Findings Brief
NC Rural Health Research Program

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2021 CMS Hospital Quality Star Ratings of Rural Hospitals

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BACKGROUND

In July of 2016, the Centers for Medicare & Medicaid Services (CMS) released a new Hospital Quality Star Rating system on the Hospital Compare website.[1] Under this system, performance on a series of quality metrics is used to assign between one and five stars to a hospital, with a higher number of stars indicating better quality. Star ratings are intended to help patients decide where to get hospital services and encourage hospitals to improve the quality of their services. They are also used in reimbursement contracts that hospitals negotiate with insurance companies.

Many rural hospitals do not have a CMS Hospital Quality Star Rating. Some of the reasons include challenging CMS data requirements, low volume (an insufficient number of hospital cases), or hospital decisions to not participate. The lack of a star rating can have two important consequences for rural hospitals. First, patients may perceive the lack of a star rating as a signal of lower quality of care and consequently avoid care at hospitals without a star rating (that is, they may misinterpret "no rating" as "zero stars"). Second, star ratings are often used by physicians, payers, and purchasers in referral practices and contract negotiations, and a higher star rating can be advantageous for hospitals.

However, the 2016 CMS Hospital Quality Star Ratings were criticized for the method of quality measurement[2] and the lack of adjustment for social risk factors such as income, marital status, race, languages spoken, education, and employment in the community that the hospital serves.[3] In addition, the NC Rural Health Research Program analyzed the results of the 2016 CMS Hospital Quality Star Ratings and found that: more than one third of rural hospitals (762) did not receive a star rating; Critical Access Hospitals (CAHs) were the most likely to not receive a star rating; small rural hospitals were less likely than larger rural hospitals to receive a star rating, and; 43% of the unrated rural hospitals were in the Midwest census region.[4]

KEY FINDINGS

The CMS Hospital Quality Star Rating system measures performance on a series of quality metrics to assign between one and five stars to a hospital, with a higher number of stars indicating better quality. Many rural hospitals do not have a CMS Hospital Quality Star Rating because of CMS data requirements, an insufficient number of hospital cases, or hospital decisions to not participate. Key findings from this study include the following:

- Rural hospitals were more likely to be unrated than urban (41.6% vs. 12.0%).
- There was a large increase in the percentage of unrated rural hospitals between 2016 and 2021 (34.3% to 41.6%).
- Almost all (89.4%) unrated rural hospitals are Critical Access Hospitals (CAHs).
- Almost half (45%) of unrated rural hospitals are in the Midwest census region.

CMS recently released its 2021 Hospital Quality Star Ratings,[5] which incorporate several changes to the methodology, including use of a simple average to calculate hospital performance, consolidation of quality domains from seven to five (removing Efficient Use of Medical Imaging and combining Timely Care and Effective Care), and placing hospitals into one of three peer groups based on the number of measures that a hospital submitted. In addition, the number of measures a hospital is required to submit under each measure group was relaxed to three measures in three groups including Mortality or Safety of Care.[6] This change in methodology was intended to address methodological concerns about the 2016 Hospital Quality Star Ratings and to include more CAHs in the rating system.[7] The purpose of this study is to 1) compare the 2021 CMS Hospital Quality Star Rating results for rural and urban hospitals, 2) to compare the 2021 and 2016 CMS Hospital Quality Star Rating results for rural hospitals, and 3) to identify implications for the usefulness of the CMS Hospital Quality Star Ratings for rural hospitals.

DATA AND METHODS

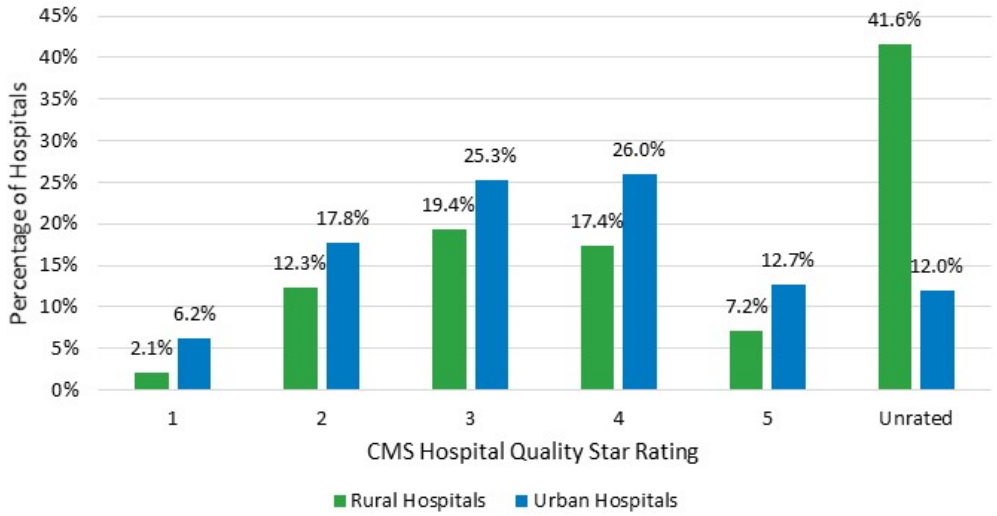
Rural was defined using the Federal Office of Rural Health Policy's definition as of 2021: non-Metro counties, Metro counties with Rural-Urban Commuting Area (RUCA) codes between 4 and 10, and large area Metro census tracts of at least 400 square miles in areas with population density of 35 or less per square mile with RUCA codes 2-3.[8] The 2021 and 2016 CMS Hospital Quality Star Ratings were merged with 2019 Medicare cost report data from the Healthcare Cost Report Information System (HCRIS). The final dataset included 4,511 hospitals, of which 2,173 were classified as rural.

RESULTS

Compared to urban hospitals, a much higher percentage of rural hospitals are unrated in 2021

Figure 1 compares the 2021 percentage of rural and urban hospitals by CMS Hospital Quality Star Rating. In 2021, 41.6% of rural hospitals (n=903) were unrated compared to only 12.0% of urban hospitals (n=280). Most (76.3%) of unrated hospitals were rural; 23.7% were urban.

Figure 1. Percentage of Rural and Urban Hospitals by 2021 CMS Hospital Quality Star Rating



There was a large increase in the percentage of unrated rural hospitals between 2016 and 2021

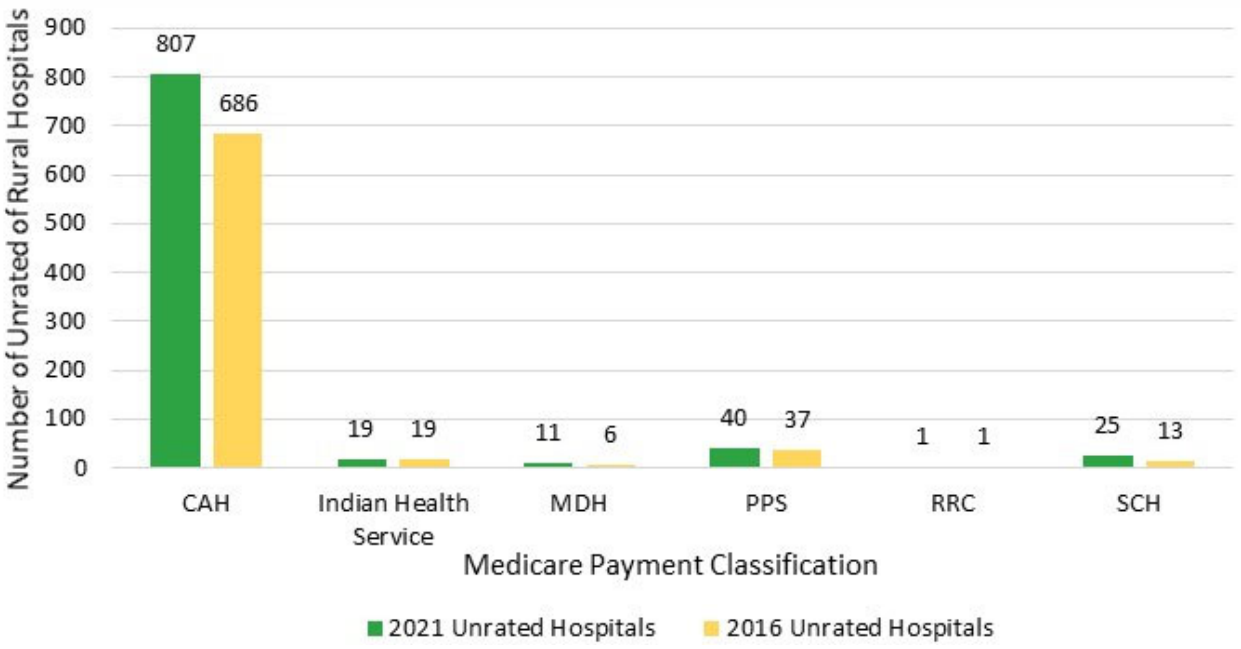
Figure 2 compares the 2021 and 2016 percentage of rural hospitals by CMS Hospital Quality Star Rating. In 2021, 41.6% of rural hospitals (n=903) were unrated compared to 34.3% (n=762) in 2016, an increase of 7.3 percentage points (n=141). There were large percentage swings in other star ratings between 2016 and 2021, particularly in the percentage of rural hospitals with three stars. In 2021, hospitals were far more likely to have 1 or 5 stars than they were in 2016 (9.3% vs. 1.1%). Thus, one consequence of the new method is to have a wider range of star ratings.

Figure 2. Percentage of Rural Hospitals by 2021 and 2016 CMS Hospital Quality Star Rating

Almost all 2021 and 2016 unrated rural hospitals are CAHs

Figure 3 shows the number of 2021 and 2016 unrated rural hospitals by Medicare payment classification. In 2021, 807 CAHs were unrated compared to 686 in 2016, an increase of 121 hospitals. For both years, nearly all unrated rural hospitals (89.4%) were CAHs.

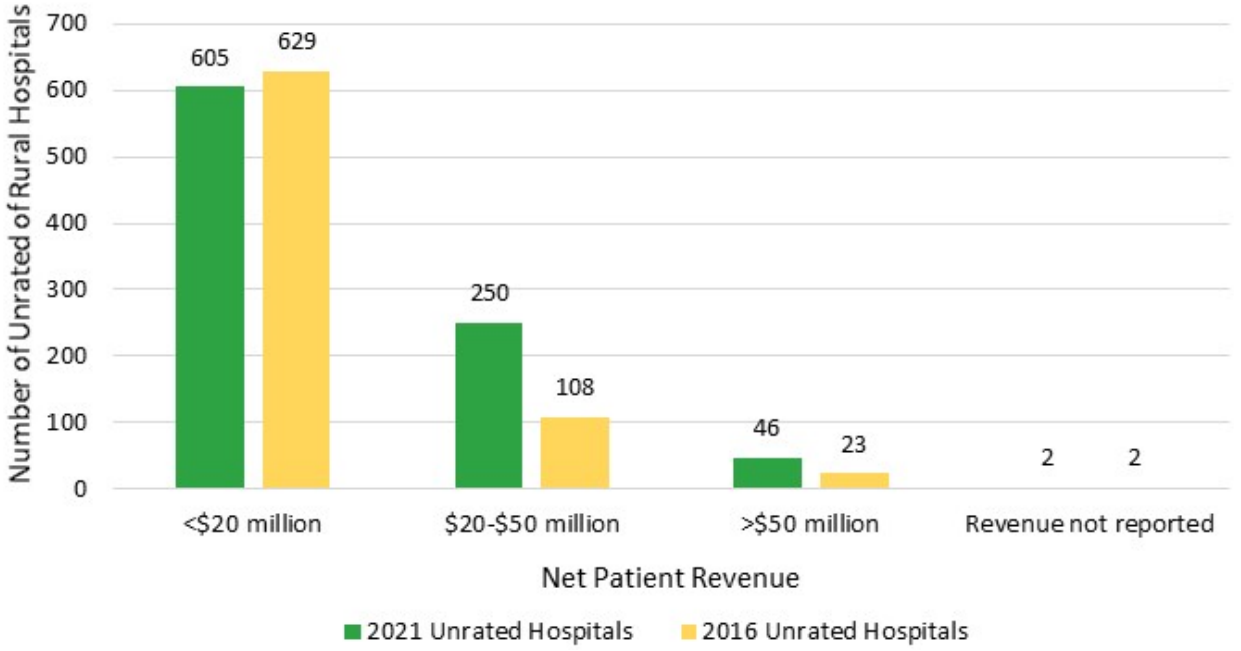
Figure 3. Number of 2021 and 2016 Unrated Rural Hospitals by Medicare Payment Classification



Most 2021 and 2016 unrated rural hospitals have net patient revenue less than $20 million

Figure 4 shows the number of 2021 and 2016 unrated rural hospitals by net patient revenue category (a proxy for size). In 2021, 605 hospitals with net patient revenue less than $20 million were unrated compared to 629 in 2016. More than half of unrated rural hospitals (67.0%) were small hospitals—hospitals with less than $20 million in net patient revenue. Net patient revenue data were not adjusted for inflation.

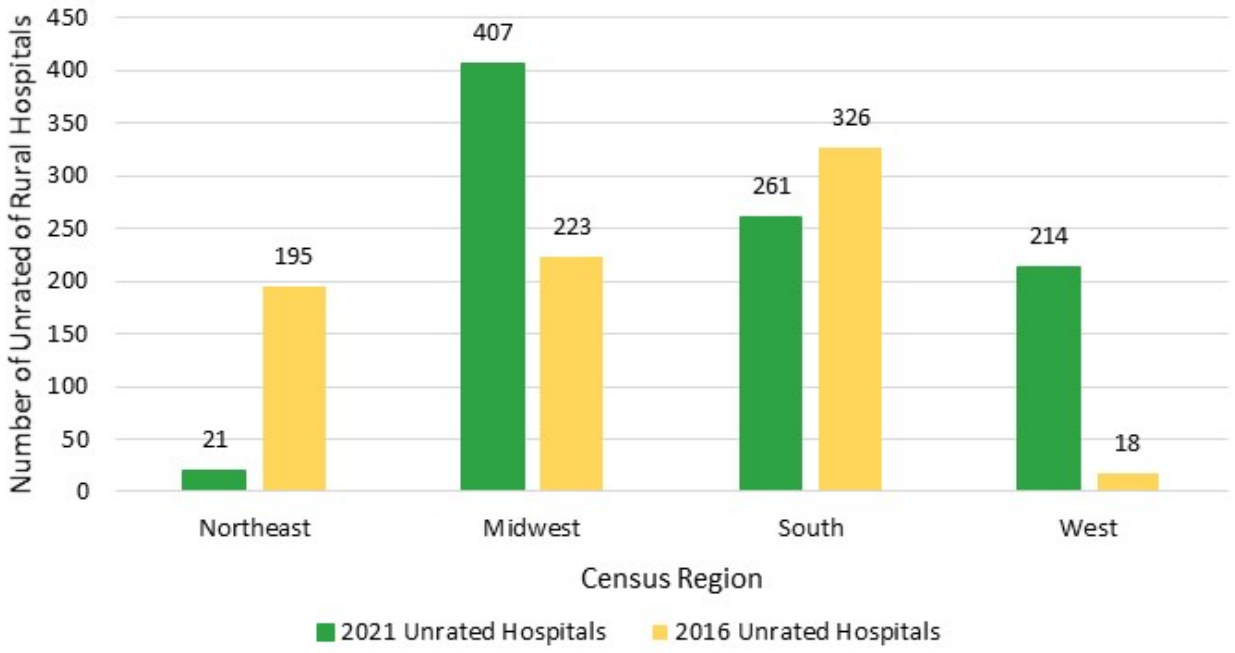
Figure 4. Number of 2021 and 2016 Unrated Rural Hospitals by Net Patient Revenue



Almost half of unrated rural hospitals are in the Midwest census region

Figure 5 shows the number of 2021 and 2016 unrated rural hospitals by U.S. Census Region. In 2021, 407 hospitals in the Midwest were unrated compared to 223 in 2016, an increase of 184 hospitals. Just over 45% of unrated hospitals were the Midwest.

Figure 5. Number of 2021 and 2016 Unrated Rural Hospitals by Census Region



SUMMARY AND CONCLUSION

This study found that rural hospitals are more likely to be unrated than urban hospitals. Furthermore, there was a large increase in the percentage of unrated rural hospitals between 2016 and 2021. The unrated rural hospitals are mostly CAHs and have net patient revenue less than $20 million; almost half are in the Midwest census region.

Despite changes to the methodology, hundreds of rural hospitals remain unrated in the 2021 CMS Star Ratings. In our 2017 report, we identified several possible explanations for the high percentage of unrated rural hospitals including: 1) rural hospitals, particularly very small hospitals such as CAHs, may not have a sufficient volume of patients to produce statistically valid results; 2) rural hospitals, which often provide a more limited scope of services, may not provide the services that are measured by CMS quality reporting programs; 3) some CMS quality initiatives systematically exclude some rural hospitals from participation because they are paid differently than other providers or because of other measurement challenges; and 4) some rural hospitals may elect not to report quality data.

In addition, concern remains that the lack of adjustment for social risk factors in calculating performance measures, such as readmissions, may bias the ratings against hospitals that have a higher proportion of vulnerable patients. Rural hospitals treat a patient population that is often older, sicker, and poorer compared to national averages. For example, although less than 14 percent of the nation's population is age 65 and older, this group makes up more than 18 percent of residents in rural areas.[9] In 2016, the Robert Wood Johnson Foundation published its County Health Rankings Key Findings Report, which showed that across health behaviors, clinical care, and social and economic factors, rural counties performed worse in nearly all categories: adult smoking, adult obesity, teen births, uninsured rates, preventable hospitals stays, education, children living in poverty, and injury deaths.[10] These characteristics illustrate why the lack of adjustment for social risk factors is of particular concern to rural hospitals.

The 2021 CMS Hospital Quality Star Ratings methodology is probably an improvement that could make the ratings more useful for patients and hospitals. However, reduction of the number of required measures and introduction of peer groups did not increase the percentage of rural hospitals with a star rating. The challenges in health care performance measurement for rural providers were addressed by the National Quality Forum Rural Health Committee

in 2015. The Committee's overarching recommendation was to "make participation in CMS quality measurement and quality improvement programs mandatory for all rural providers but allow a phased approach for full participation across program types and address low case volume explicitly." More specifically, the committee recommended funding development of rural relevant measures to develop and/or modify measures to address low case volume explicitly, consider rural-relevant sociodemographic factors in risk adjustment, and to create composite measures that are appropriate for rural (particularly low-volume) providers.[11]

In addition, CMS could explore the feasibility of grouping unrated hospitals and creating a separate rating system that uses data and methods appropriate for hospitals with small numbers of cases and other limitations that result in no rating under the current system. It will be important for CMS to continue to explore strategies to increase the number of rated rural hospitals and to use methods that produce valid and reliable quality measures for rural hospitals.

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APPENDIX

Table 1. 2021 CMS Star Ratings for Rural and Urban Hospitals

	2021 Rural Hospitals		2021 Urban Hospitals	
CMS Star Rating	**Number**	**Percent**	**Number**	**Percent**
1	45	2.1%	146	6.2%
2	268	12.3%	415	17.8%
3	422	19.4%	591	25.3%
4	378	17.4%	608	26.0%
5	157	7.2%	298	12.7%
Unrated	903	41.6%	280	12.0%
Total	2,173	100.0%	2,338	100.0%

Table 2. Number of 2021 and 2016 CMS Star Ratings for Rural Hospitals

CMS Star Rating	2021 Rural Hospitals	2016 Rural Hospitals	Change
1	45	8	37
2	268	166	102
3	422	848	-426
4	378	422	-44
5	157	15	142
Unrated	903	762	141
Total	2,173	2,221	-48

Table 3. Number of 2021 and 2016 Unrated Rural Hospitals by Medicare Payment Classification

Medicare Payment Classification	2021 Rural Hospitals	2016 Rural Hospitals	Change
CAH	807	686	121
IHS	19	19	0
MDH	11	6	5
PPS	40	37	3
RRC	1	1	0
SCH	25	13	12
Total	903	762	141

Table 4. Number of 2021 and 2016 Unrated Rural Hospitals by Net Patient Revenue

Net Patient Revenue	2021 Unrated Rural Hospitals	2016 Unrated Rural Hospitals	Change
< $20 million	605	629	-24
$20 - $50 million	250	108	142
> $50 million	46	23	23
Revenue not reported	2	2	0
Total	903	762	141

Table 5. Number of 2021 and 2016 Unrated Rural Hospitals by Census Region

Census Region	2021 Unrated Rural Hospitals	2016 Unrated Rural Hospitals	Change
Northeast	21	195	-174
Midwest	407	223	184
South	261	326	-65
West	214	18	196
Total	903	762	141