NC RHRP

Findings Brief
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Trends in Revenue Sources among Rural Hospitals

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INTRODUCTION

From January 2005 to December 2021, 180 rural hospitals closed[1] in the United States, with 137 of these closures occurring since 2010.[2] The increase in closures is particularly alarming given the potentially devastating health and economic effects for surrounding areas.[3,4] Rural populations are especially vulnerable given that rural residents are more likely to be older, unemployed, living in poverty, uninsured or reliant on public insurance programs such as Medicare and Medicaid, and in poorer health relative to urban residents.[5,6] Furthermore, evidence suggests that rural hospital closures may disproportionately harm communities of color and amplify racial and ethnic disparities.[7] Given these negative effects, researchers have developed predictive models of hospital financial distress and subsequent closure risk.[8-10] Identifying changes in these established predictors of financial distress (e.g., outpatient revenue, inpatient revenue) will become increasingly important as policymakers continue to devise policies and programs to stem rural hospital closures and provide financial relief to rural health care providers.

ABSTRACT

Purpose
To estimate changes in outpatient care as a source of revenue for rural hospitals from 2011-2019.

Methods
We used 2011-2019 data from the Healthcare Cost Report Information System to analyze trends in the percent of patient revenue coming from outpatient care.

Findings
For the average hospital in our sample of 1,866 rural hospitals, the percent of revenue coming from outpatient services increased from 66.5% in 2011 to 74.2% in 2019. Furthermore, total outpatient revenue for the average rural hospital increased by 56.4% from 2011-2019, after inflation adjustment. Conversely, total inpatient revenue for the average rural hospital only increased by 9.3% from 2011-2019, after inflation adjustment.

Conclusions
Our findings suggest that many rural hospitals now receive most of their revenue from outpatient sources. Future payment mechanisms recognizing the importance of outpatient services may be more effective in sustaining financial viability in rural hospitals compared to payment models based on inpatient criteria.

One of the existing financial support models for rural hospitals is the Medicare special payment classification program, a collection of special payment provisions introduced by federal lawmakers throughout the 1980s and 1990s to address the unique financial challenges that rural hospitals face and preserve access to health care services in rural communities.[11,12] Under the existing program, there are currently four special classifications (in addition to Prospective Payment System, or PPS) that a rural hospital can receive: Critical Access Hospitals (CAHs), Medicare-Dependent Hospitals (MDHs), Sole Community Hospitals (SCHs), and Rural Referral Centers (RRCs).[11] Qualifying rural hospitals that receive a Medicare special payment classification subsequently become eligible for modified and financially supportive payment models, such as higher reimbursement rates and payment adjustments.[11,13] However, since 2005, over half of the rural hospitals that closed were classified as either a CAH, MDH, or SCH,[1] and from 2012 to 2014, operating margins worsened among both Medicare special payment classification hospitals (CAHs, MDHs, and SCHs specifically) and rural PPS hospitals more generally.[14]

According to the Medicare Payment Advisory Commission (MedPAC), existing payment models for rural hospitals are primarily "inpatient-centric."[15] In order to receive the modified payment benefits associated with a Medicare payment designation, CAHs, SCHs, and MDHs are all required to offer inpatient care services.[15] Additionally, the amount of supplemental dollars paid to SCHs and MDHs are tied to the facility's Medicare inpatient discharges. A potential problem with these payment models is that, given recent declines in inpatient volume,[16] inpatient-centric payment systems may no longer be the most appropriate mechanism to maintain financial viability among rural hospitals.[15]

Possible issues with existing rural hospital financing models suggest that newer, outpatient-centric payment methods may be more effective in providing financial relief to rural hospitals.[15] In light of this, we sought to explore the current financial importance of outpatient care to rural hospitals. Specifically, the objective of our study was to estimate changes in outpatient care as a source of revenue for rural hospitals from 2011-2019. Ideally, the results can provide stakeholders and lawmakers with additional support in understanding the contemporary role that outpatient service lines have in rural hospitals, thereby allowing them to develop policies that more effectively support rural health care providers and the communities they serve.

METHODS

Study design and sample

This study utilized a retrospective longitudinal design. All study data were taken from publicly available files produced by the Centers for Medicare & Medicaid Services (CMS). Primarily, we used hospital facility and financial data reported in CMS Healthcare Cost Report Information System (HCRIS) files from 2011-2019.[17] Each year, Medicare-certified provider institutions submit data regarding facility characteristics, utilization, costs and charges, Medicare settlements, and financial statements to the Medicare Administrative Contractor for the HCRIS.[18] We identified rural hospitals using the rurality definition outlined by the Federal Office of Rural Health Policy for the 2021 fiscal year. To qualify as rural, a hospital must be in an area that 1) is not part of a Metropolitan Statistical Area, 2) has a Rural-Urban Community Area (RUCA) code of 4-10, or 3) has a RUCA code of 2 or 3, AND be at least 400 square miles in size, AND have a maximum population density of 35 people per square mile.[19]

Descriptive analysis

To complete our study objective, we conducted a descriptive trend analysis of changes in outpatient care as a source of revenue for rural hospitals from 2011-2019. The key outcome was the percent of a hospital's total patient revenue coming from outpatient sources (i.e., "outpatient percent"). As defined by HCRIS, total outpatient revenue was calculated as the sum of revenue from general outpatient services and outpatient revenue from ancillary services, Rural Health Clinics, Federally Qualified Health Centers, home health agencies, ambulance services, outpatient rehabilitation providers, ambulatory surgery centers, hospice services, and additional services. Inpatient revenue included revenue from general inpatient hospital services, sub-provider inpatient psychiatric facilities, sub-provider inpatient rehabilitation facilities, other sub-providers, swing beds, skilled nursing facilities, other nursing facilities, other long-term care services, intensive care units, coronary care units, burn intensive care units, surgical intensive care units, and other specialty care services. Total patient revenue was calculated as the sum of outpatient and inpatient revenue.

We first assessed the trend in outpatient revenue as a percent of total patient revenue among our full sample of rural hospitals. Next, we divided our sample of rural hospitals according to Medicare payment classification (e.g., CAH, SCH, MDH, RRC, and PPS without additional special payment classifications)[20] and United States Census region (Northeast, Midwest, South, and West) and repeated our analysis by group. For comparison, we also calculated revenue source trends for a separate sample of urban PPS hospitals. In addition, to understand the mechanism by which outpatient as a percent of total patient revenue changed, we analyzed trends in total outpatient revenue and total inpatient revenue among rural hospitals from 2011-2019. To control for inflation, we converted nominal dollars to real dollars using the Consumer Price Index for medical care provided by the Bureau of Labor Statistics.[21]

We restricted our analytic sample to rural hospitals with complete data on the following variables for both 2011 and 2019: total outpatient revenue, total inpatient revenue, hospital ZIP code, Census region, and payment classification. We performed all data analyses and visualization using R version 4.0.2, Tableau Desktop 2020.2.8, and Microsoft Excel 2016.

RESULTS

Table 1 provides details for our sample of 1,866 rural hospitals. The majority of these facilities were classified as CAHs, located in the Midwest or South Census regions, unaffiliated with a health system, and not government-owned. The characteristics of the sample are very similar to those calculated from all rural hospitals (not shown in Table 1). Below, we report results for our descriptive analysis. Specifically, we report changes in the average outpatient percent (changes in the median outpatient percent were similar). Our main results focus on the overall change in average outpatient percent between the two endpoints of our study period. We also calculated year-by-year changes to detect possible inter-year heterogeneity in the yearly rate of change. However, the rate of change was generally uniform from year-to-year. Thus, we present the year-by-year changes in the Appendix at the end of the article and provide a more concise summary of changes in the main text.

Table 1. Characteristics of Sample of Rural Hospitals, 2019

Number of hospitals	1,866
Number of acute beds, Mean (SD)	48.5 (52.2)
Payment classification, No. (%)	
Critical Access Hospital	1,080 (57.9%)
Medicare-Dependent Hospital	114 (6.1%)
Prospective Payment System[a]	220 (11.8%)
Rural Referral Center[b]	210 (11.3%)
Sole Community Hospital	242 (13.0%)
Census region, No. (%)	
Midwest	748 (40.1%)
Northeast	139 (7.4%)
South	635 (34.0%)
West	344 (18.4%)
System affiliation,[c] No. (%)	
Yes	803 (43.0%)
No	1,063 (57.0%)
Government ownership, No. (%)	
Yes	636 (34.1%)
No	1,230 (65.9%)

[a] PPS hospitals without additional special payment classifications.

[b] Includes hospitals jointly designated as a Rural Referral Center and an additional payment classification.

[c] Determined using HCRIS data that describes whether a given hospital is part of a "chain organization" with a "home office" at a different address.

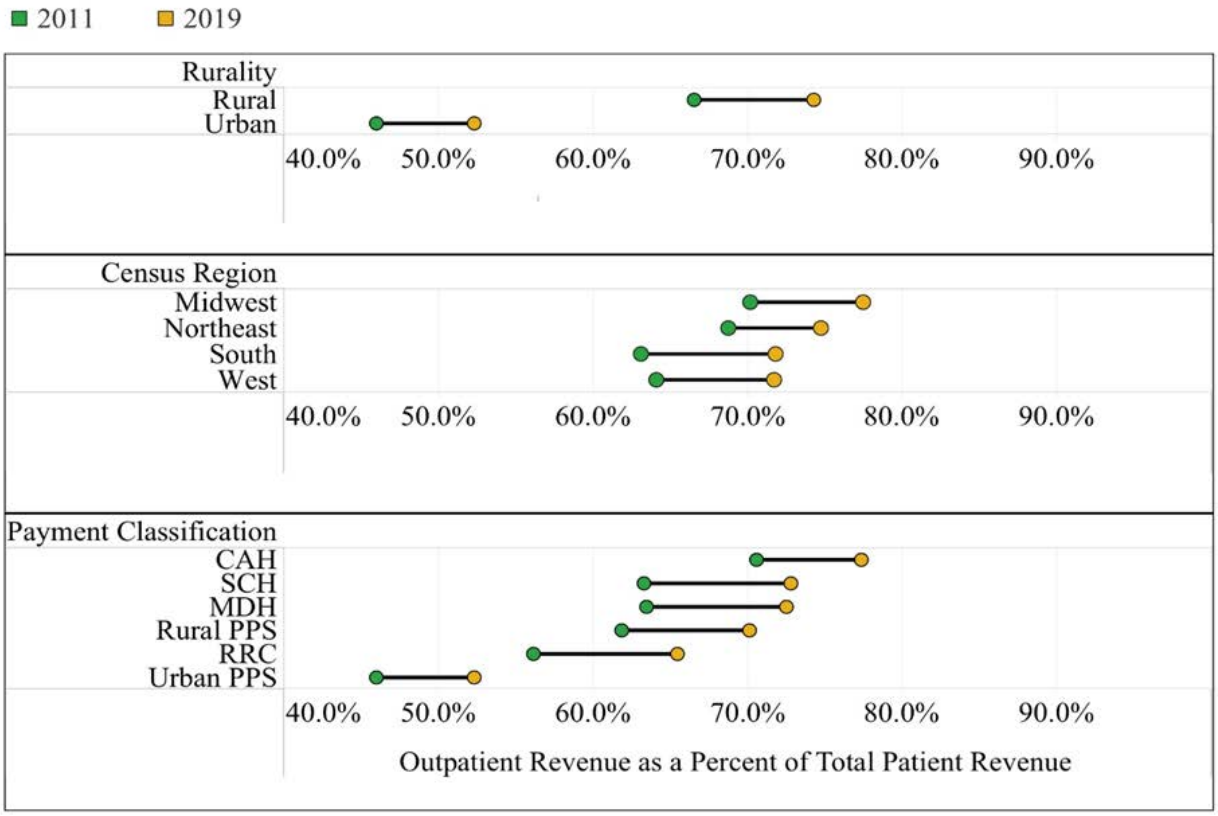
SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).

NOTE: Statistics presented in Table 1 are calculated from hospital observations in 2019.

Trends among all rural hospitals

We found that outpatient revenue as a percent of total patient revenue ("outpatient percent") for rural hospitals grew from 2011-2019 (Figure 1; see Table A1 of the Appendix for year-by-year changes). Outpatient percent for the average rural hospital grew from 66.5% in 2011 to 74.2% in 2019, representing a 7.7 percentage point increase. For comparison, Figure 1 also includes revenue source trends for a separate sample of urban PPS hospitals with complete data on outpatient percent in 2011 and 2019 (n = 1,587). In contrast to rural hospitals, outpatient percent for the average urban PPS hospital increased from 46.0% in 2011 to 52.3% in 2019, representing a 6.3 percentage point increase. To examine whether the change in outpatient percent differed between rural and urban PPS hospitals, we performed a two-sample t-test. The two-sample t-test revealed that rural-urban differences were statistically significant ($p < .001$).

Figure 1. Trends in Hospital Outpatient Revenue as a Share of Total Patient Revenue for the Average Rural Hospital, Stratified by Additional Hospital Characteristics, 2011-2019



SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).

NOTES: Urban hospitals in Figure 1 are restricted to Prospective Payment System (PPS) hospitals without additional special payment classifications. Analysis by Census region includes only rural hospitals. CAH = Critical Access Hospital; MDH = Medicare-Dependent Hospital; SCH = Sole Community Hospital; PPS = Prospective Payment System (without an additional special payment classification); RRC = Rural Referral Center (includes hospitals jointly designated as a Rural Referral Center and an additional payment classification).

Trends by payment classification

We found that outpatient percent grew across all hospital payment classifications from 2011-2019 (Figure 1; see Table A1 of the Appendix for year-by-year changes). Our analysis shows that from 2011-2019, outpatient percent grew from 70.5% to 77.3% in the average CAH, 63.4% to 72.5% in the average MDH, 63.3% to 72.8% in the average SCH, 61.8% to 70.1% in the average rural PPS hospital (without additional special payment classifications), and 56.1% to 65.4% in the average RRC. A one-way analysis of variance (ANOVA) test demonstrated that differences by payment classification in changes in outpatient percent from 2011 to 2019 were statistically significant ($p < .001$).

To address concerns regarding payment re-classifications, we calculated changes in the classification distribution among all rural hospitals in our analytic sample (see Table A2 of the Appendix). Based on these findings, we found that

rural hospital payment re-classifications were minimal in our sample, suggesting that any changes were unlikely to substantially influence our outcomes of interest. To further address re-classification concerns, we collapsed rural hospitals into CAH and non-CAH categories and recalculated the change in outpatient percent from 2011-2019 (see Figure A1 of the Appendix). Like the findings from Figure 1, Figure A1 demonstrates that outpatient percent for the average CAH was greater than outpatient percent for the average non-CAH.

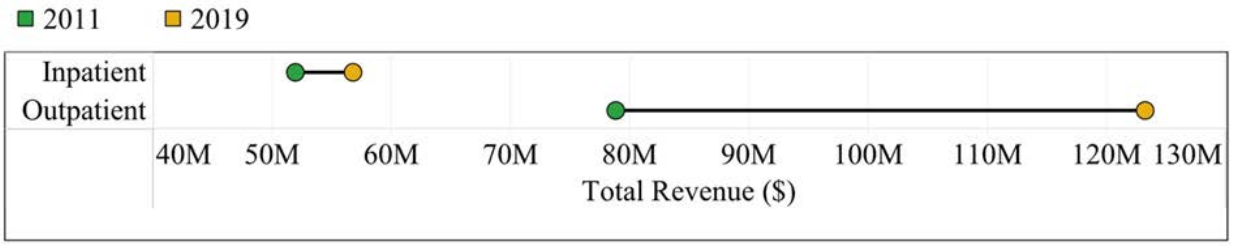
Trends by Census region

We found that outpatient percent increased among rural hospitals in all Census regions from 2011-2019 (Figure 1; see Table A1 of the Appendix for year-by-year changes). Our results show that from 2011-2019, outpatient percent increased from 70.1% to 77.4% in the average Midwestern rural hospital, 68.7% to 74.7% in the average Northeastern rural hospital, 63.1% to 71.8% in the average Southern rural hospital, and 64.1% to 71.7% in the average Western rural hospital. A one-way ANOVA test showed statistically significant differences by Census region in the change in outpatient percent from 2011-2019 ($p < .01$).

Trends in total outpatient revenue and total inpatient revenue

Figure 2 shows changes in the total outpatient revenue and total inpatient revenue for the average rural hospital from 2011-2019. After adjusting for inflation (i.e., all results below expressed in 2019 dollars), we found that both total outpatient revenue and total inpatient revenue grew for the average rural hospital from 2011-2019. However, the increase in outpatient revenue was substantially greater than the increase in inpatient revenue. Our results show that total outpatient revenue for the average rural hospital grew from $78,777,331 in 2011 to $123,187,585 in 2019, representing a 56.4% increase (total outpatient revenue for the median rural hospital grew from $43,076,839 to $58,994,354 between 2011 and 2019, representing a 37.0% increase). Conversely, total inpatient revenue for the average rural hospital grew from $51,900,713 in 2011 to $56,732,039 in 2019, representing only a 9.3% increase (total inpatient revenue for the median rural hospital fell from $17,244,476 to $15,679,137 between 2011 and 2019, representing a 9.1% decrease).

Figure 2. Trends in Outpatient and Inpatient Revenue for the Average Rural Hospital, 2011-2019



SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).

NOTES: Revenue is expressed in millions of dollars and is adjusted for inflation (i.e., revenue is expressed in 2019 dollars). Revenue from investment income, government appropriations, contributions, donations, and bequests (i.e., non-patient revenue) is not included in these calculations. However, for context, non-patient revenue for the average rural hospital increased from $1,271,441 in 2011 to $1,393,379 in 2019.

DISCUSSION

The objective of this study was to estimate changes in outpatient care as a source of revenue for rural hospitals from 2011-2019. We found that there have been substantial changes in the revenue sources of rural hospitals over the past decade. Among rural hospitals as a whole, and across all Census regions and rural payment classifications, the percent of patient revenue coming from the provision of outpatient care grew from 2011-2019. Stratifying rural hospitals by their Census region and payment classification showed that CAHs and Midwestern hospitals generally had the largest outpatient percent over the period, while RRCs and Southern hospitals had the largest percentage point increase in their outpatient percent. Our analysis reveals that rural hospitals are currently (and have historically been) reliant on their outpatient care business as a source of revenue. In fact, trends in total inpatient revenue and total outpatient revenue for the average rural hospital show that, although both metrics increased during the period, the growth in total outpatient revenue in rural hospitals was more pronounced compared to inpatient revenue. In addition, total

inpatient revenue for the median rural hospital decreased over our study period, further highlighting the increasingly important role of outpatient service lines for rural providers.

Our results are consistent with previous findings suggesting that (1) outpatient percent has increased in all hospitals over the past several years,[22-24] and (2) comparatively, rural hospitals tend to be more dependent than urban hospitals on outpatient services as a source of organizational revenue.[25] Additionally, similar to our study, prior research demonstrates that total hospital outpatient revenue has grown at a greater rate compared to total inpatient revenue.[22] Burrill and associates estimated that 48% of aggregate hospital revenue (including both urban and rural hospital revenue) came from outpatient care in 2018, and that outpatient revenue grew at a 50% higher rate than inpatient revenue (9 percent per year versus 6 percent per year).[22] Our estimates are generally greater, likely in part due to our focus on rural hospitals (and possibly due to our study's broader definition of outpatient revenue). The apparent shift to outpatient settings can be attributed to several factors. For example, existing literature on hospital outpatient care considers factors such as changing patient preferences and convenience,[22-23] clinical and technological innovations,[22-23] value-based care models,[22-23] increasing competition,[23] and health system consolidation[26] as possible explanations for the trends toward outpatient care.

This study has notable implications for rural hospital payment policies. Currently, CMS payment models and eligibility requirements for rural hospitals are largely based on inpatient care.[15] However, our analysis of the trends in outpatient care demonstrates that outpatient business is an increasingly important source of revenue and financing for rural hospitals. The shift toward outpatient care suggests that to more effectively support rural hospitals, payment models should consider addressing these changes in the provision of care. Relatedly, the Consolidated Appropriations Act of 2021 established a new Medicare payment designation: the Rural Emergency Hospital (scheduled to take effect on January 1st, 2023).[27] Under this designation, hospitals are required to eliminate acute care inpatient services and focus on the provision of emergency and outpatient services. By meeting these conditions (as well as other requirements), Rural Emergency Hospitals receive enhanced payment from CMS.[27] Thus, the REH model provides rural hospitals with a new pathway to financial sustainability that also preserves rural access to essential care. Health policy and service researchers should pursue future studies exploring the financial impact of the REH model and other special payment classifications for rural hospitals.

Limitations

Our research has several limitations. First, our analysis required hospitals with complete data on our variables of interest. Certain hospitals may systematically report missing or incomplete data to CMS, indicating that the exclusion of these specific hospitals may potentially result in an unrepresentative sample. However, our sample of rural hospitals represents nearly 98% of the rural U.S. hospitals with available cost reports at the start and end of our study period. Second, we found that rural hospital payment classifications changed for several hospitals during our study period, which may have influenced revenue sources for these hospitals. However, as previously mentioned, our evaluation of the changes in payment classification (shown in Table A2 of the Appendix) demonstrates that re-classifications among rural hospitals in our sample were minimal, suggesting that any substantial changes to our study outcomes as a result of re-classifications were unlikely.

Conclusions

Our findings show that the typical rural hospital now receives nearly three-fourths of its revenue from the provision of outpatient services, with inpatient services comprising an increasingly smaller percentage of patient revenue. Payment based on inpatient criteria, such as the 25-bed maximum and 50-bed maximum for CAHs and SCHs, respectively,[13] is increasingly less relevant and could inadvertently pressure rural hospitals into maintaining beds and services with unreimbursed costs that are at odds with the predominant focus of care (e.g., outpatient services). In contrast, payment policies, methods, and conditions of participation that are supportive of the provision of outpatient services are important for rural hospitals to be financially sustainable in the long run.

APPENDIX

Table A1. Trends in Hospital Outpatient Revenue as a Percent of Total Patient Revenue for the Average Rural Hospital, Stratified by Hospital Characteristics, 2011-2019

Rurality	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*
Rural	66.6%	68.2%	68.9%	70.1%	71.2%	72.3%	72.8%	73.5%	74.3%
Urban	45.7%	47.0%	47.9%	48.9%	49.7%	50.3%	50.6%	51.4%	52.1%
Census Region									
Midwest	70.0%	71.4%	71.9%	73.0%	73.9%	74.8%	75.4%	76.3%	77.2%
Northeast	68.6%	69.4%	70.0%	70.9%	71.5%	72.3%	72.5%	72.9%	74.5%
South	63.4%	65.3%	66.4%	67.6%	69.0%	70.6%	71.0%	71.5%	72.1%
West	63.9%	65.5%	66.3%	67.5%	68.8%	69.9%	70.1%	71.2%	71.5%
Payment Classification									
CAH	70.5%	71.8%	72.3%	73.2%	74.3%	75.3%	75.7%	76.5%	77.2%
SCH	63.6%	65.0%	66.4%	68.0%	69.4%	70.7%	71.3%	72.0%	72.9%
MDH	63.8%	66.4%	67.3%	68.9%	69.9%	71.2%	71.5%	72.0%	72.6%
Rural PPS	61.7%	63.5%	64.8%	65.6%	66.7%	68.0%	68.4%	69.1%	70.1%
RRC	55.9%	57.7%	58.8%	60.7%	61.9%	63.4%	63.9%	64.5%	65.4%
Urban PPS	45.7%	47.0%	47.9%	48.9%	49.7%	50.3%	50.6%	51.4%	52.1%

SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).

NOTES: CAH = Critical Access Hospital; MDH = Medicare-Dependent Hospital; SCH = Sole Community Hospital; PPS = Prospective Payment System (without additional special payment classifications); RRC = Rural Referral Center (includes hospitals jointly designated as a Rural Referral Center and an additional payment classification). Values in Table A1 are the outpatient percent for the average hospital in the given category, where outpatient percent is calculated as (outpatient revenue / total patient revenue)*100%. Rural hospitals in Table A1 (n = 1,660) represent a subset of the analytic sample with cost report observations and complete data for each year between 2011-2019. Urban hospitals in Table A1 (n = 1,364) are restricted to Prospective Payment System hospitals without additional special payment classifications. Census region strata are restricted to rural hospitals.

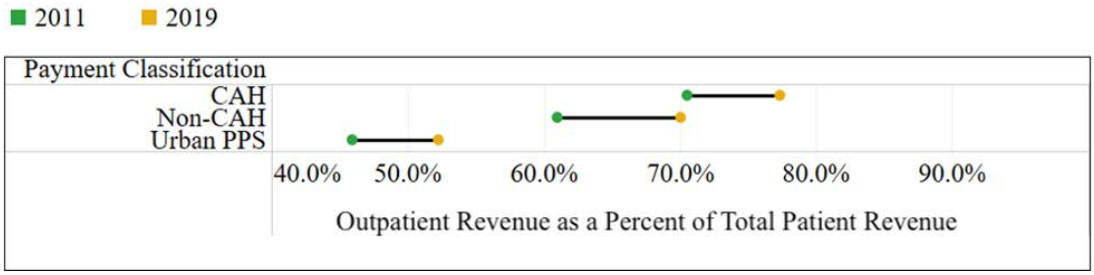
Table A2. Distribution of Rural Hospitals by Medicare Payment Classification and Year

Classification	**2011**	**2019**
CAH	1,080 (57.9%)	1,080 (57.9%)
MDH	124 (6.6%)	114 (6.1%)
PPS Hospital	242 (13.0%)	220 (11.8%)
RRC	208 (11.1%)	210 (11.3%)
SCH	212 (11.4%)	242 (13.0%)
Total	1,866	1,866

SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).

NOTES: CAH = Critical Access Hospital; MDH = Medicare-Dependent Hospital; PPS = Prospective Payment System (without additional special payment classifications); RRC = Rural Referral Center (includes hospitals jointly designated as a Rural Referral Center and an additional payment classification); SCH = Sole Community Hospital.

Figure A1. Trends in Hospital Outpatient Revenue as a Percent of Total Patient Revenue for the Average Rural Hospital, Stratified by Collapsed Payment Classification Categories, 2011-2019



SOURCE: Authors' analysis of the Healthcare Cost Report Information System (HCRIS).
NOTES: CAH = Critical Access Hospital; PPS = Prospective Payment System (without additional special payment classifications).

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