



Cost-Sharing as a Barrier to Accessing Care at FQHCs and RHCs for Rural Medicare Beneficiaries

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Rural populations are older, poorer, and sicker than urban populations.^{1,2,3} They also face additional barriers accessing health care, in part due to cost.^{2,4,5} Access to care is important for overall physical, social, and mental health status, and can lead to improved population health outcomes (such as lower rates of chronic disease and increased life expectancy).^{3,4,6} Access to primary care is especially important, as it often serves as the first point of contact for patients with providers. Patients who obtain primary care services receive more preventive care and have lower rates of illness and premature death.^{7,8}

Rural communities suffer from provider shortages, and those living in rural areas often have to travel longer distances to receive care.^{1,4,5} Many rural Americans live in counties without a primary care facility or with few primary care providers, and for those underserved communities, access to care is often a serious concern.^{1,7} Even if an individual has a local facility, cost may limit his or her ability to receive necessary care.^{4,9}

Although older Americans are nearly universally eligible for Medicare, cost often poses a substantial barrier to accessing care.¹⁰ Medicare beneficiaries have substantial health care needs and relatively high (and increasing) out-of-pocket expenses.^{2,11} These expenses are often the greatest financial burden for Medicare recipients, causing some beneficiaries to delay or avoid services viewed as discretionary (such as filling prescriptions).¹² Medicare beneficiaries cite medical bills as one of the most common barriers to seeing a physician,¹⁰ and more than one-third of beneficiaries in traditional Medicare (and half of those with incomes below \$20,000) spent 20% or more of their per capita total income on out-of-pocket health care costs in 2013.¹¹

Expenses include premiums, deductibles, and cost-sharing for Medicare-covered services, as well as spending on services not covered by Medicare, such as long-term care services and supports and dental care. In addition, Medicare's benefit design contains no ceiling on out-of-pocket costs for covered services, which can expose beneficiaries to high costs.¹³ Rural Medicare beneficiaries may be particularly vulnerable. Research has shown that households in nonmetropolitan counties are more likely to report that the cost of health care limits their ability to receive care,^{4,14} and Goins et al. found that cost was a consistent barrier to seeking and accessing health care among the rural elderly.¹⁵

Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs) are Centers for Medicare & Medicaid Services (CMS)-designated, safety-net facilities that share a mission to improve access to care (especially primary care) for underserved populations, including rural communities.¹⁶⁻¹⁸ Other studies have examined the patient base¹⁹⁻²¹ and quality of care²²⁻²⁵ at FQHCs and RHCs. In addition, previous studies have investigated the extent to which FQHCs and RHCs improve access to care by calculating ambulatory care sensitive (ACS) admission rates (hospitalization for conditions considered potentially preventable).²⁶ Studies have generally found that the presence or use of a FQHC was associated with lower ACS admission rates.^{5,27,28} However, research investigating the relationship between the presence or use of RHCs and ACS admission rates is mixed.^{5,26,27,29}

The purpose of this study is to investigate cost barriers to accessing care at FQHCs and RHCs for the rural Medicare population. We know of no previous work that has 1) a wide, national scope, 2) used data after the enactment of the Patient Protection and Affordable Care Act, and 3) empirically investigated access to care at FQHCs and RHCs from perspectives

other than ACS hospitalizations. Cost is often a significant barrier to accessing care for the rural Medicare population, so having a better understanding of the variations in cost-sharing at different types of safety-net facilities is important. If populations are not able to access care, it may lead to increased spending and/or worse outcomes over time. Potential disparities in access could be a source of concern to policy makers, health care practitioners, and other community stakeholders.

BACKGROUND

FQHCs and RHCs both provide services typically furnished in an outpatient clinic, with an emphasis on primary care. The specific services covered by Medicare at FQHCs and RHCs are similar, with the one exception that outpatient diabetes self-management training and medical nutrition therapy for patients with diabetes or renal disease are Medicare-covered services at FQHCs, but not RHCs. Additionally, FQHCs must provide the required primary health services listed in section 330(b)(1) of the Public Health Service Act and many choose to provide additional support services (such as transportation or case management) that are not covered by Medicare.^{30,31}

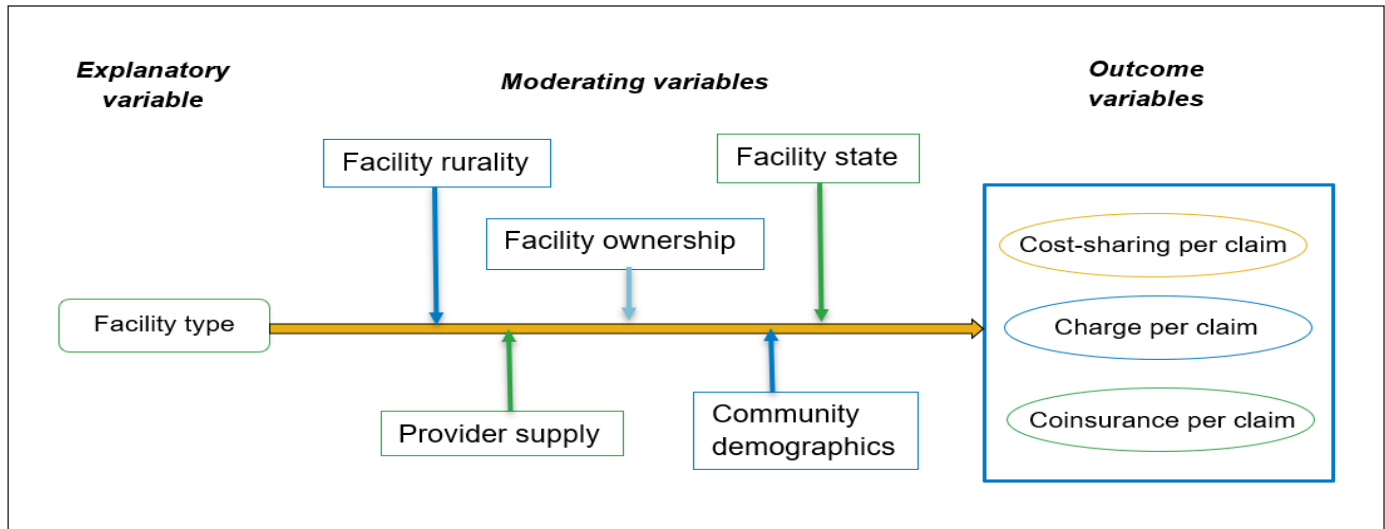
The FQHC program was created by the Omnibus Budget Reconciliation Act of 1990 and amended in 1991. FQHCs include community health centers, migrant health centers, health care for the homeless health centers, public housing primary care centers, and health center program “look-alikes.” Eligible entities must first apply to HRSA to receive Health Center Program designation before applying to CMS for FQHC certification. FQHCs may be public or not-for-profit, but they must, per the Health Resources & Services Administration (HRSA) Health Center Program requirements, serve a medically-underserved area (MUA) or medically-underserved population, offer sliding-fee scales for beneficiaries with incomes less than 200% of the Federal Poverty Level (FPL), and be governed by a board of directors composed of a majority of health center beneficiaries who represent the population served.^{16,31} Most FQHC patients are either uninsured or enrolled in Medicaid; however, Medicare is an important source of revenue for FQHCs, especially those located in rural areas.^{32,33} Nearly 2.4 million Medicare beneficiaries receive care at FQHCs. It is expected that the number of Medicare beneficiaries served by FQHCs will grow, as health centers expand into new communities and as current patients age into eligibility for the insurance program.³²

RHCs were established by the Rural Health Clinics Act in 1977 to address the inadequate supply of providers in rural areas. Unlike FQHCs, RHCs can be for-profit and must be staffed with non-physician practitioners at least 50% of the time. RHCs can be independent or provider-based (an integral and subordinate part of a hospital, skilled nursing facility, or a home health agency). RHCs must be located in an area that is non-urbanized and designated as a shortage area. A clinic cannot be recognized as both a FQHC and RHC.^{17,31} About one-third of RHC patients are Medicare beneficiaries.¹⁸ Although RHCs are not required to provide services on a sliding fee scale, many do, as it is often necessary to obtain facility HPSA designation,^{31,34} become a National Health Services Corps approved site,^{35,36} and/or qualify as not-for-profit.³⁵ Many RHCs are also an important source of free- and reduced-cost care in their communities.¹⁸ A 2010 policy brief found that 86% of independent RHCs offer free care, sliding fee scales, or both.³⁷

FQHCs and RHCs are similar in mission and services provided, but have different regulations regarding patient cost-sharing. A sliding-fee scale is mandatory for FQHCs per the HRSA Health Center Program [Section 330(k)(3)(G) of the Public Health Service Act; 42 CFR 51c.303(f), 42 CFR 51c.303(g), 42 CFR 51c.303(u), 42 CFR 56.303(f), 42 CFR 56.303(g), and 42 CFR 56.303(u)], but it is optional for RHCs. In addition, the Medicare Part B deductible is waived at FQHCs for Medicare-covered services; the Part B deductible applies at RHCs. At FQHCs, Medicare coinsurance is 20% of the lesser of the FQHC’s charge for the specific payment code or the PPS rate. At RHCs, coinsurance is 20% of total charges. Both types of facilities set their own charges, but these charges must be reasonable and uniform for all patients.^{30,31}

METHODS

Conceptual Model



We hypothesize that variations in the cost of care are in large part determined by the type of facility (i.e., FQHC or RHC), as FQHCs and RHCs use different rules to calculate patient cost-sharing. There is an upper limit for Medicare payment to FQHCs and RHCs. However, provider-based RHCs whose parent hospital had less than or equal to 49 beds are exempt from this limit. Therefore, RHCs in our model are categorized as independent, provider-based whose parent hospital had less than or equal to 49 beds (PB RHC, ≤ 49 beds), or provider-based whose parent hospital had greater than or equal to 50 beds (PB RHC, ≥ 50 beds).

Previous research has shown that other factors, such as facility rurality, facility ownership, provider supply, and community demographics may also influence costs at these facilities.³⁸⁻⁴¹ In addition, policies at the state level can influence our study outcomes.⁴² Therefore, variables to control for these factors are included in the model.

The most common diagnoses at a facility are indicative of its patient population and the types of services provided. Medicare-covered services are similar at FQHCs and RHCs,³⁰ and previous research has shown that the most common diagnoses of Medicare patients are similar at both facility types.³⁸ However, it is likely that costs will differ by diagnosis. Therefore, separate analyses were performed for common diagnoses in the study sample. In these analyses, Clinical Classification Software groupers were used to cluster patient diagnoses into a manageable number of clinically meaningful categories.⁴³

Study Sample

We used the Medicare Master Beneficiary Summary File to identify all rural beneficiaries living in the U.S. or its territories, including only Fee-For-Service (FFS) beneficiaries in both Parts A and B (including part-year beneficiaries and Medicare as a secondary payer.). We then linked these beneficiaries with their claims generated at FQHCs and/or RHCs from January to December 2014 in the Medicare Outpatient Research Identifiable File. These claims were rolled up to the facility-level to give information per facility. Therefore, our study only includes FQHCs and RHCs that had more than 10 claims from rural Medicare beneficiaries in 2014. Facilities with small numbers of claims were suppressed for privacy and not included in our sample. We chose calendar year 2014 because it is the most recent year in which data using consistent ICD codes for the entire year were available—ICD 9 to ICD 10 switch occurred in October 2015. FQHCs and RHCs were classified using the last four digits of their CMS Certification Number (CCN). Twenty-two provider-based RHCs could not be matched with their parent hospital due to incomplete or missing information and are not included in this study. Information on each facility's location and ownership was obtained through the CMS Provider of Services Current File. County-

level data were obtained through County Health Rankings.⁴⁴ Overall, this process resulted in 2,352,088 claims generated at 2,987 FQHCs (individual sites) and 7,357,302 claims generated at 3,631 RHCs over the study period.

Variables

Dependent variables. Cost-sharing was calculated by adding the Medicare Part B deductible (including blood deductible⁴⁵) and coinsurance amounts.⁴⁶ Charges are the total charges for all services included on the Medicare institutional claim.⁴⁶ Charges are taken from the provider's usual and customary fee structure and may or may not be tied to cost.³⁸ Coinurance is the Medicare Part B coinsurance amount.⁴⁶

Independent variables. Type categorizes facilities into FQHCs or RHCs. RHCs are further classified as independent, provider-based whose parent hospital had less than or equal to 49 beds (PB RHC, ≤ 49 beds), or provider-based whose parent hospital had greater than or equal to 50 beds (PB RHC, ≥ 50 beds). Rural is defined as being located outside metropolitan Core Based Statistical Areas, or within metropolitan areas and having Rural-Urban Commuting Area (RUCA) codes of 4 or greater;⁴⁷ this is the definition used by the Federal Office of Rural Health Policy and other federal programs. Facilities are classified by ownership as for-profit, not-for-profit, government, or religious. Provider supply is measured by county-level primary care physician (PCP) and specialist ratio (per 100,000 people). Community demographic measures include county-level child poverty rate, rate of individuals younger than 65 without health insurance, the percent of minority (non-white) individuals, and the percent of individuals aged 65 or older.

Data Analysis

Analysis was performed using Ordinary Least Squares regression and Stata 14 (StataCorp LP, College Station, TX) statistical software. Observations in the data set are at the facility-level (i.e., average cost-sharing per claim at each facility). However, facilities had varying numbers of claims from rural Medicare beneficiaries in 2014, which could distort the results. Therefore, analyses were weighted by total claims at each facility to more accurately represent cost disparities among different facility types. Additionally, regressions were clustered at the county-level to account for unobserved population factors affecting the cost of care at facilities in each county. Multivariate linear regression was used to estimate the effect of facility type on cost-sharing, charge, and coinsurance per claim for all diagnoses and on cost-sharing per claim for specific diagnoses.

This paper and the [Facility-Based Ambulatory Care Provided to Rural Medicare Beneficiaries in 2014: A Chartbook](#) were produced together using the same dataset. The authors made statistical decisions (e.g., handling missing data, suppressing small numbers) in the analysis for the paper that lead to minor differences in the mean cost sharing values reported. Although these values have slight differences, the results of the paper are supported by the data in the chartbook.

RESULTS

Descriptive Statistics

Table 1 shows that PB RHCs, ≤ 49 beds had the highest number of claims from rural Medicare beneficiaries in 2014. PB RHCs, ≥ 50 beds had the lowest number of claims in the study sample. In 2014, the mean number of claims per beneficiary ranged from 1.78 at PB RHCs ≥ 50 beds to 1.84 at FQHCs and independent RHCs. The mean beneficiary cost-sharing per claim was higher at RHCs than FQHCs, with the highest at PB RHCs, ≥ 50 beds— average cost-sharing per claim was 65% higher at PB RHCs, ≥ 50 beds compared with FQHCs. Mean coinsurance and charge amounts per claim were also highest at PB RHCs, ≥ 50 beds. The mean cost-sharing and charge per claim at FQHCs and RHCs in our study were slightly higher than, but followed a pattern consistent to, the amounts reported in a series of 2014 findings briefs.^{38,48} The majority of facilities in our study sample were located in rural areas. Some RHCs were considered to be in an urban area, due to variations in the definition of rural and changes in the population of an area after the establishment of a RHC. The vast majority of FQHCs were not-for-profit. Most independent RHCs were for-profit, and most provider-based RHCs were not-for-profit. FQHCs in the study sample were located in counties with a higher ratio of PCPs and specialists, lower uninsured rate, higher percent minority, and lower percent elderly.

Table 1. Descriptive data of FQHCs and RHCs in the study sample, 2014 Calendar Year

	FQHC	RHC		
		<i>Independent</i>	<i>PB, ≤ 49 beds</i>	<i>PB, ≥ 50 beds</i>
Number of facilities	2,987	1,555	1,838	238
Number of claims	2,352,088	3,091,615	3,863,820	401,867
Average number of claims per facility	787	1,988	2,102	1,688
Average number of claims per beneficiary in 2014	1.84	1.84	1.82	1.78
Dependent variables				
Cost-sharing per claim, mean (SD)	\$25.12 (7.09)	\$36.27 (10.91)	\$39.07 (9.68)	\$41.45 (11.77)
Charge per claim, mean (SD)	\$144.81 (44.76)	\$130.79 (41.22)	\$148.74 (61.78)	\$151.31 (45.40)
Coinsurance per claim, mean (SD)	\$25.12 (7.09)	\$22.86 (8.00)	\$26.28 (8.55)	\$26.65 (9.29)
Independent variables				
Rurality				
Rural, % (n)	51.72 (1,545)	82.38 (1,281)	92.60 (1,702)	84.03 (200)
Urban, % (n)	48.28 (1,442)	17.62 (274)	7.40 (136)	15.97 (38)
Facility ownership				
For-profit, % (n)	--	69.20 (1,076)	12.35 (227)	19.75 (47)
Not-for-profit, % (n)	94.11 (2,811)	27.27 (424)	57.83 (1,063)	63.45 (151)
Government, % (n)	5.42 (162)	3.54 (55)	29.82 (548)	16.81 (40)
Religious, % (n)	0.47 (14)	--		--
Provider supply				
PCPs per 10K population, mean (SD)	64.47 (32.96)	48.47 (26.91)	48.74 (27.74)	50.18 (25.20)
Specialist physicians per 10K population, mean (SD)	100.26 (105.24)	45.89 (58.19)	28.99 (48.34)	53.43 (49.47)
County demographics				
Child poverty, mean % (SD)	18.46 (6.13)	19.38 (6.56)	17.32 (5.94)	21.17 (6.53)
Uninsured < age 65, mean % (SD)	17.66 (5.03)	18.00 (4.63)	17.77 (5.20)	18.70 (3.88)
Minority population, mean % (SD)	30.52 (22.52)	21.97 (20.80)	19.81 (19.31)	25.04 (24.34)
People > age 65, mean % (SD)	15.40 (3.97)	16.91 (4.37)	17.99 (4.12)	16.82 (4.10)

n = number of facilities

Note: Observations in the data set are at the facility-level, so the dependent variable means are the average of the average at each facility.

Multivariate Analysis

All Diagnoses. Table 2 shows that, after controlling for other factors listed in the table, beneficiaries had higher cost-sharing amounts at RHCs (especially PB RHCs, ≥ 50 beds) compared with FQHCs. At PB RHCs, ≥ 50 beds, cost-sharing per claim was \$17 higher than at FQHCs. Cost-sharing was about \$15 and \$12 more per claim at PB RHCs, ≤ 49 beds and independent RHCs respectively, compared with FQHCs. Charge per claim was higher at PB RHCs (almost \$19 higher at PB RHCs, ≥ 50 beds), but lower at independent RHCs (although not significantly), compared with FQHCs. Coinsurance per claim was slightly higher at PB RHCs, and lower at independent RHCs, compared with FQHCs. It is not surprising that coinsurance and charges follow the same pattern, as coinsurance is generally calculated as a portion of charges. In these analyses, the control variables had small and/or insignificant effects. Levels of rurality were explored using RUCA measures⁴⁷ in the regressions and results were qualitatively identical.

Table 2. Multivariate linear regression estimating the effect of facility type on cost-sharing, charge, and coinsurance per claim

	Cost-sharing per claim	Charge per claim	Coinsurance per claim
Facility typeⁱ			
Independent RHC	\$11.57***	-\$5.75	-\$0.96
PB RHC, ≤ 49 beds	\$14.68***	\$9.52***	\$2.33***
PB RHC, ≥ 50 beds	\$17.18***	\$18.87***	\$3.99***
Ruralityⁱⁱ			
Urban	-\$0.18	-\$1.47	\$0.14
Facility ownershipⁱⁱⁱ			
Not-for-profit (3)	\$0.74	\$1.83	\$0.06
Government (2)	-\$1.12	-\$6.37	-\$1.43*
Religious (5)	-\$0.59	-\$6.41	-\$1.17
Provider supply			
PCP ratio	-\$0.01	\$0.02	\$0
Specialist ratio	\$0.01*	\$0.04*	\$0.01***
Community demographics			
Poverty rate	-\$0.03	\$0.03	\$0.02
Uninsured < age 65 rate	-\$0.18*	-\$0.96**	-\$0.16**
Minority population percentage	-\$0.01	-\$0.09	-\$0.02
People > age 65 percentage	\$0	\$0.05	-\$0.01

R-squared values: Cost-sharing = 0.45; Charge = 0.28; Coinsurance = 0.27

*P $\leq .05$, **P $\leq .01$, ***P $\leq .001$

ⁱFQHC is reference category

ⁱⁱRural is reference category

ⁱⁱⁱFor-profit is reference category

Most Common Diagnoses. The diagnoses most common at FQHCs and RHCs in the study sample were very similar. Essential hypertension was the most common diagnosis at each facility type: 12.2% of total FQHC claims and 10.9% of total RHC claims were for hypertension. Diabetes mellitus without complication was the second most common. 8.5% and 6.5% of total claims were for diabetes at FQHCs and RHCs respectively. A diagnosis of spondylosis, intervertebral disc disorders, or other back problems was also common: 4.4% of total FQHC claims and 4.9% of total RHC claims were for this diagnosis. Table 3 shows stratified cost-sharing regressions for each of these diagnoses.

Table 3. Multivariate linear regression estimating the effect of facility type on cost-sharing for specific diagnoses

	Hypertension	Diabetes	Spondylosis/ back problems
Facility typeⁱ			
Independent RHC	\$14.31***	\$16.59***	\$9.08***
PB RHC, ≤ 49 beds	\$16.74***	\$19.24***	\$13.41***
PB RHC, ≥ 50 beds	\$20.17***	\$23.19***	\$13.19***
Ruralityⁱⁱ			
Urban	-\$0.12	-\$0.21	\$1.15
Facility ownershipⁱⁱⁱ			
Not-for-profit (3)	\$1.78*	\$0.89	\$0.17
Government (2)	-\$0.70	-\$1.09	-\$1.38
Religious (5)	-\$0.61	-\$3.37	-\$1.65
Provider supply			
PCP ratio	\$0	\$0	\$0
Specialist ratio	\$0.01	\$0.01	\$0
Community demographics			
Poverty rate	-\$0.04	-\$0.10	\$0
Uninsured < age 65 rate	-\$0.28**	-\$0.29**	-\$0.14
Minority population percentage	-\$0.01	-\$0.01	-\$0.01
People > age 65 percentage	-\$0.04	\$0.03	\$0

R-squared values: Cost-sharing = 0.45; Charge = 0.28; Coinsurance = 0.27

*P ≤ .05, **P ≤ .01, ***P ≤ .001

ⁱFQHC is reference category

ⁱⁱRural is reference category

ⁱⁱⁱFor-profit is reference category

Overall, the results follow the same pattern as cost-sharing for all diagnoses: after controlling for other factors, beneficiaries have higher cost-sharing amounts at RHCs compared with FQHCs, with the highest generally at PB RHCs, ≥ 50 beds, then PB RHC, ≤ 49 beds, then independent RHCs. Cost-sharing was highest for diabetes diagnoses, followed by hypertension and spondylosis/back problems. Control variables had small and/or insignificant effects. Levels of rurality were again explored using RUCA measures⁴⁷ in the regression and results were qualitatively identical.

DISCUSSION

The purpose of this study was to empirically investigate cost as a barrier to accessing care at FQHCs and RHCs for the rural Medicare population. In the regression analyses, we found statistically significant variations in cost-sharing, charge, and coinsurance per claim based on facility type, after controlling for other factors. Cost-sharing per claim (sum of the deductible and coinsurance amounts) was higher at RHCs than FQHCs. This is likely due to the fact that Medicare policy is written so that the Part B deductible does not apply to FQHC services (but does apply to RHC services) and sliding fee scales are required at FQHCs (but optional at RHCs).⁴⁹ Among RHCs, cost-sharing was highest at PB RHCs, ≥ 50 beds—it was about \$17 higher than at FQHCs. Beneficiaries had an average of 1.82 claims per year in our study sample, so over the year, the cost-sharing burden was actually about \$31 more at PB RHCs, ≥ 50 beds compared with FQHCs. Charge per claim was higher at provider-based RHCs, but lower at independent RHCs, compared with FQHCs. Coinsurance, which is generally calculated as a portion of charges, followed the same pattern.

Hypertension, diabetes, and spondylosis/back problems were the most common diagnoses in our study sample. Cost-sharing amounts for each these diagnoses differed slightly from one another (and compared with cost-sharing for all diagnoses in Table 2), but the pattern was consistent: beneficiaries had higher cost-sharing burdens at RHCs compared with FQHCs, and it was highest at PB RHCs, ≥ 50 beds.

These differences across facility types could be due to variations in service mix, patient mix, sliding fee scales, coding practices, staff capacity, and/or the types of providers delivering care. FQHCs have a slightly wider range of services covered by Medicare, and also often provide additional support services (such as case management or transportation). Although these support services are not covered by Medicare, they could have been factored into the facility's charges and consequently increased coinsurance and cost-sharing amounts. Additional research is needed to investigate reasons behind the variations in cost at different types of safety-net facilities.

Limitations

Our study was subject to several limitations. First, the regressions focused on a specific population: rural Medicare beneficiaries (FFS, in Parts A and B) who received care at a FQHC or RHC. This allowed us to analyze a similar population and control for insurance status; however, the results of our study are not necessarily generalizable to a larger population. Second, although we stratified the regressions by most common diagnoses, information about the type or complexity of services was not included. Third, this study focused on the cost-sharing amount (what patients were responsible to pay), not actual expenses—it excluded the effect of other payers (e.g., Medigap, supplemental/secondary insurance) and non-payment. However, previous studies have found that other payment sources (i.e., supplemental/secondary insurance) accounted for only about 0.3% and 0.6% of payment for Medicare claims on average at FQHCs and RHCs respectively.^{38,48} Further research should be done controlling for patient and service mix, and including other payment sources.

Conclusion

FQHCs and RHCs are important primary care providers in rural, underserved communities.^{7,38} After controlling for other factors, rural Medicare beneficiaries had higher cost-sharing per claim at RHCs (especially PB RHCs, ≥ 50 beds) compared with FQHCs. As patients generate more claims, this disparity will accrue over time and continue to have a disproportionate impact. Medicare policy is written so that the Part B deductible does not apply to FQHC services (but does apply to RHC services) and HRSA policy requires sliding fee scales at FQHCs, which likely contributes to the higher cost-sharing burden at RHCs.⁵³

Despite the substantial set of benefits that Medicare provides, many beneficiaries (especially those living in rural areas) are often left vulnerable by financial burdens and unmet needs.¹³ If populations are not able to access care (especially primary care) due to cost, it may lead to several negative consequences.⁵⁰ Patients may decide to postpone or forgo care, and end up in the emergency department—often a more costly, and less effective, alternative.^{2,5} Access to care is important for improving and maintaining health, as well as reducing health care costs in the long term, especially for the Medicare population.^{51,52}

As the single largest purchaser of health care in the country,¹³ it is important for Medicare to continuously assess how policies are realized in practice, as it affects both the Medicare program itself and the beneficiaries it serves. There is a need to assess the impact of higher cost-sharing on access to health services by rural Medicare beneficiaries without access to a FQHC. Additionally, paying different amounts for the same or similar services depending on the type of facility that is most accessible may not be consistent with optimal health care policy.

REFERENCES

1. Rural Health Snapshot (2017). NC Rural Health Research Program, UNC-Chapel Hill. Available at: <http://www.shepscenter.unc.edu/download/14853/>. Published May 2017.
2. Douthit N, Kiv S, Dwolatzky T, et al. Exposing some important barriers to health care access in the rural USA. *Public Health*. June 2015;129(6):611–20. Available at: <http://www.sciencedirect.com/science/article/pii/S0033350615001584>.
3. James CV, Moonesinghe R, Wilson-Frederick SM, et al. Racial/Ethnic Health Disparities Among Rural Adults—United States, 2012–2015: MMWR Surveillance Summaries / November 17, 2017 / 66(23);1–9. *J Health Care Poor Underserved*. February 2018;29(1):19-34. Available at: <https://muse.jhu.edu/article/686950>.
4. Atherton M. Healthcare Access in Rural Communities. Rural Health Information Hub, 2017. Available at: <https://www.ruralhealthinfo.org/topics/healthcare-access>.
5. Probst JC, Laditka JN, Laditka SB. Association between community health center and rural health clinic presence and county-level hospitalization rates for ambulatory care sensitive conditions: an analysis across eight US states. *BMC Health Serv Res*. July 31, 2009;9:134. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/19646234>.
6. Access to Health Services. Healthy People 2020. Available at: <https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services>.
7. Clawar M, Randolph R, Thompson K, et al. Access to Care: Populations in Counties with No FQHC, RHC, or Acute Care Hospital. NC Rural Health Research Program, 2018. Available at: <http://www.shepscenter.unc.edu/product/access-care-populations-counties-no-fqhc-rhc-acute-care-hospital/>.
8. Meeting the Primary Care Needs of Rural America: Examining the Role of Non-Physician Providers. National Conference of State Legislatures, 2017. Available at: <http://www.ncsl.org/research/health/meeting-the-primary-care-needs-of-rural-america.aspx>.
9. Institute of Medicine (US) Committee on Assuring the Health of the Public in the 21st Century. The Future of the Public's Health in the 21st Century. Washington (DC): National Academies Press (US); 2002. 5, The Health Care Delivery System. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK221227/>.
10. Fitzpatrick AL, Powe NR, Cooper LS, et al. Barriers to Health Care Access Among the Elderly and Who Perceives Them. *American Journal of Public Health*. 2004;94(10):1788-1794. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448535/>.
11. Cubanski J, Neuman T, Damico A, et al. Medicare Beneficiaries' Out-of-Pocket Health Care Spending as a Share of Income Now and Projections for the Future. Kaiser Family Foundation, 2018. Available at: <https://www.kff.org/medicare/report/medicare-beneficiaries-out-of-pocket-health-care-spending-as-a-share-of-income-now-and-projections-for-the-future/>.
12. Janes GR, Blackman DK, Bolen JC, et al. Surveillance for Use of Preventive Health-Care Services by Older Adults, 1995-1997. Centers for Disease Control (US), 1999. Available at: <https://www.cdc.gov/mmWR/preview/mmwrhtml/ss4808a4.htm>.
13. Schoen C, Davis K, Willink A. Medicare Beneficiaries' High Out-of-Pocket Costs: Cost Burdens by Income and Health Status. Commonwealth Fund, 2017. Available at: <http://www.commonwealthfund.org/publications/issue-briefs/2017/may/medicare-beneficiaries-high-out-pocket-costs-cost-burdens-income>.
14. Jones CA, Parker TS, Ahearn M, et al. Health Status and Health Care Access of Farm and Rural Populations. Economic Information Bulletin Number 57. United States Department of Agriculture, 2009. Available at: https://www.ers.usda.gov/webdocs/publications/44424/9371_eib57_1_.pdf?v=41136.
15. Goins RT, Williams KA, Carter MW, et al. Perceived Barriers to Health Care Access Among Rural Older Adults: A Qualitative Study. *J Rural Health*. 2005 Summer;21(3):206-13. Available at: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1748-0361.2005.tb00084.x>.
16. Federally Qualified Health Center. CMS Medicare Learning Network, 2018. Available at: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/fqhcfactsheet.pdf>.

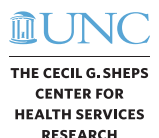
17. Rural Health Clinic. CMS Medicare Learning Network, 2018. Available at: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/RuralHlthClinfctsh.pdf>.
18. Gale JA, Coburn AF. The Characteristics and Roles of Rural Health Clinics in the United States: A Chartbook. Maine Rural Health Research Center, University of Southern Maine, 2003. Available at: <http://muskie.usm.maine.edu/Publications/rural/RHChartbook03.pdf>.
19. Nath JB, Costigan S, Hsia RY. Changes in Demographics of Patients Seen at Federally Qualified Health Centers, 2005-2014. *JAMA Intern Med.* 2016 May 1;176(5):712-4 Available at: <https://www.ncbi.nlm.nih.gov/pubmed/27064681>.
20. Chang CH, Lewis VA, Meara E. Characteristics and Service Use of Medicare Beneficiaries Using Federally Qualified Health Centers. *Med Care.* 2016 Aug;54(8):804-9. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/27219635>. Accessed May 1, 2018.
21. Radford AD, Kirk DA, Howard HA, et al. Profile of Rural Health Clinics: Clinic & Medicare Patient Characteristics. NC Rural Health Research & Policy Analysis Center, 2013. Available at: http://www.shepscenter.unc.edu/rural/pubs/finding_brief/FB108.pdf.
22. Doyle D, Emmett M, Crist A. Improving the Care of Dual Eligible Patients in Rural Federally Qualified Health Centers: The Impact of Care Coordinators and Clinical Pharmacists. *J Prim Care Community Health.* 2016 Apr;7(2):118-21. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/26582045>.
23. Ortiz J, Wan TH. Performance of rural health clinics: an examination of efficiency and Medicare beneficiary outcomes. *Rural Remote Health.* 2012;12:1925. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/22309096>.
24. Ortiz J, Meemon N, Tang CY. Rural Health Clinic efficiency and effectiveness: insight from a nationwide survey. *J Med Syst.* 2011 Aug;35(4):671-81. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/20703522>.
25. Wan TH, Lin YL, Ortiz J. Variations in Influenza and Pneumonia Immunizations for Medicare Beneficiaries Served by Rural Health Clinics. *J Prim Prev.* 2017 Aug;38(4):403-417. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/28378117>.
26. Wright B, Potter AJ, Trivedi AN, et al. The Relationship Between Rural Health Clinic Use and Potentially Preventable Hospitalizations and Emergency Department Visits Among Medicare Beneficiaries. *J Rural Health.* 2017 July 7. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jrh.12253>.
27. Rust G, Baltrus P, Ye J, et al. Presence of a Community Health Center and Uninsured Emergency Department Claim Rates in Rural Counties. *J Rural Health.* 2009 Jan 1;25(1):8-16. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/19166556>.
28. Wright B, Potter AJ, Trivedi A. Federally Qualified Health Center Use Among Dual Eligibles: Rates Of Hospitalizations And Emergency Department Visits. *Health Aff.* 2015 Jul;34(7):1147-55. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/26153309>.
29. Zhang W, Mueller KJ, Chen LW, et al. The Role Of Rural Health Clinics In Hospitalization Due To Ambulatory Care Sensitive Conditions: A Study In Nebraska. *J Rural Health* 2006, 22:220-3. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/16824165>.
30. Medicare Benefit Policy Manual Chapter 13 - Rural Health Clinic (RHC) and Federally Qualified Health Center (FQHC) Services. The Centers for Medicare & Medicaid Services, 2018. Available at: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c13.pdf>.
31. Comparison of the Rural Health Clinic and Federally Qualified Health Center Programs. U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Rural Health Policy, 2006. Available at: <https://www.hrsa.gov/sites/default/files/ruralhealth/policy/confcall/comparisonguid.pdf>.
32. Medicare. National Association of Community Health Centers. Available at: <http://www.nachc.org/policy-matters/federal-issues/medicare/>.
33. Chang CH, Lewis VA, Meara E, et al. Characteristics and service use of Medicare beneficiaries using Federally Qualified Health Centers. *Med Care.* 2016 Aug; 54(8): 804-809. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5383078/>.

34. Governor-Designated and Secretary-Certified Shortage Areas for Rural Health Clinics. Health Resources & Services Administration, 2017. Available at: <https://bhwh.hrsa.gov/shortage-designation/areas-for-rural-clinics>.
35. Sliding Fee Scale Discount Guide for Critical Access Hospitals and Rural Health Clinics. National Rural Health Resource Center, 2017. Available at: <https://www.ruralcenter.org/resource-library/sliding-fee-scale-discount-guide-for-cahs-and-rhcs>.
36. Health Professional Shortage Areas (HPSAs). Health Resources & Services Administration, 2016. Available at: <https://bhwh.hrsa.gov/shortage-designation/hpsas>.
37. Are Rural Health Clinics Part Of The Rural Safety Net? Maine Rural Health Research Center, University of Southern Maine, 2010. Available at: <http://muskie.usm.maine.edu/Publications/rural/pb/RHC-Safety-Net.pdf>
38. Radford AD, Freeman VA, Kirk DA, et al. Safety Net Clinics Serving the Elderly in Rural Areas: Rural Health Clinic Patients Compared to Federally Qualified Health Center Patients. Cecil G. Sheps Center for Health Services Research, 2014. Available at: <http://www.shepscenter.unc.edu/product/safety-net-clinics-serving-the-elderly-in-rural-areas-rural-health-clinic-patients-compared-to-federally-qualified-health-center-patients/>.
39. Shi L, Lebrun LA, Zhu J, et al. Clinical Quality Performance in U.S. Health Centers. *Health Serv Res.* 2012 Dec; 47(6): 2225–2249. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3523373/>.
40. Thomas SR, Holmes GM, Pink GH. To What Extent Do Community Characteristics Explain Differences in Closure among Financially Distressed Rural Hospitals? *J Health Care Poor Underserved.* 2016;27(4A):194-203. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/27818423>.
41. Holmes GM, Kaufman BG, Pink GH. Predicting Financial Distress and Closure in Rural Hospitals. *J Rural Health.* 2017 Jun;33(3):239-249. Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/jrh.12187>.
42. Francis ML, Scaife SL, Zahnd WE, et al. Joint replacement surgeries among medicare beneficiaries in rural compared with urban areas. *Arthritis & Rheumatism.* 2009 Dec 1;60(12):3554–62. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1002/art.25004>.
43. Clinical Classifications Software (CCS) 2015. Healthcare Cost and Utilization Project – HCUP, 2016. Available at: <https://www.hcup-us.ahrq.gov/toolssoftware/ccs/CCSUsersGuide.pdf>.
44. Health Factors. County Health Rankings & Roadmaps. <http://www.countyhealthrankings.org/explore-health-rankings/what-and-why-we-rank/health-factors>.
45. Medicare General Information, Eligibility, and Entitlement Chapter 3 - Deductibles, Coinsurance Amounts, and Payment Limitations. The Centers for Medicare & Medicaid Services, 2018. Available at: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/ge101c03.pdf>.
46. Medicare Outpatient RIF data documentation. Research Data Assistance Center (ResDAC). Available at: <https://www.resdac.org/cms-data/files/op-rif/data-documentation>.
47. Defining the Rural Population. Health Resources and Services Administration, 2017. <https://www.hrsa.gov/rural-health/about-us/definition/index.html>.
48. Radford AD, Kirk DA, Howard HA. Profile of Rural Health Clinics: Medicare Payments & Common Diagnoses, Review of 2009 Medicare Outpatient Claims Data. NC Rural Health Research Program, 2014. Available at: <http://www.shepscenter.unc.edu/product/profile-rural-health-clinics-medicare-payments-common-diagnoses/>.
49. Medicare Claims processing manual, Chapter 9 - Rural Health Clinics/ Federally Qualified Health Centers. The Centers for Medicare & Medicaid Services, 2015. Available at: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/clm104c09.pdf>.
50. MacKinney CA, Coburn AF, Lundblad JP, et al. Access to Rural Health Care - A Literature Review and New Synthesis. Rural Policy Research Institute, 2014. Available at: http://www.rupri.org/Forms/HealthPanel_Access_August2014.pdf.
51. State and Federal Efforts to Enhance Access to Basic Health Care. The Commonwealth Fund. Available at: <https://www.commonwealthfund.org/publications/newsletter/state-and-federal-efforts-enhance-access-basic-health-care>.

52. Sepulveda MJ, Bodenheimer T, Grundy P. Primary Care: Can It Solve Employers' Health Care Dilemma? *Health Aff (Millwood)*. 2008 Jan-Feb;27(1):151-8. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/18180490>.
53. There is no Part B deductible in FQHCs for FQHC-covered services. See P. 5: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/fqhcfactsheet.pdf>. The Part B deductible applies to RHC services and is based on total charges. See p. 3: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/ruralhlthclinfctst.pdf>.



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