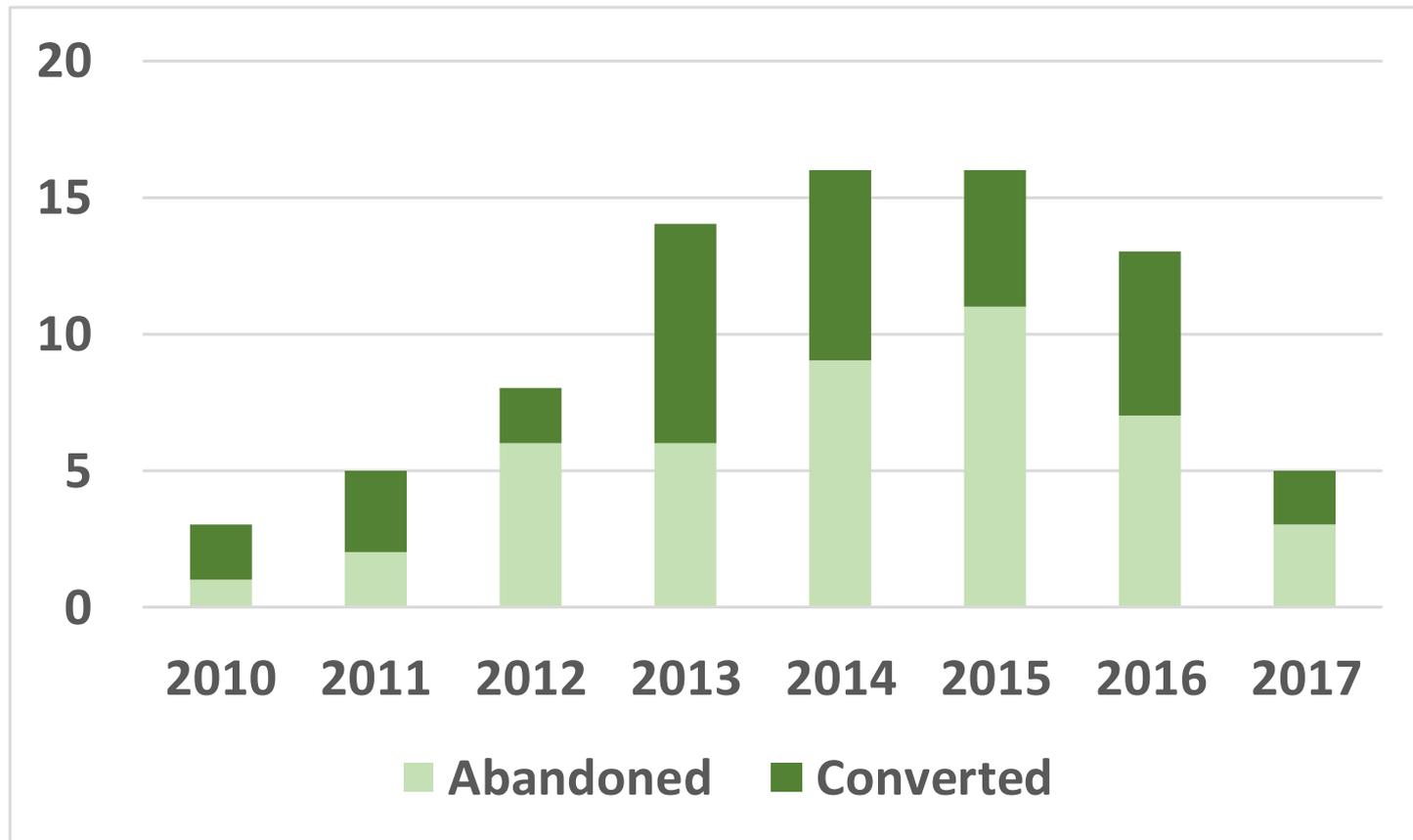


80 rural hospitals have closed since January 2010
122 rural hospitals have closed since January 2005

2005-17 rural hospital closures: When did they close?



2010-17 rural hospital closures: Were they abandoned or converted?



10 rural hospitals have closed and reopened as acute care hospitals

For example, this happened last month

The screenshot shows a web browser window with the following elements:

- Browser Menu:** File, Edit, View, History, Bookmarks, Tools, Help.
- Address Bar:** www.beckershospitalreview.com/patient-flow/tennessee-hospital-reopens-after-year-long-closure.html
- Page Title:** Patient Flow
- Article Title:** Tennessee hospital reopens after year-long closure
- Author/Date:** Written by Ayla Ellison (Twitter | Google+) | August 10, 2017 | Print | Email
- Text:**

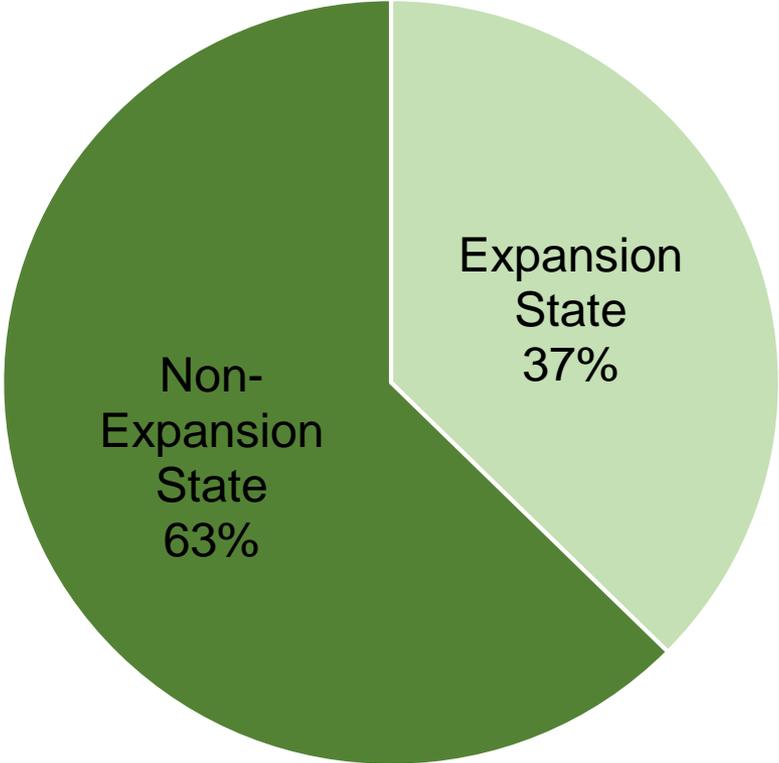
The only hospital in Scott County, Tenn., **reopened** on Tuesday.

Scott County Hospital in Oneida, Tenn., **closed** in July 2016, about three months after its owner, Magee, Miss.-based Pioneer Health Services, **filed** for Chapter 11 bankruptcy.

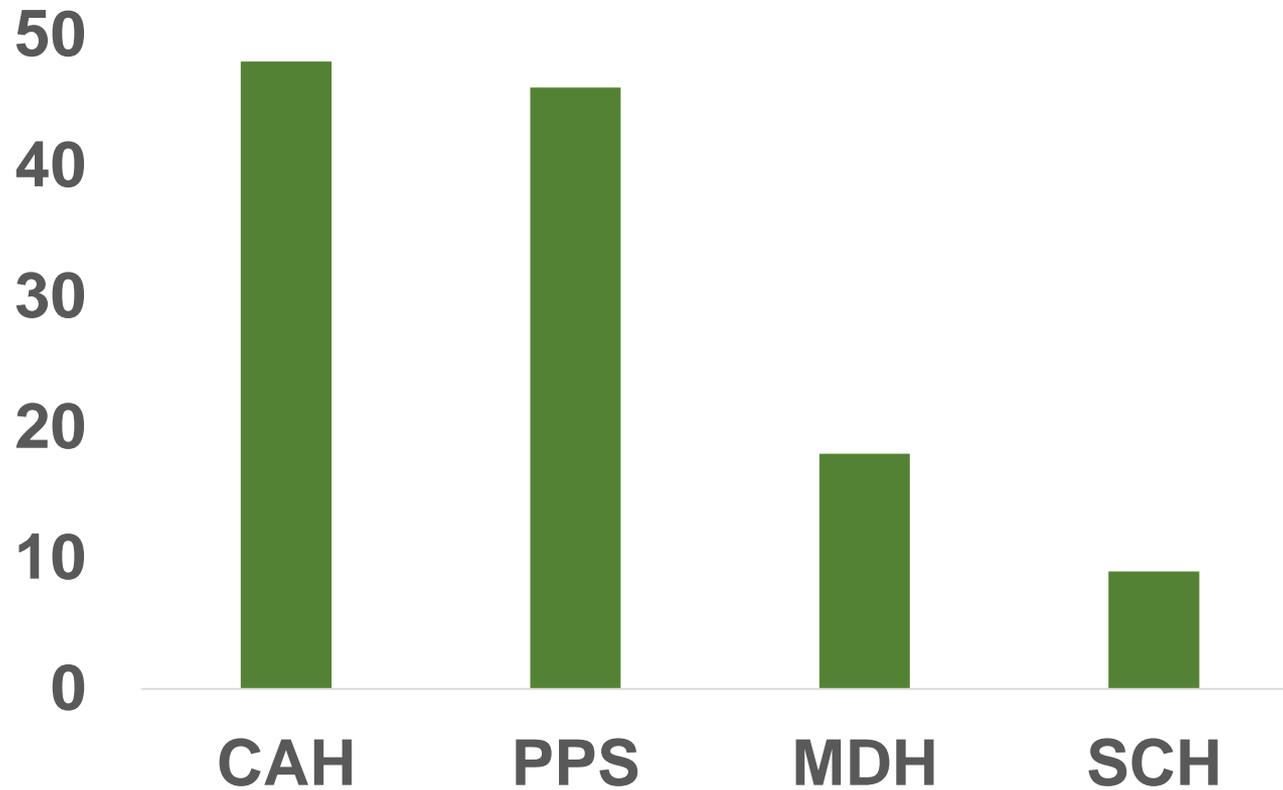
West Palm Beach, Fla.-based Rennova Health **acquired** the shuttered hospital in January and **renamed** it Big South Fork Medical Center.

"This opening is a realization of our ambition to provide a needed service to the community and create a new dawn for Rennova and our shareholders," said Seamus Lagan, CEO of Rennova, in a press release issued Wednesday. "We believe our investment and ability to facilitate the needs of doctors and other healthcare providers in the local area will enable us to exceed previous revenues achieved by this hospital."
- More articles on patient flow:**
 - South Dakota hospital to cease inpatient, emergency services
 - Bankrupt North Carolina hospital shuts cancer clinic
 - CHI to close Chattanooga clinic
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 - 10 Most-Read Articles:
 - 150 great places to work in healthcare | 2016
 - Quorum Health sees net loss narrow to \$30.6M, plans more hospital sales
 - Auditor: 15-bed Missouri hospital at heart of \$90M billing fraud scheme
 - Protest planned outside Mayo HQ today over Albert Lea hospital consolidation
- Taskbar:** Windows Start button, Internet Explorer, File Explorer, VLC, Word, Outlook, PowerPoint, Excel, Firefox, and Chrome.
- System Tray:** Network, volume, and clock (11:40 AM 8/11/2017).

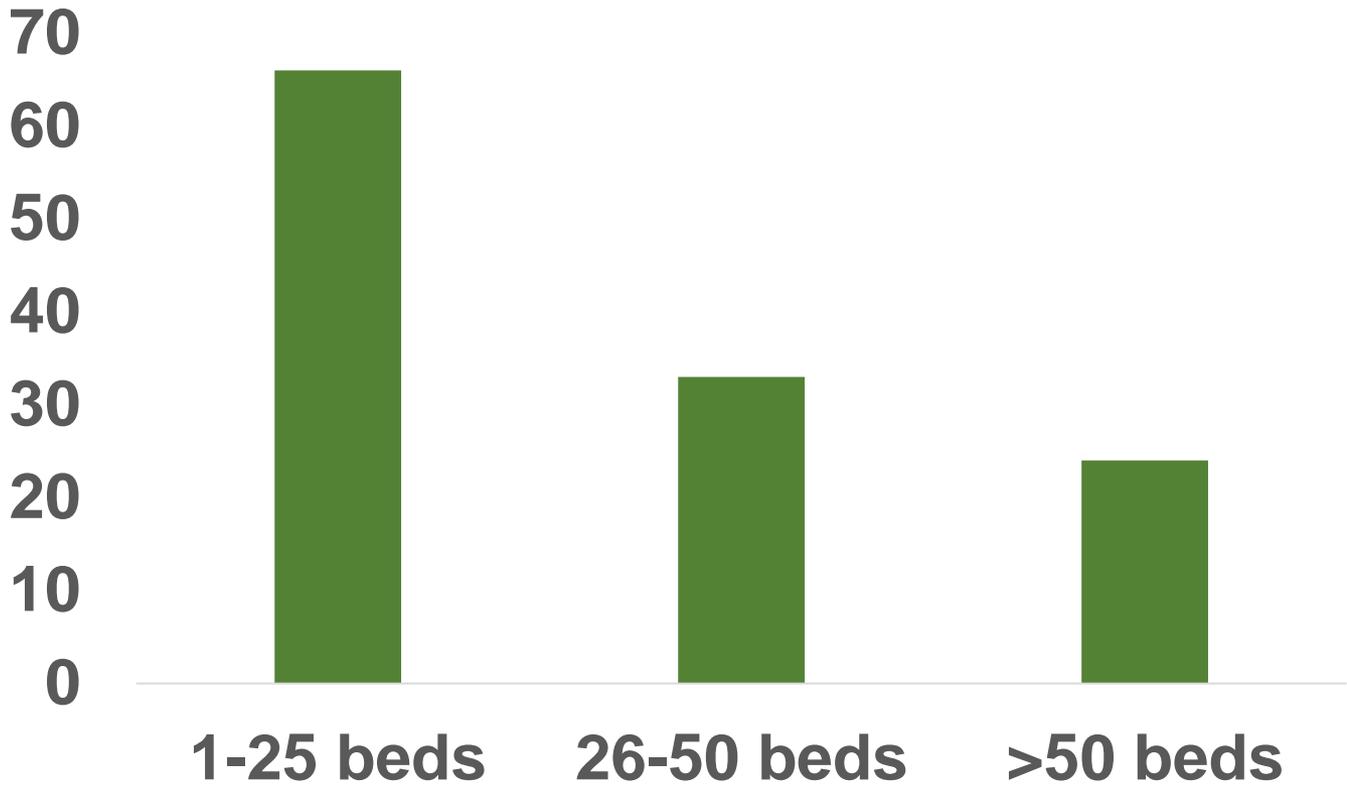
2005-17 rural hospital closures: Were they in Medicaid expansion or non-expansion states?



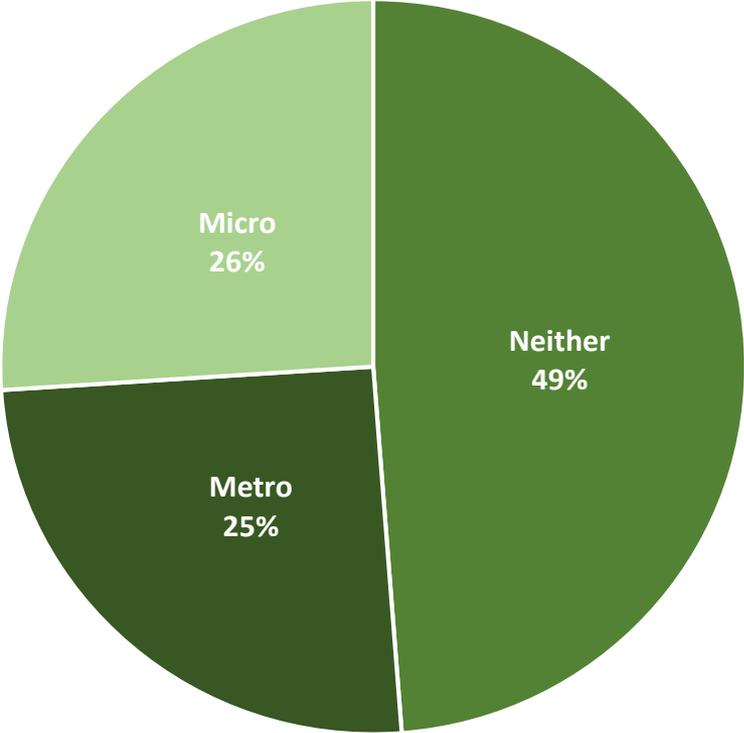
2005-17 rural hospital closures: What were their Medicare payment classifications?



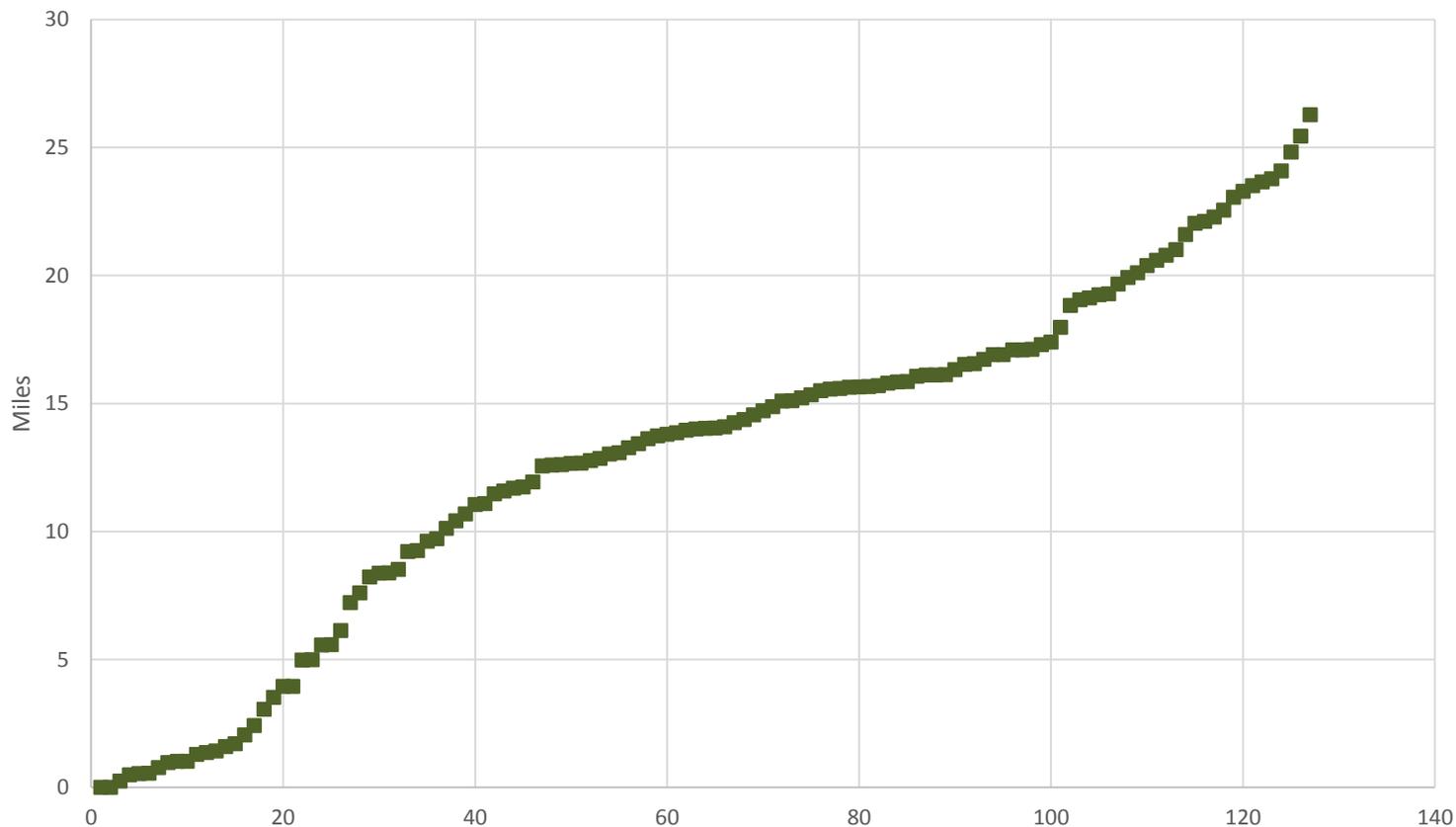
2005-17 rural hospital closures: What were their bed sizes?



2005-17 rural hospital closures: How rural were they?



2005-17 rural hospital closures: How far away is the next closest hospital?



A closure in August 2015 (Nye Regional in Tonopah, NV has 109 driving miles to the nearest hospital) is not pictured in the graph

2010-17 rural hospital closures: Why did they close? (As reported by news media)

Market Factors

- Small or declining populations
- High unemployment (as high as 18%)
- High or increasing uninsured patients
- High proportion of Medicare and Medicaid patients
- Competition in close proximity

Hospital Factors

- Low daily census
- Lack of consistent physician coverage
- Deteriorating facility
- Fraud, patient safety concerns, and poor management

Financial Factors

- High and increasing charity care and bad debt
- Severely in debt
- Insufficient cash-flow to cover current liabilities
- Negative profit margin

2005-17 rural hospital closures:

How bad was their financial performance and condition?

In the year before they closed:

- Most hospitals were unprofitable, illiquid, and unable to service debt
- Most had less than:
 - 150 FTEs, \$10 million in salary expense, and 30% occupancy rate
 - Negative or close to zero net income and net assets
- Most had already closed obstetrics

2005-17 rural hospital closures:

Summary

- Most closures in South (60%)
- Annual number of closures increasing until 2017
- Most are CAHs and PPS hospitals
- Most are in states that have not expanded Medicaid
- Patients in affected communities are probably traveling between 5 and 30 or more miles to access inpatient care
- Most hospitals closed because of financial problems

Here is the latest closure

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CEO: Storm closes Care Regional Med Center in Aransas Pass, many have no hospital nearby

Yihyun Jeong and Alden Woods, Corpus Christi

Published 7:09 p.m. CT Sept. 5, 2017 | Updated 9:45 p.m. CT Sept. 5, 2017



(Photo: Yihyun Jeong/The Republic)



ARANSAS PASS — Care Regional Medical Center, closed since Hurricane Harvey made landfall, must be stripped to its skeletal structure, rebuilt and inspected before it can reopen, CEO Sunil Reddy said Tuesday.

Resuming operations could potentially become a months-long process, one that could leave 90,000 residents in the areas surrounding Aransas Pass without their sole emergency medical facility.

“We are totally devastated,” Reddy said. “We are trying to rebuild and get back on our feet. We are concerned about everyone ... so we need to return as soon as we can for them.”

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www.beckershospitalreview.com/finance/auditor-15-bed-missouri-hospital-at-heart-of-90m-billing-fraud-scheme.html

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Financial Management



Auditor: 15-bed Missouri hospital at heart of \$90M billing fraud scheme

Written by Ayla Ellison (Twitter | Google+) | August 10, 2017 | Print | Email

Putnam County Memorial Hospital, a 15-bed hospital in Unionville, Mo., received \$90 million in insurance payments in less than a year for lab services that were performed at other facilities across the country, according to *The St. Louis Post-Dispatch*, which cited a report released Wednesday by Missouri State Auditor Nicole Galloway.

According to Ms. Galloway's report, Putnam County Memorial Hospital contracted with Hospital Laboratory Partners in September 2016 to operate a clinical laboratory on behalf of the hospital.

"Immediately upon signing the management contract with the hospital, the CEO and his associates began billing significant amounts of out-of-state lab activity through the hospital," according to the auditor's report.

Putnam County Hospital allegedly acted as a shell company by submitting claims for other labs and funneling



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NC Rural Health Research Program

81 Rural Hospital Closures:
January 2010 – Present

Projects

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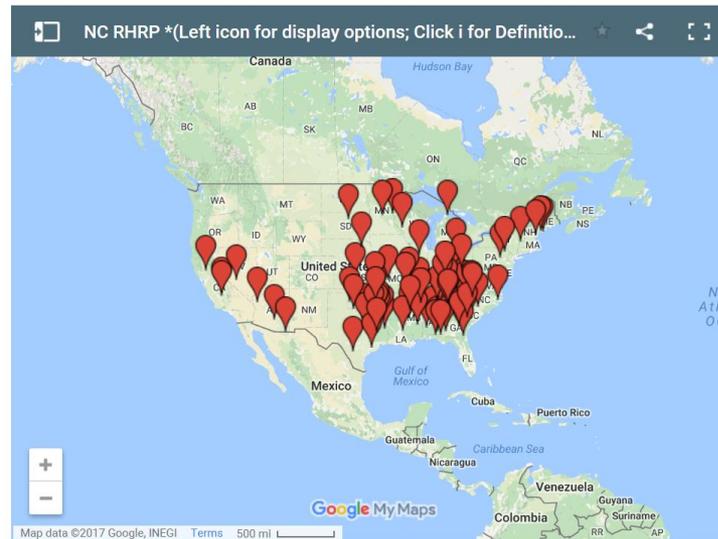
Publication Archives

Cartographic Archives

Sheps Center > Programs > NC Rural Health Research Program > 81 Rural Hospital Closures: January 2010 – Present

81 Rural Hospital Closures: January 2010 – Present

Send Us Rural Hospital Closure Information



ORIGINAL PAPER

To What Extent do Community Characteristics Explain Differences in Closure among Financially Distressed Rural Hospitals?

Sharita R. Thomas, MPP

Mark Holmes, PhD

George H. Pink, PhD

© Meharry Medical College Journal of Health Care for the Poor and Underserved 27 (2016): 194–203.

Key findings

Compared with other rural hospitals that were at high risk of financial distress, but remained open over the same time period (2005-15), closed rural hospitals:

- Had a smaller market share, despite being in areas with higher population density,
- Were located nearer to another hospital, and
- Were located in markets that had a higher rate of unemployment and a higher percentage of black and hispanic residents.



ORIGINAL ARTICLE

Predicting Financial Distress and Closure in Rural Hospitals

George M. Holmes, PhD;^{1,2} Brystana G. Kaufman, MSPH;^{1,2} & George H. Pink, PhD^{1,2}

¹ North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

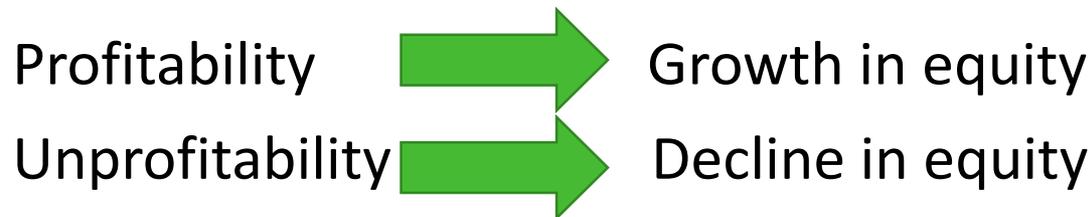
² Department of Health Policy and Management, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Model of financial distress principles

- ▶ Developed specifically for rural hospitals
- ▶ Scientific approach: development and validation
- ▶ Used data publicly available for all rural hospitals
- ▶ Goals for the model
 1. Identify hospitals at risk for distress
 2. Model should have high face validity
 3. Model should be parsimonious and easy to understand

Accounting basis of financial distress

- ▶ Balance sheet equation:
 - Total assets - Total liabilities = Equity
- ▶ Income statement equation:
 - Total revenue – Total expenses = Net income
- ▶ And, assuming no dividends are paid out:
 - Equity (t+1) = Equity (t) + Net income (t+1)
- ▶ Therefore:



Financial distress is defined as:

Increasing Signal Strength

Unprofitability

- Negative cash flow margin

Equity decline

- >20% decline in net assets

Insolvency

- Negative net assets

Closure

- No longer provides inpatient care

In some circumstances, there may not be financial distress even though the markers suggest otherwise

2013 Rural hospitals with financial distress signals

Financial distress signal	Number	Percent
Unprofitability:		
Negative cash flow margin	537	24%
Equity decline:		
>20% decline in net assets	355	16%
Insolvency:		
Negative net assets	237	11%
Closure:		
No longer provides inpatient care	14	0.6%

2013 Rural hospitals with financial distress signals

Financial distress signals	Number	Percent
0 signals	1524	68%
1 signal	425	19%
2 signals	204	9%
3 signals	99	4%
4 signals	5	0.2%
Total	2257	100%

Two years ago, could we have predicted hospitals that are under financial distress today?

Model of rural hospital financial distress

Current Information

Financial Performance:

- Profitability
- Reinvestment
- Benchmark performance

Government Reimbursement:

- Medicare
- Medicaid

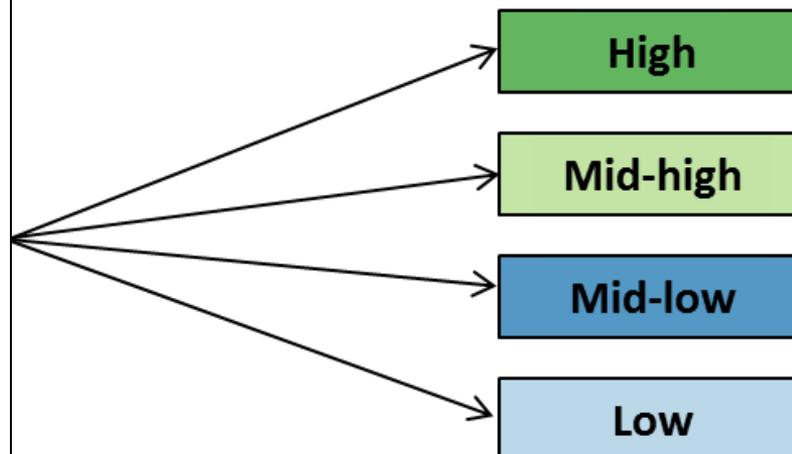
Hospital Characteristics:

- Ownership
- Size

Market Characteristics:

- Competition
- Economic condition
- Market size

Risk of Financial Distress in 2 Years



Predictors of financial distress

Financial performance

- Profitability: total margin, two year change in total margin
- Reinvestment: Retained earnings as a percent of total assets
- Benchmark performance: Percent of benchmarks met over two years

Government reimbursement

- Medicare: CAH status
- Medicaid: Medicaid to Medicare fee index (KFF)

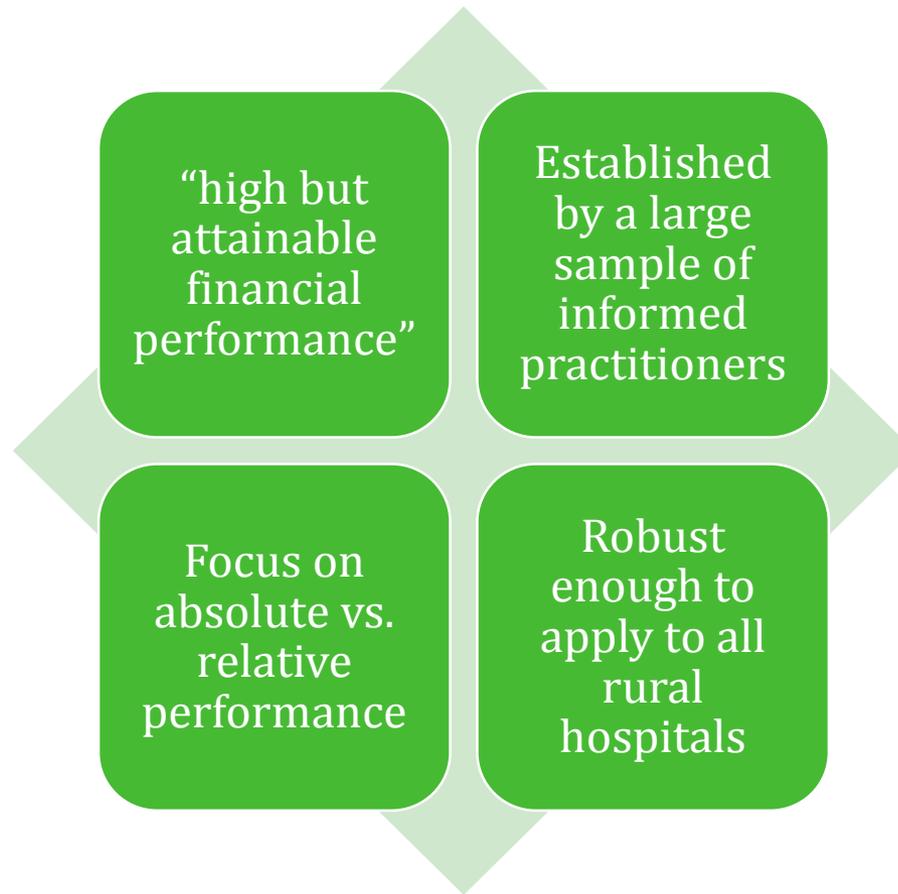
Hospital characteristics

- Ownership: Government/not-for-profit, for-profit
- Size: Net patient revenue (millions)

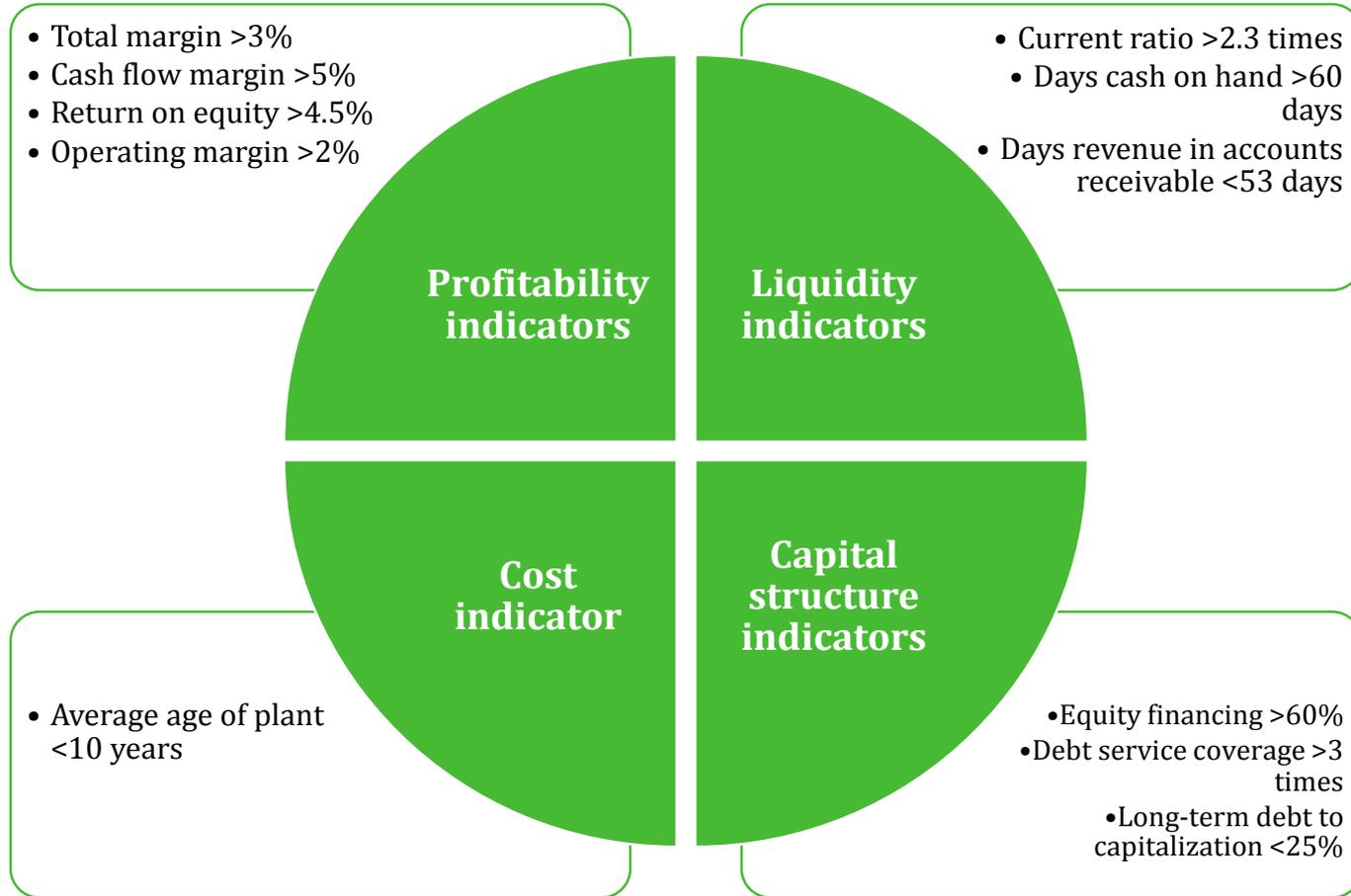
Market characteristics

- Competition: Log of miles to nearest hospital >100 beds and market share (if <25%)
- Economic condition: Log of poverty rate in the market area
- Market size: Log of population in the market area

CAH-specific benchmarks



Benchmarks in the model



2012-13 Rural hospitals in US benchmark performance

Average percentage of benchmarks met in 2012 and 2013	Number	Percent
0%-19%	305	14%
20%-39%	538	24%
40%-59%	724	33%
60%-79%	507	23%
80%-100%	133	6%
Total	2207	100%

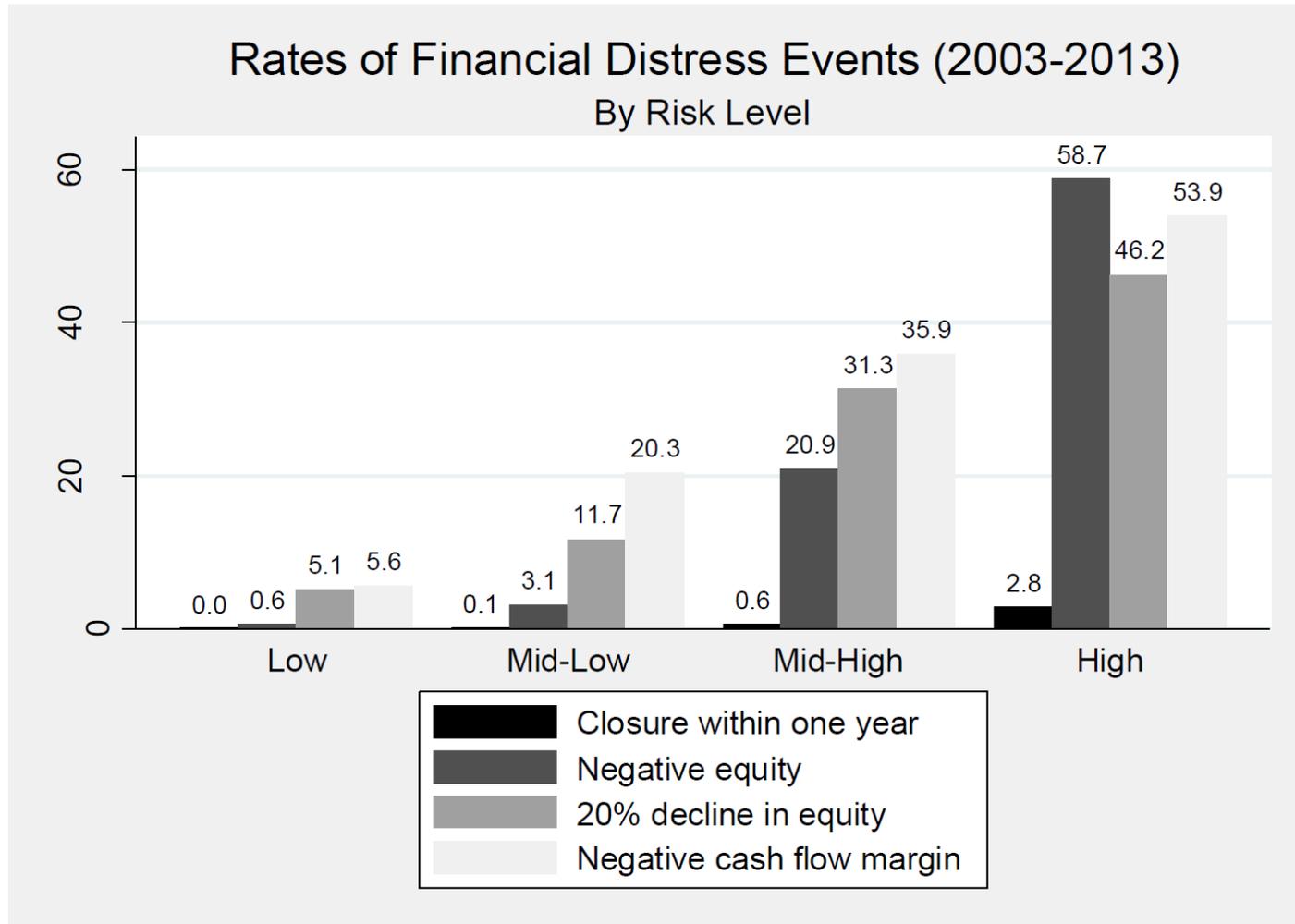
Model of rural hospital financial distress

- Distress is specified as a uni-dimensional index, with the probability of each event independent conditional on the index.
- Given a value of the “Financial distress index” (FDI) the probability of each event differs only due to a constant determined by the overall prevalence of the event.
- The equation is specified as

$$\Pr(y_{kh,t+2} = 1) = f(X_{ht}\beta + \phi_k)$$

where y is an indicator variable that equals one or zero depending on the value of one of the 4 markers of financial distress (indexed by k).

Rates of Financial Distress Events in 2 Years by Predicted Risk Level Using Theta Scores



Incomplete information

- System affiliation
 - 50 shades of gray between wholly owned and independent
- Medical staff
 - Number and type
- State and county government
 - Sales taxes and local levies
- Community circumstances
 - Fund-raising campaigns
- Recent changes
 - Newsflash: The hospital CEO has resigned

The impact on risk of financial distress may or may not be captured

Implication of incomplete information

H H H H H H H H H

- High risk



H H H H H H H H H H

- Mid-high risk

H H H H H H H H H H

- Mid-low risk



H H H H H H H H

- Low risk

With complete information, a hospital could be classified differently.

Implication of high risk of financial distress

- If a hospital closes, it is highly probable that it was at high risk of financial distress, but...
- If a hospital is at high risk of financial distress, it is highly probable that it will not close.
- Why? Closure is still a relatively rare event.

Key Findings

- The FDI model has high specificity and predictive power relative to existing methods used to evaluate financial health of rural hospitals.
- Rural hospitals identified as high risk by the FDI face a closure rate 4 times the rate observed for mid-high and 28 times the rate observed for mid-low-risk hospitals.
- As the closure rate among rural hospitals continues to accelerate, future research should focus on the risk factors of closure among hospitals at high risk.



Trends in Risk of Financial Distress among Rural Hospitals

Brystana G. Kaufman, MSPH; Randy Randolph, MRP;
George H. Pink, PhD; G. Mark Holmes, PhD

OVERVIEW

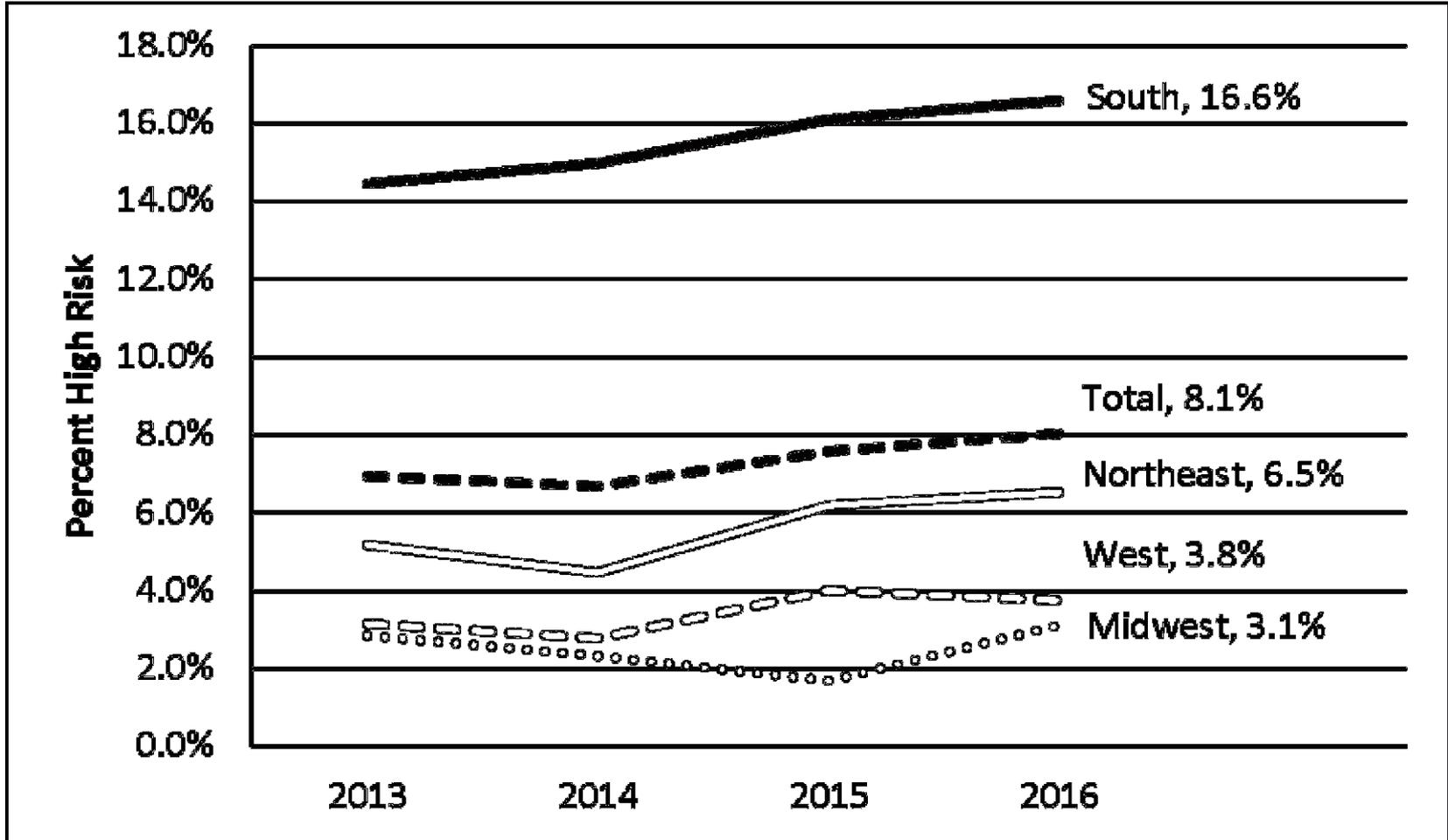
From January 2005 to July 2016, 118 rural hospitals have closed permanently, not including seven others that closed and subsequently reopened.¹ The number of closures has increased each year since 2010, and in the first half of 2016, the closure rate surpassed two closures per month.¹ Hospital closures impact millions of rural residents in communities that are typically older, more dependent on public insurance programs, and in worse health than residents in urban communities.^{2,3,4} Identifying hospitals at high risk of closure and assessing the trends over time may inform strategies to prevent or mitigate the effects of closures.

KEY FINDINGS

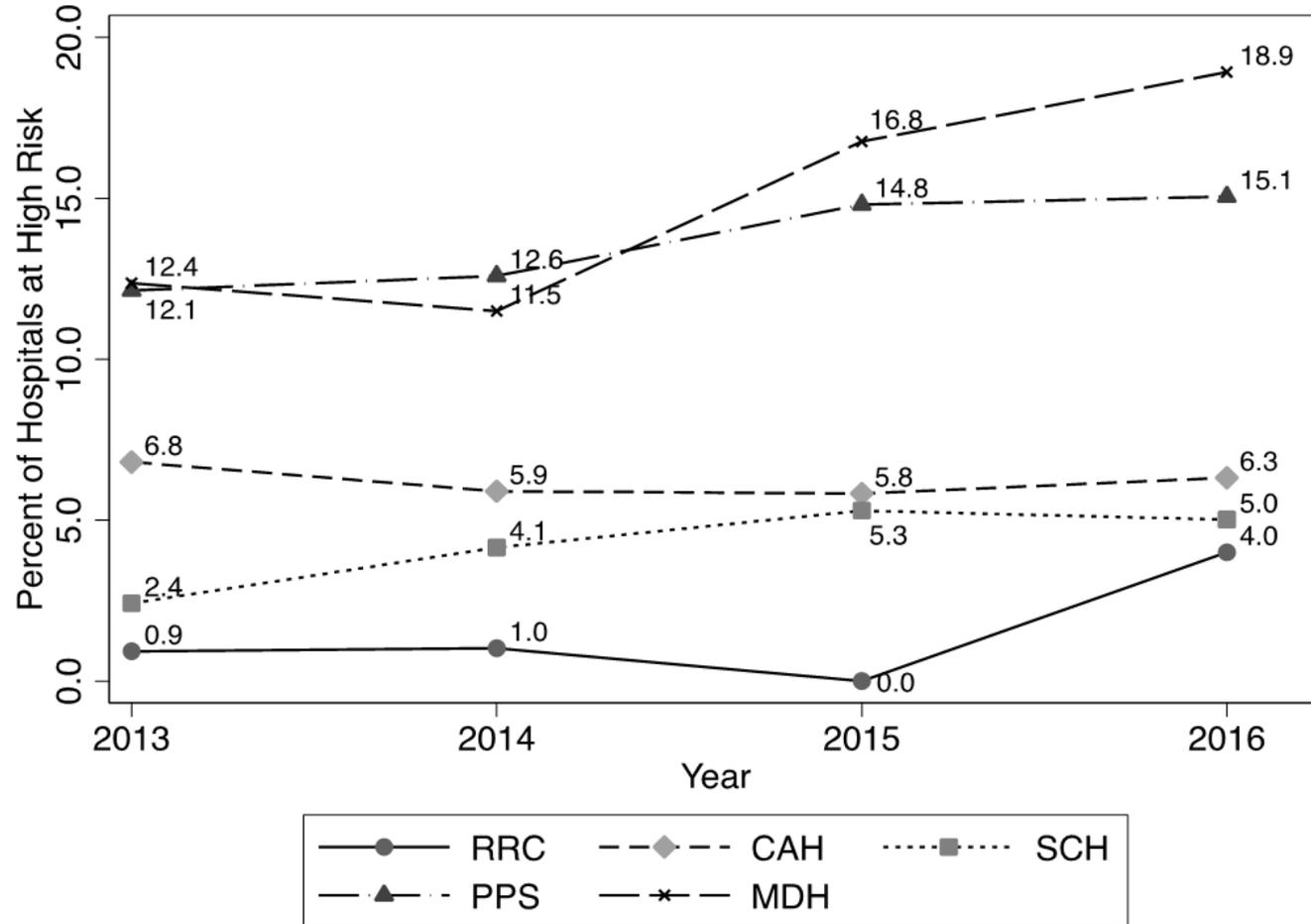
- Consistent with previous research, the South census region has the largest percentage of rural hospitals at high risk of financial distress over the period 2013 to 2016.

In a previous Findings Brief, we described the Financial Distress Index (FDI) model, which assigns hospitals to high, mid-high, mid-low or low risk levels for 2016 using 2014 Medicare cost report and Neilsen-Claritas data summed to

Percentage of Rural Hospitals at High Risk of Financial Distress by Census Region, 2013-2016



Percentage of Rural Hospitals at High Risk of Financial Distress by CMS Payment Type, 2013-2016



Key Findings

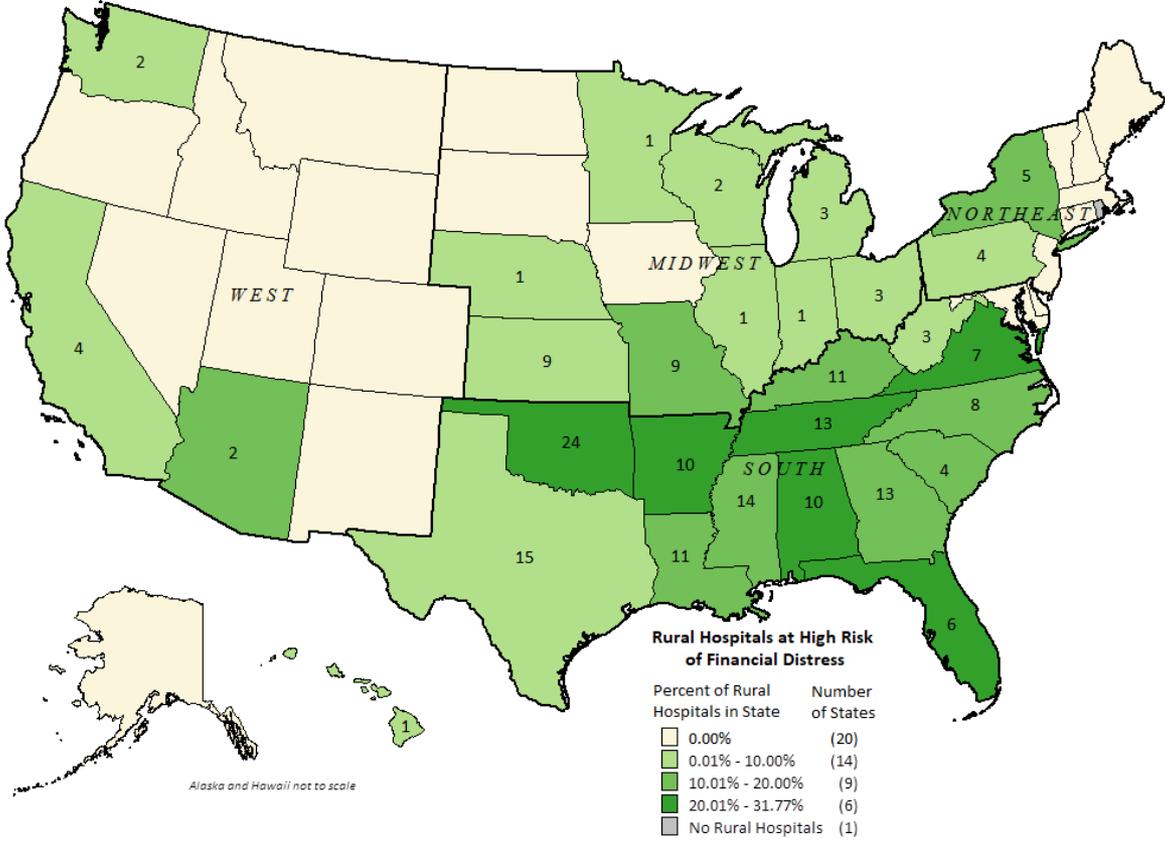
- The proportion of rural hospitals at high risk of financial distress has increased from:
 - 7.0% in 2015 to 8.1% in 2016, with the largest increases in the South and Northeast census regions (2.2 and 1.3 percentage points respectively).
 - 13% to 19% among Medicare Dependent Hospitals (MDH) and from 1% to 4% among Rural Referral Centers over the period 2013 to 2016.

Characteristics of Communities Served by Hospitals at High Risk of Financial Distress

**Erica L. Richman, PhD, MSW and
George H. Pink, PhD**

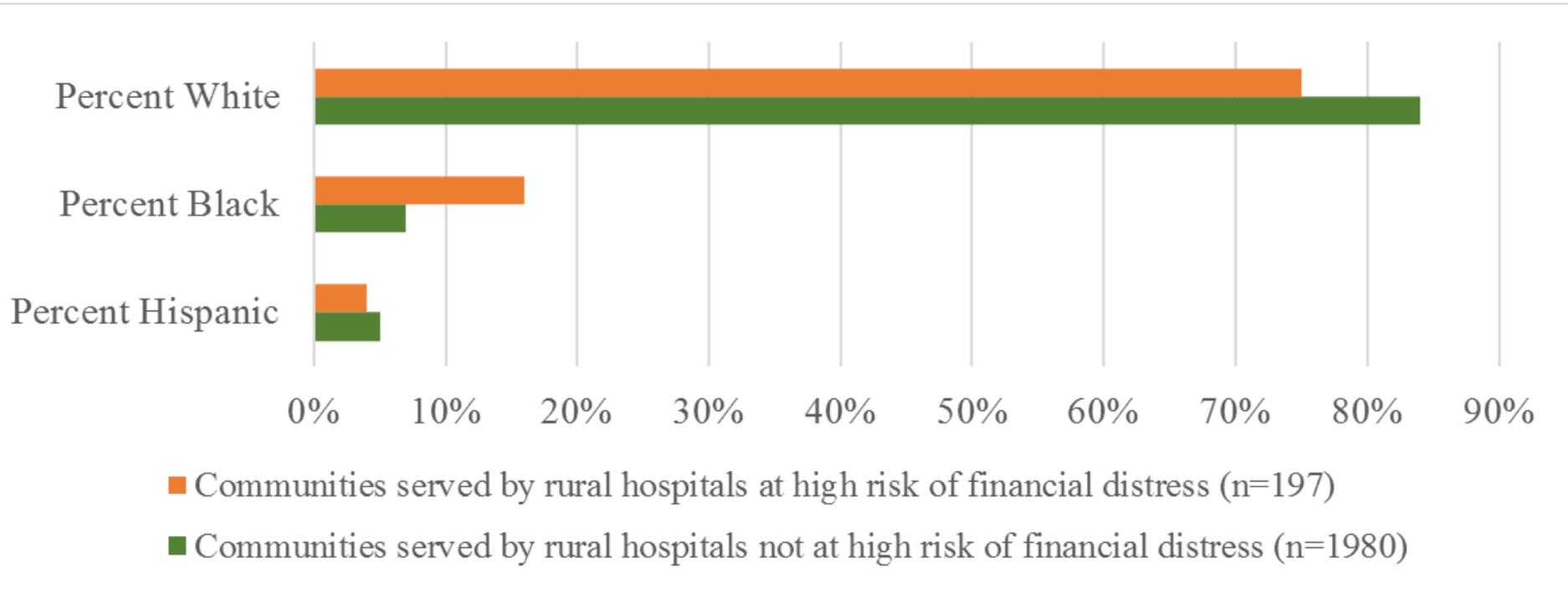
Forthcoming

Geographic distribution of rural hospitals at high risk of financial distress, 2017



Source: North Carolina Rural Health Research and Policy Analysis Center, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, September 2017
<http://www.shepscenter.unc.edu/programs-projects/rural-health/>

Race and ethnicity of residents in communities served by rural hospitals at high and not at high risk of financial distress



Key Findings

- Communities served by hospitals at high risk of financial distress have significantly higher percentages of residents who are black, did not graduate high school, and are unemployed.
- These communities also have significantly higher percentages of residents who report fair to poor health, living with inadequate social-emotional support, obesity, smoking, and a greater number of potential years of life lost.
- Because hospitals at high risk of financial distress are more likely to close or curtail services, these more vulnerable populations are at increased risk of losing access to some types of health care, exacerbation of health disparities, and loss of hospital and other types of local employment.

Summary

- Hospital closures will continue and occur relatively more frequently in disadvantaged communities.
- Financial distress is a complex phenomenon.
- Number of rural hospitals at high risk of financial distress is growing.
- 9% of rural hospitals are at high risk of financial distress.
- Emerging evidence that disadvantaged communities are more adversely affected by closures and financial distress.

North Carolina Rural Health Research Program

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Sharita Thomas, MPP

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Resources

North Carolina Rural Health Research Program

<http://www.shepscenter.unc.edu/programs-projects/rural-health/>

Rural Health Research Gateway

www.ruralhealthresearch.org

Rural Health Information Hub

www.ruralhealthinfo.org/

National Rural Health Association

www.ruralhealthweb.org

National Organization of State Offices of Rural Health

www.nosorh.org