HIDI
HealthStats

Statistics and Analysis From the Hospital Industry Data Institute

NOVEMBER 2014 ■ **THE HEALTH OF MISSOURI'S RURAL RESIDENTS AND HOSPITALS**

Key Points:

- Rural hospitals play a vital role in ensuring the health and well-being of rural Missourians.
- Medicaid reform and expansion are vital to the financial health of rural hospitals in Missouri.
- Rural Missourians account for nearly one-third of all hospital visits in the state each year.
- At 41 years old on average, rural Missouri hospital patients are 10 percent older than nonrural patients.
- Rural Missourians treated in a hospital throughout the past 12 months have significantly higher rates of strokes, heart attacks and chronic diseases.
- Rural patients travel more than twice as far for hospital care than nonrural patients.
- Rural stroke and heart attack patients travel more than three times the distance traveled by nonrural patients for time-critical hospital care.
- Distance from home to hospital is associated with patients' probability of survival.
- One recent rural hospital closure will force the residents of seven rural Missouri ZIP codes to travel an additional 66,776 miles every year for hospital care. This is equivalent to nearly three trips around the earth or 26 trips from Maine to California.

Background

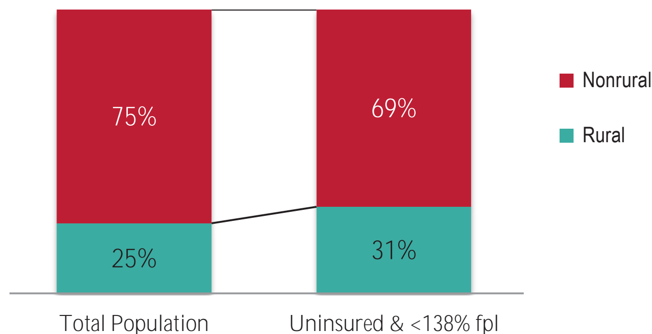
November 20 marks National Rural Health Day. The designation was formed by the National Association of State Offices of Rural Health to call attention to the unique health care needs of rural Americans. People who live in rural areas often face additional challenges in accessing health care that is close to home. On average, rural residents also are older, more likely to suffer from multiple chronic conditions and less likely to have health insurance coverage.[i]

Hospitals are significant economic engines in rural communities. They also face increasing pressure to remain financially viable in the current health care policy landscape of increasing rates of uncompensated care, declining reimbursement from payers, disproportionate share funding cuts and the continued reluctance of the Missouri General Assembly to reform and expand Medicaid coverage for low-income, working Missourians.

Rural Missourians account for a disproportionate share of residents who would benefit from expanded health insurance coverage through Medicaid (Figure 1). According to the latest health insurance coverage data from the U.S. Census Bureau, residents under the age of 65 from rural counties account for one out of every four Missourians, yet they account for nearly one in three uninsured residents with income below 138 percent of the federal poverty level — the income threshold for Medicaid in states choosing to expand the program.

Eighty-one counties and 41 census tracts are classified as rural areas in Missouri (Figure 2).[ii] With a population of 1.8 million rural residents in 2014, nearly one out of every three Missourians lives in a rural area.[iii] Similarly, rural patients accounted for nearly one in three hospital visits in Missouri during the most recent 12-month period for which data are available (Table 1).[iv]

Figure 1: Missourians Under Age 65: Total Population Compared to Medicaid Expansion Eligibility by Rural Status



Rural Health Disparities

Health disparities among rural residents are well-known. The root causes of rural health disparities are both acquired and environmental and include limited access to care, more prevalent risk behaviors, less access to employment opportunities with health insurance benefits, and less access to community health amenities. Rural communities also tend to have more elderly residents and lower socioeconomic status.[v] Nationally, rural residents are less likely to receive recommended preventive care or effectively manage chronic conditions. This may be due in part to limited access to primary care — 19 percent of all Americans live in a rural area, but only 11 percent of physicians practice in those areas.[vi]

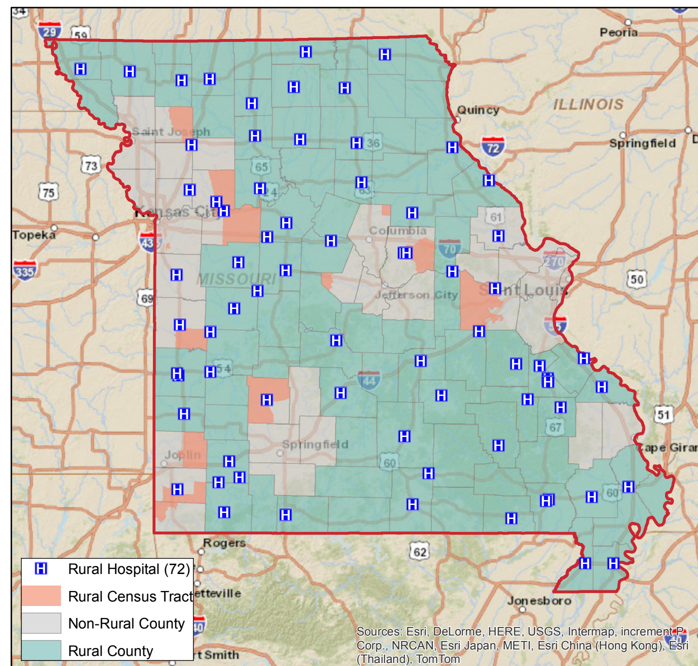
The rural physician shortage in Missouri is even more acute. In 2014, only 9 percent of licensed Missouri physicians practice in rural areas and the number of rural physicians has declined by 15 percent since 2011. Further, with an average age of 56.4, rural physicians in Missouri also are two years closer to retirement age than their nonrural counterparts. On top of Missouri's medical malpractice laws that impose no cap on monetary damages, the financial pressure facing rural hospitals also could prove to be a major impediment to access to physicians for rural Missourians because 56 percent of all rural physicians in the state are employed by hospitals.[vii]

Compounding the issue of rural disparities in access to care are disparities in the health of rural Missourians. Rural residents treated in Missouri hospitals have significantly higher rates of chronic diseases, adverse health outcomes, time-critical diagnoses and travel distances from home to hospital (Table 2). During the most recent 12 months for which data are available, the rate of strokes and heart attacks for rural patients was 44 percent and 69 percent higher than the same rates for nonrural Missourians. At the same time, rural stroke patients had to travel an average of 28.8 miles for critical hospital care. This was 3.2 times the average distance traveled by nonrural Missouri stroke patients. Rural heart attack patients traveled an average of 31.2 miles for hospital care, 3.4 times the average distance traveled by nonrural heart attack patients. The average distance traveled by rural hospital patients who did not survive illness or injury was 32.1 miles, compared to 9.1 miles for nonrural hospital fatalities.

Table 1: Distribution of Population and Hospital Inpatient and ED Utilization for Rural and Nonrural Missourians, 7/1/2013 to 6/30/2014

	2014 Population	Percent of Population	Visits	Percent of Visits
Rural	1,760,649	29.2%	988,039	29.1%
Non-Rural	4,278,677	70.8%	2,404,353	70.9%
Total	6,039,326	100%	3,392,392	100%

Figure 2: Rural Areas and Hospitals in Missouri



The largest chronic disease disparities for rural Missourians were for chronic obstructive pulmonary disease, and for patients with a history of stroke, atherosclerosis, heart disease and diabetes. More than 9 percent of rural patients presenting to a hospital for any reason during the past 12 months had COPD diagnosed as a primary or comorbid condition. This is 56.7 percent higher than the rate of COPD among nonrural patients. The rates of patients with histories of stroke and atherosclerosis were each around 30 percent higher for rural patients, and the rate of rural patients with chronic heart disease was 22 percent higher.

The Importance of Rural Hospitals

A total of 72 hospitals in Missouri operate in rural areas of the state (Figure 2). The majority of these facilities are sole community providers and critical access hospitals. Two rural hospitals were forced to close this year due to extraordinary financial pressure. Rural hospitals provide vital

health care to Missouri's rural residents. Throughout the past 12 months, 73.9 percent of all hospital inpatient and emergency room visits by rural Missourians were at a rural hospital (Table 2). Between 2011 and 2013, rural Missouri hospitals accounted for the following percentage of total hospital-delivered care in the state:[viii]

- 29 percent of emergency department visits
- 31 percent of hospital admissions
- 22 percent of childbirths
- 36 percent of treatments for poisonings and injuries
- 29 percent of treatments for burns
- 29 percent of treatments for head injuries
- 32 percent of heart attacks

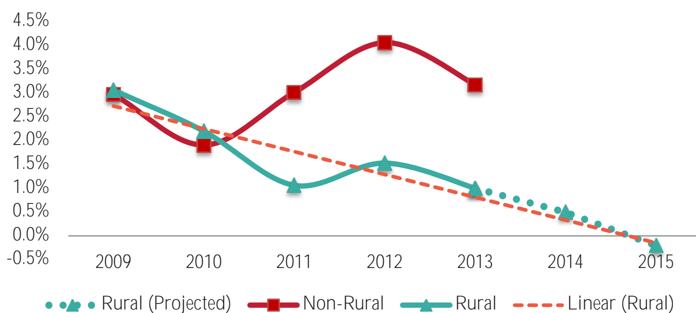
In addition to the critical health care services provided by rural hospitals, they also are a major economic benefit to rural communities.[ix] Last year, rural hospitals provided full-time equivalent employment to 25,518 health care workers, primarily from the surrounding rural communities. Net pay and benefits for these rural health care workers totaled nearly $1.7 billion in 2013. This was an average salary and benefit package of $66,000 annually. The state's 72 rural hospitals also invested $252 million in capital expenditures and improvements which generates a significant trickledown effect in rural economies. According to the National Center for Rural Health Works, rural hospital capital projects create 41 jobs and $1.5 million in payroll for every $4.2 million invested.[x] This implies that rural Missouri hospitals' capital outlays created 2,458 jobs and nearly $90 million in payroll for Missourians last year.

One of the most significant financial stresses facing rural hospitals is their provision of critical health care to higher numbers of low-income, uninsured working Missourians without the financial means to pay for the care they receive. During 2013, Missouri's 72 rural hospitals provided more than $543 million in uncompensated care — $142 million was provided as charity care and $401 million was the result of unpaid loans for care previously rendered in good faith. Although providing quality care to patients regardless of their insurance coverage or ability to pay is a hallmark of the mission of all hospitals, recent trends in hospital operating margins and looming reimbursement reductions call into question the sustainability of this much needed philanthropic delivery of health care. Figure 3 shows the average operating margins for rural and nonrural Missouri hospitals over the past five years. The average operating margins for rural hospitals have declined by 66 percent since 2009 and are projected to be negative by 2015 if the current trend

Table 2: Characteristics of Rural and Nonrural Hospital Inpatient and ED Visits in Missouri, 7/1/2013 to 6/30/2014

Demographic Profile	Rural Patients	Non-Rural Patients	Difference
Number of Visits	988,039	2,404,353	0.4 to 1
Average Patient Age	41.03	37.41	9.7%
Percent Male	43.7%	42.9%	1.9%
Percent Non-White	7.0%	31.0%	-77.4%
Percent With Medicaid	27.4%	22.2%	23.4%
Percent Uninsured (Self-Pay)	21.0%	19.8%	6.4%
Percent of Visits to Rural Hospitals	73.9%	4.4%	16.8 to 1
Proximity of Hospital			
Average Miles From Home (All Visits)	18.96	9.07	2.1 to 1
Average Miles From Home (Strokes)	28.79	8.87	3.2 to 1
Average Miles From Home (Heart Attacks)	31.23	9.23	3.4 to 1
Average Miles From Home (Patient Expired)	32.08	9.07	3.5 to 1
Average Miles From Home (Patient Survived)	18.87	9.59	2 to 1
Time Critical Diagnoses			
Rate of Strokes per 10,000 Population	26.22	18.16	44.4%
Rate of Heart Attacks per 10,000 Population	34.25	20.27	69.0%
Fatality Rate per 10,000 Population	35.50	28.11	26.3%
Visits with Chronic Comorbidities			
Percent With Hypertension	24.5%	22.9%	6.7%
Percent With Heart Disease	20.0%	16.3%	22.2%
Percent With Diabetes	12.6%	10.9%	15.7%
Percent With COPD	9.1%	5.8%	56.7%
Percent With Cancer	5.2%	4.6%	12.8%
Percent With History of Stroke	2.3%	1.8%	31.6%
Percent With Atherosclerosis	1.7%	1.3%	29.9%

Figure 3: Average Operating Margins for Rural and Nonrural Hospitals in Missouri Since 2009



continues. This projection does not account for pending reimbursement reductions mandated by new federal policies. Compared to nonrural hospitals, a sharp divergence in average operating margins has been observed since 2009 when all Missouri hospitals operated on a 3 percent margin on average. Between 2009 and 2013, uncompensated care provided by rural hospitals exceeded 15.3 percent of total operating revenue. The main driver of uncompensated care is the treatment of uninsured and underinsured patients, which would be dramatically mitigated by extending health insurance coverage to low-income working Missourians through Medicaid expansion.

The Impact On Access To Care For Rural Missourians Following A Rural Hospital Closure

Two rural Missouri hospitals were forced to close in 2014. One of the closures was Sac-Osage Hospital in Osceola, a rural southwest Missouri community with around 1,000 residents.

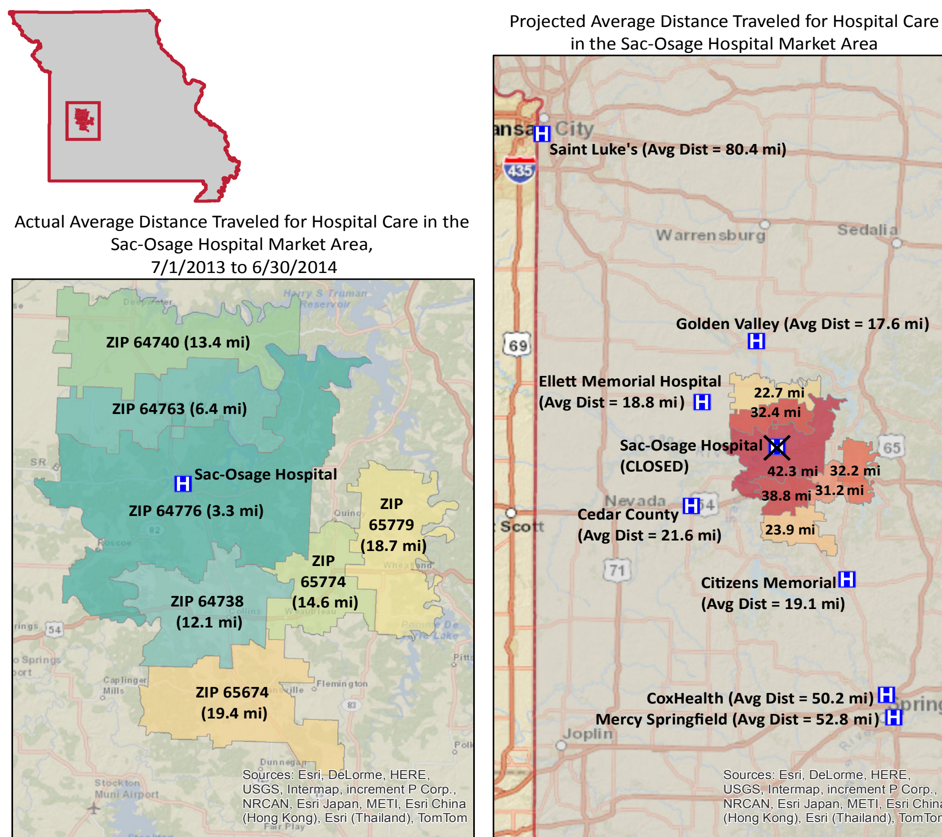
Sac-Osage Hospital had operated in the community for 45 years as an independent provider. In 2012, the hospital had a negative 5.3 percent operating margin and uncompensated care at nearly $1 million, which exceeded 13 percent of the hospital's operating revenue. Osceola is the seat of St. Clair County. According to the U.S. Census Bureau, at 20 percent St. Clair County has one of the highest uninsured rates in the state. Also according to the census, more than half of the county's uninsured residents would qualify for health insurance coverage under Medicaid expansion.[xi]

As a result of extraordinary financial pressure, Sac-Osage Hospital closed its doors in August 2014. Between July 2013 and June 2014 — the most recent 12 months of data available — the hospital treated nearly 2,500 patients in its emergency room or as inpatient admissions. The majority of these patients were from the immediately surrounding rural community consisting of seven ZIP codes. These patients traveled an average of 6.2 miles to the hospital for a combined total of 12,751 miles during the 12-month period (Table 3). Aside from Sac-Osage, the residents of these ZIP codes visited primarily seven other hospitals within an 80 mile radius (Figure 4). Assuming these utilization patterns continue, residents of these seven rural Missouri ZIP codes will move from an average distance traveled for hospital care of 6.2 miles to 31.2 miles with the closure of their community hospital. Combined, this added travel distance is projected to exceed 66,700 miles per year. This is the driving equivalent of 2.7 times around the earth, or 26 trips from Maine to California. Aside from the added actuarial risk of driving this many highway miles, is the health risk imposed by distance, particularly for time-critical conditions. A recent HIDI regression analysis revealed that after controlling for patients' age, race, gender and clinical comorbidities, patients face an added risk of mortality of 6 percent per every 10 additional miles driven from home to hospital (OR = 1.06, $P < 0.0001$).

Table 3: Projected Impact of the Sac-Osage Hospital Closure

ZIP Code		Distance Traveled to Sac-Osage: Average (Actual)	Distance Traveled to Sac-Osage: Total (Actual)	Distance Traveled to Other Hospitals: Average (Actual)	Distance Traveled to Other Hospitals: Total (Projected)	*Annual Difference (Projected)*
64776	Osceola	3.3	4,389	42.3	56,259	*51,870*
64763	Lowry City	6.4	1,786	32.4	9,040	*7,254*
64738	Collins	12.1	2,130	38.8	6,829	*4,699*
64740	Deepwater	13.4	1,152	22.7	1,952	*800*
65774	Weaubleau	14.6	876	31.2	1,872	*996*
65779	Wheatland	18.7	1,216	32.2	2,093	*878*
65674	Humansville	19.4	1,203	23.9	1,482	*279*
Total Market Area		6.2	12,751	31.2	79,526	*66,776*

Figure 4: Spatial Impact of a Rural Hospital Closure in Missouri



Suggested Citation

Reidhead, M. *HIDI HealthStats*, November 2014: The Health of Missouri's Rural Residents and Hospitals. Missouri Hospital Association, Hospital Industry Data Institute. Available at http://web.mhanet.com/hidi.

[i] *National Rural Health Day. Available online: http://celebratepowerofrural.org/?page_id=18.*

[ii] *U.S. Department of Health & Human Services. Health Resources and Services Administration Office of Rural Health Policy. List of rural counties and designated eligible census tracts in metropolitan counties. Updated U.S. Census 2010.*

[iii] *The total rural population is based on Nielsen Claritas 2014 PopFacts Premier data for the 81 counties and 41 census tracts classified as rural by the HRSA Office of Rural Health Policy.*

The total rural population data from Nielsen-Claritas do not reflect the rural population under age 65 data presented in Figure 1 because of the different age groups and because the U.S. Census Bureau SAHIE data are not available at the census tract level.

[iv] *Hospital discharge data used in this analysis include inpatient hospitalizations and emergency department visits from the HIDI 2013 and 2014 Inpatient and Outpatient discharge databases for the period covering July 1, 2013 to June 30, 2014. Rural hospital visits were identified by geocoding patient addresses to the counties and census tracts defined as rural by the U.S. Office of Rural Health Policy (Figure 1).*

[v] *University of Pittsburgh, Center for Rural Health Practice. Bridging the health divide, the rural public health research agenda. April 2004. Available online: http://www.upb.pitt.edu/uploadedFiles/About/Sponsored_Programs/Center_for_Rural_Health_Practice/Bridging%20the%20Health%20Divide.pdf.*

[vi] *U.S. Agency for Healthcare Research and Quality. 2013 National Healthcare Disparities Report. Available online: http://www.ahrq.gov/research/findings/nhqrdr/nhdr13/2013nhdr.pdf.*

[vii] *Becker, M., & Jackson, L. 2014. Primary care physicians in missouri — rural and urban disparities 2014. Available online: http://missourihealthmatters.com/wp-content/uploads/sites/17/2014/06/Primary-Care-Physician-Rural_Urban_Disparities_0614.pdf.*

[viii] *Missouri Hospital Association. 2014. At risk: Health care in rural missouri. Care close to home. Available online: http://missourihealthmatters.com/wp-content/uploads/sites/17/2014/10/Health-Care-in-Rural-Missouri_FactSheet_10141.pdf.*

[ix] *All financial, employment and uncompensated care data are from the 2013 Missouri Annual Hospital Licensing Survey.*

[x] *National Center for Rural Health Works. September 2012. Economic impact of rural health care. Available online: http://www.ruralhealthworks.org.*

[xi] *U.S. Census Bureau. 2012 small area health insurance estimates program. Available online: http://www.census.gov/did/www/sahie/.*

HOSPITAL INDUSTRY DATA INSTITUTE
The Data Company of the Missouri Hospital Association

© 2014 Hospital Industry Data Institute

P.O. Box 60
Jefferson City, MO 65102-0060