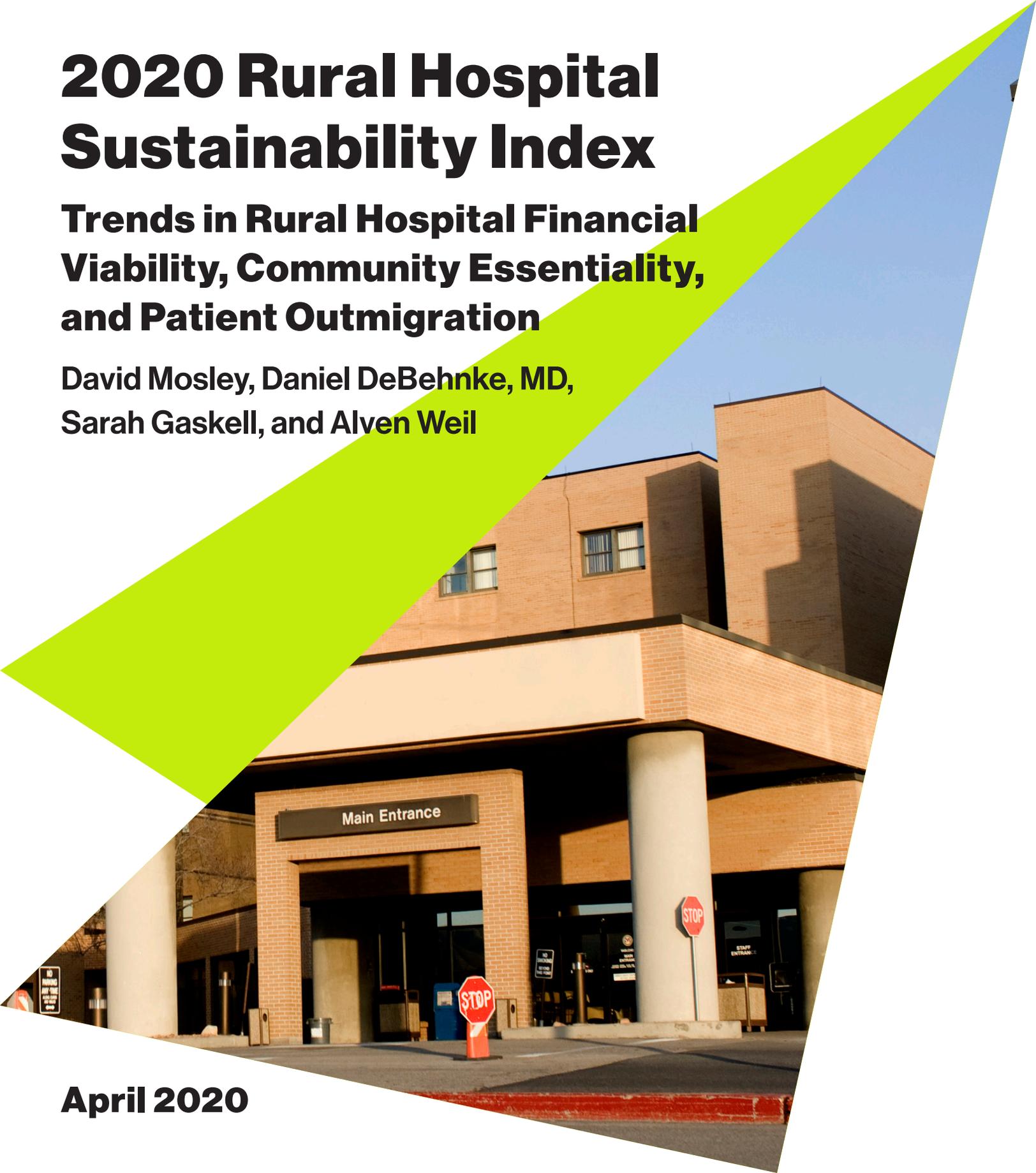




2020 Rural Hospital Sustainability Index

**Trends in Rural Hospital Financial
Viability, Community Essentiality,
and Patient Outmigration**

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Background

Rural communities throughout the U.S. are dependent upon their local hospitals. Not only do they provide care to the one-in-five Americans who live in rural communities,¹ they're often these communities' largest employers, serving as a cornerstone to both the economic viability and economic development of rural America.

But according to the University of North Carolina Cecil G. Sheps Center for Health Services Research, 170 rural hospitals

have closed since 2005, including a one-year high of 19 in 2019, and eight rural hospitals have already closed in 2020.²

University of Washington researchers found that populations served by rural hospitals experienced mortality rate increases of 5.9% after closures, due in part to increased travel times for patients and healthcare providers leaving these communities.³ According to a University of Kentucky study, rural patients spend

"an estimated 11 additional minutes in an ambulance the year after a hospital closure in their ZIP code, a 76% increase compared to before the closure."⁴

In addition, when a community loses its hospital, per capita income falls 4% and the unemployment rate rises 1.6%.⁵ The community is also less attractive to new employers that may require access to an emergency room for establishing a new regional location,⁶ negatively impacting local economies further.

Analysis of Rural Hospital Financial Viability, Community Essentiality, and Patient Outmigration

Following a 2019 Navigant (now Guidehouse) study,⁷ we once again analyzed the correlation of financial viability and essentiality of rural hospitals across the country prior to the COVID-19 pandemic. All analyses are based on most recently available data (a combination of FY 2018 and FY 2019 data) submitted by hospitals to the Centers for Medicare & Medicaid Services (CMS). (See Appendix: Rural Hospital Sustainability Index Methodology for more information).

This year, we refined our designations using the U.S. Department of Agriculture's (USDA's) Rural-Urban Continuum Codes to define each hospitals' home ZIP codes as rural, suburban (new category added to this year's study), and urban. The USDA's definition relies on commuting patterns and rates each ZIP code across the country on a scale of 1-10, with one being the most urban and 10 being the most rural.

1. "One in Five Americans Live in Rural Areas," United States Census Bureau, August 9, 2017, <https://www.census.gov/library/stories/2017/08/rural-america.html>.
2. University of North Carolina Cecil G. Sheps Center for Health Services Research, "168 Rural Hospital Closures: January 2005 – Present (126 since 2010)," <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>.
3. Kritee Gujral and Anirban Basu, "Impact of Rural and Urban Hospital Closures on Inpatient Mortality," National Bureau of Economic Research, August 2019, https://www.nber.org/papers/w26182?utm_campaign=ntwh&utm_medium=email&utm_source=ntwg12.
4. Al Cross, "Ambulance runs for rural patients are 76% longer when their hospital closes, and for seniors, it's 98% longer, study finds," Kentucky Health News, February 29, 2019, <http://ci.uky.edu/kentuckyhealthnews/2019/02/25/ambulance-runs-for-rural-patients-are-76-longer-when-their-hospital-closes-and-for-seniors-its-98-longer-study-finds/>.
5. George M. Holmes et al., "The Effect of Rural Hospital Closures on Community Economic Health," Health Services Research, April 2006, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1702512/>.
6. Jane Wishner et al., "A Look at Rural Hospital Closures and Implications for Access to Care: Three Case Studies," Kaiser Family Foundation, July 7, 2016, <https://www.kff.org/report-section/a-look-at-rural-hospital-closures-and-implications-for-access-to-care-three-case-studies-issue-brief/>.
7. David Mosley and Daniel DeBehnke, MD, "New Analysis Shows Worsening Situation for Rural Hospitals, Residents," February 2019, <https://guidehouse.com/-/media/www/site/insights/healthcare/2019/navigant-rural-hospital-analysis-22019.pdf>.

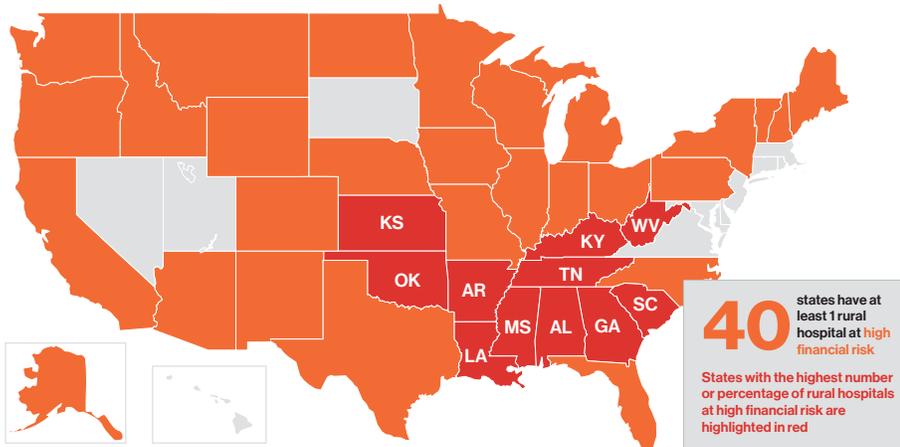
Rural Hospital Financial Risk

Our analysis of the financial viability (total operating margin, days cash on hand, debt-to-capitalization ratio, current ratio, and inpatient census) of rural hospitals nationwide shows 25%, or 354 hospitals across 40 states, are at high risk of closing unless their financial situations improve. These hospitals represent more than 222,350 annual discharges, 51,800 employees, and \$8.3 billion in total patient revenue. See Figure 1 and Exhibit A for individual state data.

Figure 1: Rural Hospital Financial Risk

The Number And Percentage Of Rural Hospitals At High Risk Of Closing*

25% of U.S. rural hospitals are at a high risk of closing unless their financial situations improve



State	Rural Hospitals At High Risk	% of Rural Hospitals At High Risk
TN	19	68%
AL	18	60%
OK	28	60%
AR	18	53%
MS	25	50%
WV	9	50%
SC	4	44%
GA	14	41%
KY	18	40%
LA	11	37%
KS	26	31%

*(CT, NJ, and RI have no qualifying rural hospitals).

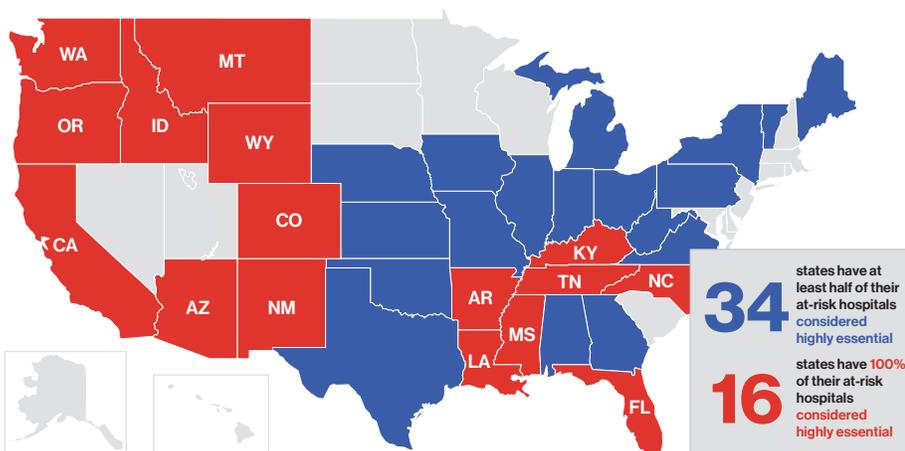
Rural Hospital Community Essentiality

Further analysis of the community essentiality (service to vulnerable populations, geographic isolation, economic impact, and social vulnerability index) of rural hospitals at high financial risk shows 81%, or 287, of these hospitals are considered highly essential to their communities. See Figure 2 and Exhibit B for individual state data.

Figure 2: Rural Hospital Community Essentiality

The Number And Percentage Of High-Financial-Risk Rural Hospitals Considered Essential To Their Communities

Of high-financial-risk rural hospitals, 81% are considered highly essential to their communities



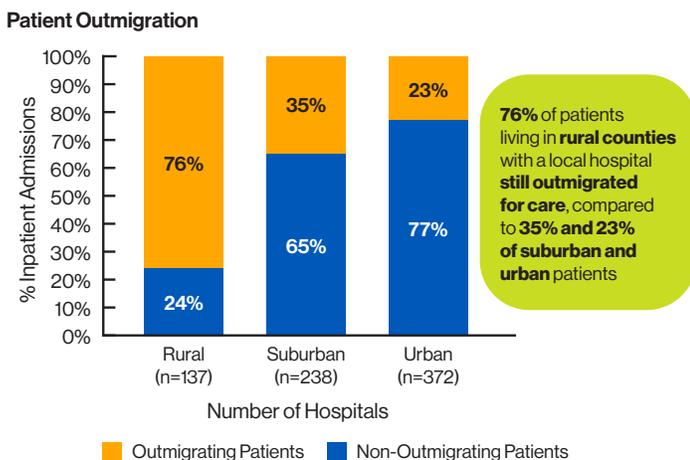
State	Highly Essential At-Risk Rural Hospitals	% of Highly Essential At-Risk Rural Hospitals
MS	25	100%
TN	19	100%
AR	18	100%
KY	18	100%
LA	11	100%
MT	7	100%
CA	6	100%
NC	6	100%
WA	5	100%
CO	4	100%
ID	4	100%
OR	4	100%
NM	3	100%
WY	3	100%
FL	2	100%
AZ	1	100%

Patient Outmigration and Acuity Levels

Since 2010, approximately twice as many rural or nonmetro counties have lost population, compared to those that have gained it. While rural population loss isn't a new phenomenon, such population outmigration is different than in the past in that it isn't being offset by higher birth rates.⁸

Rural hospitals face twice the threat. In addition to population outmigration from rural areas, our research indicates more than three-in-four patients, or 287,398 patients living in rural counties with a local hospital, outmigrated for care — left their local area and hospital to receive care elsewhere — compared to 35% and 23% of suburban and urban patients, respectively (Figure 3).

Figure 3: Patient Outmigration Trends



Analysis of Colorado, Florida, North Carolina, Oregon, Pennsylvania, and Washington.

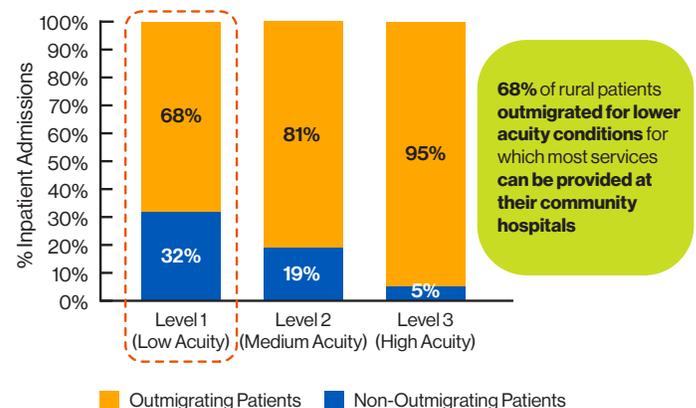
General medicine (22%), orthopedics (17%), general surgery (13%), cardiovascular diseases (11%), neurosciences (10%), cardiothoracic surgery (9%), and pulmonary medicine (8%) were the most common service lines for rural patient outmigration.

Some of this outmigration is due to the acuity of services rural hospitals can offer. Like patients in other settings, some rural patients will require higher-acuity care, which will appropriately lead them to outmigrate to facilities offering that level of care.

To generate a better understanding of outmigration based on acuity, we divided rural outmigration data into three levels based on patient acuity as defined by Medicare diagnosis-related group (DRG) case weight. Level 1 represents lower-acuity conditions for which most services can be provided at community hospitals, whereas Level 3 represents higher-complexity cases requiring multiple specialists that may not be adequately treated at community hospitals.

According to our analysis, while rural hospitals should be able to keep most of their counties' Level 1 cases, 68% of rural patients still outmigrated for this level of care (Figure 4). Every patient that outmigrates for care also offered in their local community represents a revenue loss for the local hospital, as well as revenue leaving the local economy.

Figure 4: Rural Patient Outmigration by Acuity Level



Analysis of Colorado, Florida, North Carolina, Oregon, Pennsylvania, and Washington.

Factors Driving Rural Hospital Crisis

The factors that have led to this rural hospital crisis are as complex as the ones that helped hollow out the communities they are meant to serve. In some ways, they're interconnected.

Payer mix degradation — A loss of agricultural and manufacturing jobs has led to a corresponding degradation of the payer mix. Residents who remain in rural communities tend to be either very old or very young, and these communities often have higher rates of uninsured, Medicaid, and Medicare patients, leading to more uncompensated and under-compensated care. Medicare payment reductions are also a major factor, with the average rural hospital counting on Medicare for 46% of gross patient revenue.⁹ The exception to this is Critical Access Hospitals (CAHs), which are paid cost-plus for Medicare-fee-for-service patients. In some states, CAHs are paid cost-plus by managed Medicaid plans as well.

8. United States Department of Agriculture Economic Research Service, "Population & Migration," Amber Waves, September 5, 2017, <https://www.ers.usda.gov/topics/rural-economy-population/population-migration/#map/>.

9. United States Government Accountability Office, "Rural Hospital Closures: Number and Characteristics of Affected Hospitals and Contributing Factors," August 2018, <https://www.gao.gov/assets/700/694125.pdf>.

Declining inpatient care driving excess capacity — Many rural hospitals were originally built in the post-World War II era to provide a level and volume of care that is no longer needed. This factor has left many rural hospitals overstaffed per non-clinician positions and underused. According to research,¹⁰ the average rural hospital has 50 beds and 321 employees, but a daily census of just seven patients. As inpatient census declines due to changing service offerings, population decline, and patient out-migration, margin compression occurs as operating costs outpace declining revenues, spreading high fixed costs allocated to fewer patients.

Inability to leverage innovation — Many already budget-strapped rural hospitals have been unable to keep up with technological trends, as they lack the capital to invest in updated, innovative technology, such as electronic health records (EHRs), telehealth, and advanced imaging platforms.

Clinician shortages — Hospitals and health systems nationwide have been coping with shortages of physicians, nurses, and other clinicians, but the problem is more extreme in rural communities. According to the Health Resources and Services Administration, 7,200 regions across the country have been designated Health Professional Shortage Areas with nearly 60% of them in rural regions.¹¹ Moreover, the number of physicians per 10,000 people is 13.1 in rural communities, compared to 31.2 in urban areas.¹²

Revenue cycle management — Many rural hospitals struggle to maintain complete internal teams to manage revenue cycle operations and are forced to outsource to third-party organizations to act on their behalf, or let this function be handled at the corporate level if they are in a system. These outsourced or corporate teams often fail to tailor their management to rural hospital needs; for example, setting collection thresholds too high to trigger reimbursement pursuit when bills go unpaid or failing to alert the facility about common issues leading to denials. Furthermore, coding at rural hospitals tends to struggle with charge capture operations due to disparate documentation methods and a lack of robust EHR capabilities.

Legislative Action, Collaboration, and Transformation Needed

The fact that these rural hospital struggles occurred during a period of uninterrupted economic growth, the longest in American history,¹³ is added cause for concern. Local, state, and federal politicians, as well as health system administrators, need to act. While there is no “one-size-fits-all” solution for the rural hospital crisis, opportunities do exist to transform rural healthcare.

Advance legislation — In 2017, Senators Chuck Grassley, R-Iowa, Amy Klobuchar, D-Minn., and Cory Gardner, R-Colo., reintroduced the Rural Emergency Acute Care Hospital (REACH) Act.¹⁴ The bipartisan legislation was meant to help CAHs by allowing them to transform their delivery model in alignment with the needs of their community without the financial disincentive of losing cost-plus reimbursement.

Many rural hospitals are designated as CAHs, meaning they are required to provide a certain number of inpatient beds, along with an emergency room, to be eligible for cost-plus reimbursement. The REACH Act offers them another option: to resize and stabilize. Under a new classification known as the Rural Emergency Hospital (REH), these hospitals would be able to rid themselves of the excess inpatient beds. Instead, they would have to maintain enough operational flexibility to move patients to larger hospitals and health systems, including academic health systems, while focusing on outpatient services. Of the 168 rural hospitals that have closed since 2005, 35% still operate outpatient, urgent care, or emergency services within their community, 31% of which were CAHs prior to shuttering inpatient services.¹⁵

While the REACH Act has been read in, it has not been voted upon by the appropriate committee. Other legislation, including the Rural Emergency Medical Center Act of 2018¹⁶ introduced by Representatives Lynn Jenkins, R-Kan., Ron Kind, D-Wis., and Terri Sewell, D-Ala., has proposed alternatives that may offer rural hospitals the flexibility to transform into a healthcare organization appropriate for the local community with favorable reimbursement models to support small volumes.

10. Jane Wishner et al., “A Look at Rural Hospital Closures and Implications for Access to Care,” Kaiser Family Foundation, July 7, 2016, <https://www.kff.org/report-section/a-look-at-rural-hospital-closures-and-implications-for-access-to-care-three-case-studies-issue-brief/>.

11. Kayt Sukel, “Dealing with the shortage of rural physicians,” *Medical Economics*, August 29, 2019, <https://www.medicaleconomics.com/news/dealing-shortage-rural-physicians>.

12. National Rural Health Association, “About Rural Health Care,” accessed March 10, 2020, <https://www.ruralhealthweb.org/about-nrha/about-rural-health-care>.

13. Matt Egan, “The longest bull market ... and longest expansion in history are in danger,” *CNN Business*, March 11, 2020, <https://www.cnn.com/2020/03/11/investing/bear-market-stocks-recession/index.html>.

14. Sen. Chuck Grassley press release, “Grassley, Klobuchar, Gardner Introduce Legislation to Help Rural Hospitals Stay Open, Focus on Emergency Room Care, Outpatient Services,” May 16, 2017, <https://www.grassley.senate.gov/news/news-releases/grassley-klobuchar-gardner-introduce-legislation-help-rural-hospitals-stay-open>.

15. University of North Carolina Cecil G. Sheps Center for Health Services Research, “168 Rural Hospital Closures: January 2005 – Present (126 since 2010),” <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/>.

16. American Hospital Association, The Rural Emergency Medical Center Act of 2018, accessed March 12, 2020, <https://www.aha.org/system/files/2018-05/rural-emergency-medical-ctr-act-2018.pdf>.

Initiate conversations with state legislators — While waiting for federal legislation, providers can collaborate with their state legislators to develop state-based CMS demonstration waivers to change the local and regional “rules” regarding inpatient beds and REH designation. This could promote regional stabilization and an opportunity to pilot novel approaches to rural healthcare.

Strategic and operational collaboration and transformation — Independent and health-system-owned rural and critical access hospitals have opportunities to transform their business models to drive financial viability. The challenges vary by hospital, but independent rural and critical access hospitals may benefit from accessing scale through partnerships with regional tertiary and academic health systems, other rural facilities, physician groups, payers, accountable care organizations, and other entities. Areas of collaboration can include telehealth, back-office functionality (revenue cycle, human capital, finance, EHR use), physician training, and clinical/service line optimization. Through these partnerships, rural hospitals can leverage the resources and capabilities of their larger peers.

A review of opportunities specific to system-owned rural and critical access hospitals may yield opportunities to improve the financial position of both the rural hospital/CAH and the system. Strategic opportunities extend across all types of facilities and include partnering with larger facilities or telehealth providers to extend access to care, grow service lines, and engage in value-based care.

Conclusion

Rural hospitals and their communities are facing a crisis that can't be ignored, one that could significantly worsen with a pandemic like COVID-19 or any downturn in the economy. Local, state, and federal political leaders, as well as hospital administrators, must act to protect the well-being of rural hospitals nationwide and the communities they serve. No elected official representing a rural area should be uninformed regarding the essentiality and financial viability of rural hospitals in their district. Through legislative action, affiliation, and engagement, local hospitals can once again become and remain facilities that their communities can embrace, utilize, and sustain.

The authors would like to recognize **Ryan Stattenfield** and **Chantz Anderson** for their contributions.

For example, many rural providers are using second-tier EHR solutions or are considering replacement of their current EHR due to support sunset or a lack of contemporary functionality. This is a capital-intensive endeavor and one where partnership with a larger health system can “extend” their instance of the EHR to the rural facility with decreased total cost of ownership as a viable solution. This provides a “sticky” relationship with the larger health system, streamlined communication, and referral support, and could serve as the foundation for extension of clinical services (specialty expertise) to the rural facility to allow care to remain local.

Community engagement — Hospital leadership should engage their board members and local community leaders to identify opportunities to promote and sustain their local hospital and retain outmigrating patients. Local economic leaders and employers should assist in this process since every rural patient that outmigrates for a service offered in their community hospital represents medical spend leaving the community. It should be expected that active engagement may provide specific information to guide the transformation of the hospitals and their services toward models that are economically sustainable due to alignment with community needs, expectations, and support.

Exhibit A: Rural Hospitals at High Financial Risk

The number and percentage of rural hospitals that are at high risk of closing unless their financial situations improve.

(CT, NJ, and RI have no qualifying rural hospitals).

State	Total Rural Hospitals	Rural Hospitals At High Risk	% of Rural Hospitals At High Risk	Among High-Risk Rural Hospitals		
				Annual Revenue	Annual Patient Discharges	# of Employees
TN	28	19	68%	\$298.9M	12,746	2,233
AL	30	18	60%	\$316.4M	16,630	2,428
OK	47	28	60%	\$435.4M	11,323	2,390
AR	34	18	53%	\$246.5M	8,029	1,886
MS	50	25	50%	\$425.7M	9,785	3,213
WV	18	9	50%	\$166.0M	2,782	1,426
SC	9	4	44%	\$188.6M	10,486	936
GA	34	14	41%	\$254.4M	8,973	1,972
KY	45	18	40%	\$586.2M	23,773	3,584
LA	30	11	37%	\$255.7M	11,319	1,616
ME	21	7	33%	\$371.2M	7,213	1,410
IN	26	8	31%	\$198M	4,941	1,134
KS	84	26	31%	\$232.3M	5,072	2,123
NM	10	3	30%	\$84.8M	1,481	463
MI	45	13	29%	\$572.3M	12,368	2,871
MO	39	10	26%	\$181.4M	4,330	1,316
VA	20	5	25%	\$154.5M	5,355	1,234
OR	17	4	24%	\$293.7M	5,970	1,214
CA	26	6	23%	\$133.8M	1,450	736
NC	26	6	23%	\$182.5M	6,196	999
FL	9	2	22%	\$32.1M	726	256
ND	34	7	21%	\$86.0M	713	491
OH	30	6	20%	\$173.9M	4,479	1,175
VT	10	2	20%	\$120.7M	2,905	670
ID	21	4	19%	\$70.1M	924	495
PA	21	4	19%	\$148.1M	2,945	863
WA	28	5	18%	\$124.1M	2,826	661
WY	17	3	18%	\$76.3M	1,225	334
TX	90	14	16%	\$291.5M	8,779	1,777
CO	29	4	14%	\$176.0M	2,889	1,135
IL	49	7	14%	\$167.4M	2,230	817
MT	49	7	14%	\$107.3M	1,676	653
NE	63	8	13%	\$97.8M	1,311	540
NY	32	4	13%	\$530.0M	11,144	3,796
IA	75	9	12%	\$214.7M	3,383	1,495
MN	74	8	11%	\$184.8M	2,076	772
AK	10	1	10%	\$9.9M	45	40
AZ	10	1	10%	\$13.7M	209	115
NH	11	1	9%	\$32.4M	596	183
WI	56	5	9%	\$107.7M	1,047	361
DE	1	-	0%	-	-	-
HI	9	-	0%	-	-	-
MA	2	-	0%	-	-	-
MD	3	-	0%	-	-	-
NV	7	-	0%	-	-	-
SD	36	-	0%	-	-	-
UT	15	-	0%	-	-	-
Total	1,430	354	25%	\$8.3B	222,350	51,813

Exhibit B: Essentiality of High-Financial-Risk Rural Hospitals

The number and percentage of high-financial-risk rural hospitals considered highly essential to their communities.

State	Highly Essential At-Risk Rural Hospitals	% of Highly Essential At-Risk Rural Hospitals
MS	25	100%
OK	23	61%
TN	19	100%
AR	18	100%
KY	18	100%
AL	16	89%
GA	13	93%
KS	13	50%
TX	13	93%
MI	12	92%
LA	11	100%
MO	9	90%
WV	8	89%
IA	7	78%
MT	7	100%
CA	6	100%
IN	6	75%
NC	6	100%
IL	5	71%
WA	5	100%
CO	4	100%
ID	4	100%
ME	4	57%
NE	4	50%
OH	4	67%
OR	4	100%
VA	4	80%
NM	3	100%
NY	3	75%
WY	3	100%
FL	2	100%
ND	2	29%
PA	2	50%
AZ	1	100%
MN	1	13%
VT	1	50%
WI	1	20%
AK	0	0%
NH	-	0
SC	-	0
DE	-	0
HI	-	0
MA	-	0
MD	-	0
NV	-	0
SD	-	0
UT	-	0
Total	287	81%

Appendix: Rural Hospital Sustainability Index Methodology

Financial Risk and Community Essentiality (Based on an analysis of 1,430 rural hospitals nationwide)

Financial risk — Derived from a weighted analysis of the following hospital metrics tied to national percentiles and medians. Overall performance (as percentile) compared to all U.S. hospitals and calculated for each of these metrics:

- Total operating margin performance over most recent two years
- Current ratio (Current assets and liabilities)
- Days cash on hand
- Debt-to-capitalization ratio
- Inpatient census

Overall financial score is a weighted average of each metric. Hospitals that had an overall score of 33 or below were assigned to the high-risk category. Nationwide, 18% of hospitals had sufficiently poor financial performance to be rated high-risk.

Community essentiality — Hospitals meeting all the following metrics are considered highly essential:

- Service to vulnerable populations: Combined proportion of Medicaid and charity care charges as percent of overall facility charges.
- Geographic isolation: Degree to which hospital represents the proportion of total beds within a 25-mile radius.
- Economic impact on community: Hospital employee-to-county population ratio.
- The Centers for Disease Control and Prevention's social vulnerability index for the hospital's home county.

Overall percentile calculated for each metric. Overall financial score is a weighted average of each metric. Nationwide, 19.8% of hospitals were rated most essential.

Outmigration Analysis

Outmigration Analysis — Outmigration analyses, both general and acuity-based, were based on a cohort of 747 hospitals from Colorado, Florida, North Carolina, Pennsylvania, Oregon, and Washington. For the purposes of this analysis, outmigration is defined as a rural classified patient who had a hospital that was based in their home county but received care at a facility outside of that county. Hospitals were limited to CAHs, short-term acute care, and children's hospital types.

General analysis — Data utilized contained hospital identification, patient origin, service category, number of discharges, and gross charges. The following was added to the data for each line item to derive outmigration.

- Hospital county and ZIP code, presence of a hospital in the patient county, and whether the patient received care within their home county.
- Rural-urban commuting area (RUCA) codes: The USDA ratings for each ZIP code across the country were used and a hospital's home ZIP code was assigned its USDA RUCA rating (ranges from 1-10) and subsequently for patients based on county of origin for the outmigration analysis.
- RUCA classification: Rural, suburban, or urban was assigned to each patient and hospital based on the code for each.
 - Rural codes: 4.51 – 10
 - Suburban codes: 1.01 – 4.50
 - Urban codes: 1

Acuity analysis — Analysis was incorporated into the general outmigration, and DRG weights associated with each rendered service DRG description were broken into acuity levels under the following methodology:

- Level 1 (Low): 1.30 and below DRG weight
- Level 2 (Medium): 1.30 to 2.60 DRG weight
- Level 3 (High): 2.60 and above DRG weight

Weight criteria was determined using a conservative approach to ensure Level 1 care could reasonably be assumed to be serviceable at almost any hospital.

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