



County-Level Differences in Fee-for-Service Medicare Quality Measures by Rurality and Disability Status

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Key Findings

- Across three fee-for-service (FFS) Medicare health care quality measures, rural counties had poorer quality compared to urban counties, including lower rates of flu vaccination (32.8%-40.0% vs 39.6%-51.5%) and mammography screening (35.1%-45.0% vs 39.1%-47.2%), and higher rates of ambulatory-sensitive hospitalization (2,355-3,429 vs 2,417-3,194 per 100,000 people).
- As disability prevalence at the county-level increased, quality of care decreased across these three measures.
- Rural counties with the highest disability prevalence had the lowest rates of flu vaccination (32.8%) and mammography screening (35.1%), and highest rates of hospitalization for ambulatory-sensitive conditions (3,429 per 100,000 people).

Purpose

Quality of care is an essential complement to access to care, and differences in quality scores are well-documented by both disability and rurality. Fewer studies examine differences in health care quality at the intersection of rurality and disability. However, this study aims to address this gap.

Background and Policy Context

Access to health care is critical for every individual but is not sufficient without ensuring quality of care. High-quality health care increases the likelihood of better health outcomes.¹ Quality in health care can be defined as, “doing the right thing at the right time in the right way for the right person and having the best results possible.”² Quality of care extends to a range of settings (e.g. emergency departments, primary care clinics, surgical centers) and types of supports (e.g. acute diagnostics, preventive services). For example, access to high-quality prenatal care includes routine ultrasounds, screenings, and bloodwork as well as mental health and safety screening questions, all of which are designed to reduce the risk of pregnancy complications and improve health outcomes.³ In an emergency, high-quality care could look like speedy triage, accurate diagnosis of, and treatment for a heart attack.⁴

However, there are differences in quality of care by disability status. For example, the Center for Medicare and Medicaid Services (CMS) reported that Medicare beneficiaries with any type of disability were less likely to receive cancer screenings compared to those who did not report having a disability.⁵ Additionally, individuals with intellectual and developmental disabilities (IDD) have been found to be more likely to be hospitalized for diabetes-related ambulatory care-sensitive conditions, compared to those who have diabetes and do not have IDD.⁶

Rural residents also experience differences in quality of care compared to urban residents. For example, people living in rural areas are more likely to report not having used

preventive services compared to their urban counterparts (24% vs 19%) within the last year.⁷ Lower use of preventive care by rural residents can be driven by circumstantial factors including public transportation infrastructure, socioeconomic status, and lack of insurance coverage.⁸

Despite research showing differences in quality of care by disability status and rurality, there is limited research looking at the intersection of the two. In this policy brief, we examine county-level differences in three commonly used Medicare quality measures to address differences in quality care by both rurality and disability status.

Approach

We used data from the 2024 County Health Rankings (CHR), a compilation of county-level data produced by the University of Wisconsin Population Health Institute. We classified counties as rural or urban using the 2023 release of Rural Urban Continuum Codes (RUCC) from the Office of Management and Budget's (OMB) delineation of metro and nonmetro county categories. We measured disability at the county level based on the percentage of the 65 years and older population that had a disability using the 2022 5-year American Community Survey (ACS) estimate measure, which defines disability as having difficulty with cognition, self-care, and independent living and/or serious difficulty in hearing, vision, or ambulating.⁹ From there, we sorted counties into quartiles based on the percentage of the population with a disability among rural and urban counties. Among urban counties, average percent disability ranged from 27.7% in the lowest quartile 1 category to 43.2% in the highest quartile 4 category. Among rural counties average percent disability ranged from 28.2% in the lowest quartile 1 category to 48.2% in the highest quartile 4 category. The overall average disability among urban counties was 34.7% compared to 37.8% in rural counties in the 65 and older age group.

We examined differences in three measures of Medicare quality from the CHR: flu vaccination, mammography screening, and rates of hospitalizations for ambulatory-sensitive conditions. The first metric looked at percentage of fee-for-service (FFS) Medicare enrollees that had an annual flu vaccination. The second referred

to the percentage of female Medicare enrollees ages 65-74 that received an annual mammography screening. (While mammography screening is only applicable for a portion of individuals, it is a widely used measure of health care quality.¹⁰) The last metric addressed the rate of hospital stays for ambulatory-care sensitive conditions per 100,000 Medicare enrollees.

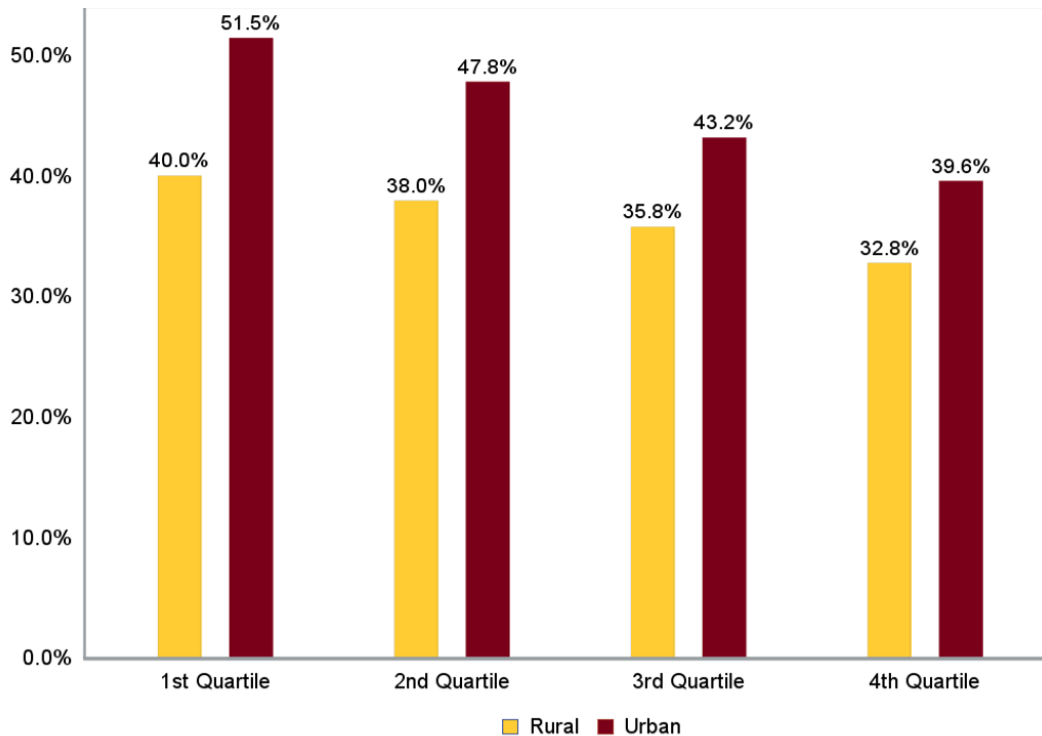
We employed non-parametric testing methods (Kruskal-Wallis tests), necessitated by the non-normal distributions across each disability quartile, urban/rural designation, and for each Medicare quality metric. In addition, Brown-Forsythe tests showed heterogeneity of variance across many of these groupings, further justifying the use of a non-parametric approach. To assess whether rural and urban counties within each disability quartile significantly differed on the three key quality variables, Kruskal-Wallis tests were conducted separately for each disability quartile (Q1–Q4). In addition, non-parametric Kruskal-Wallis tests were applied within rural and urban groups independently to examine whether differences across all four disability quartiles were statistically significant for each quality variable.

Results

Figure 1 shows the percentage of Medicare beneficiaries receiving an annual flu vaccine by county-level disability quartile and rural vs. urban location. The highest rate (51.5%) was among urban counties in the lowest disability quartile, while the lowest rate (32.8%) was among rural counties in the highest disability quartile. Overall, the rate of flu vaccination was lower among rural vs. urban counties within each disability quartile and the rate decreased within both rural and urban counties as county-level disability prevalence increased. Differences by rurality and disability quartile were significant at $p < 0.001$ for both within category (rural or urban) difference across disability quartiles, and between rural and urban categories when comparing each quartile.

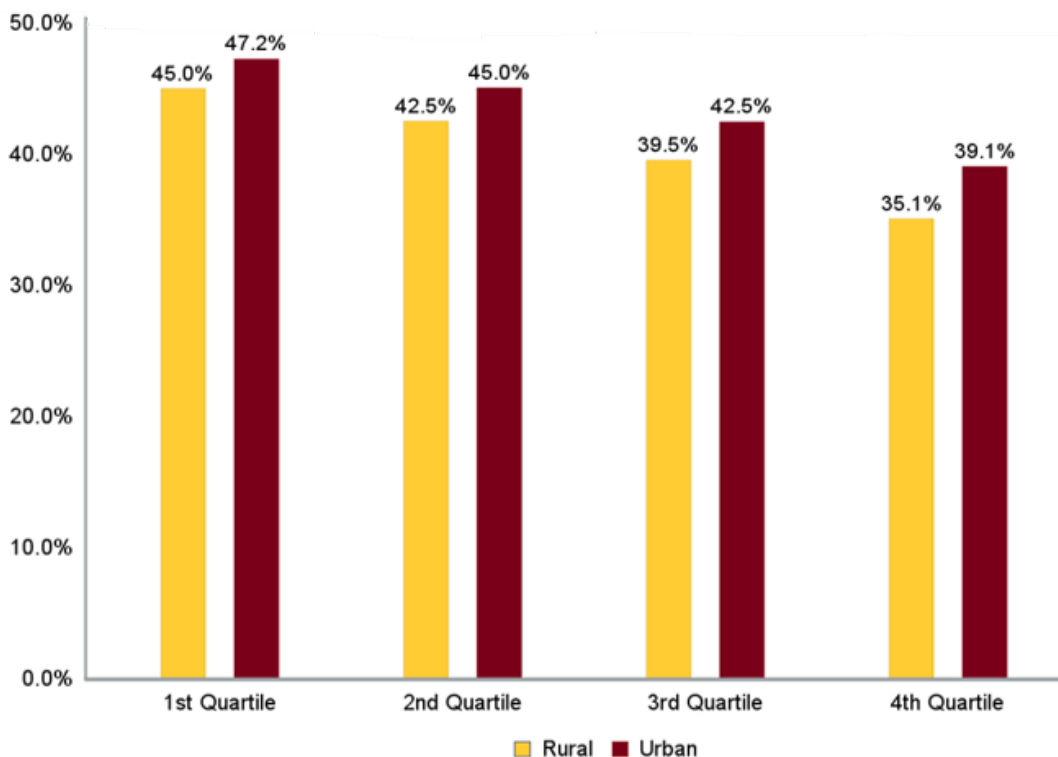
Similar patterns emerged for rates of annual mammography screening, as shown in Figure 2. As with flu vaccinations, the highest rate (47.2%) was among urban counties with the lowest disability prevalence and the lowest rate (35.1%) was among rural counties with the highest disability prevalence. Again, rural counties had lower rates than urban within each disability

Figure 1. Percent of FFS Medicare Enrollees Receiving Flu Vaccine by Disability Quartile (Urban vs. Rural Counties, Age 65+)



Note for both figures: the quartiles progress from lowest to highest disability prevalence, with the 1st quartile corresponding to lowest prevalence of disability and the 4th quartile corresponding to highest.

Figure 2. Percent of FFS Female Medicare Enrollees Receiving Mammography Screening by Disability Quartile (Urban vs. Rural Counties, Age 65+)

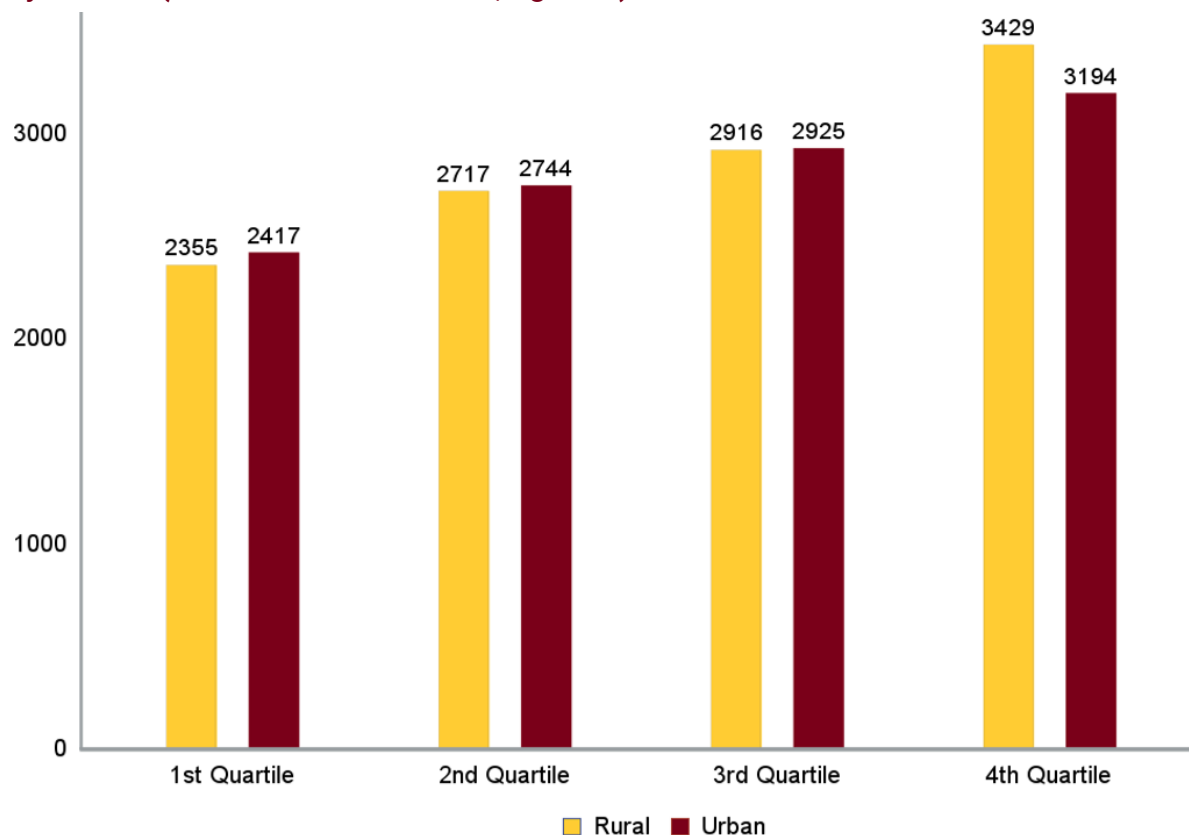


quartile, and mammography screening rates declined as county-level disability prevalence increased for each ($p < 0.001$). Between urban and rural differences for each disability quartile were also significant (1st quartile $p < 0.005$; 2nd, 3rd, & 4th quartile $p < 0.001$).

Finally, rates of hospitalization for ambulatory-sensitive conditions per 100,000 Medicare beneficiaries are shown in Figure 3. In this case, higher rates indicate poorer quality and the trends between rurality,

disability prevalence, and quality persist. However, within the first three quartiles of disability, few significant differences emerged between rural and urban counties while differences within group (rural or urban) continued to increase by disability quartile ($p < 0.001$). In the highest quartile of disability prevalence, rural counties had higher rates of hospitalization than urban (3,429 per 100,000 vs. 3,194 per 100,000, $p < 0.001$).

Figure 3. Rate of Hospital Stays for Ambulatory-Care Sensitive Conditions per 100K FFS Medicare Enrollees by Disability Quartile (Urban vs. Rural Counties, Age 65+)



Note: the quartiles progress from lowest to highest disability prevalence, with the 1st quartile corresponding to lowest prevalence of disability and the 4th quartile corresponding to highest.

Discussion and Implications

In this brief, we found that health care quality, as measured by the percentage of eligible Medicare beneficiaries experiencing each of three quality measures (flu vaccination, mammography, ambulatory-sensitive hospitalization) is associated with county-level disability status and rurality. Overall, rural counties demonstrated poorer quality than urban counties. Further, counties with higher disability rates demonstrated

poorer quality than counties with lower disability prevalence. The poorest quality for each of the three measures we examined was within rural counties with the highest rates of disability.

These results could be used to direct attention toward ensuring access to timely, appropriate care, especially for rural Medicare beneficiaries with disabilities. Efforts to improve quality may include additional education for providers about specific risks for rural

residents with disabilities; policies to incentivize value-based care; and additional support to improve access to care for rural Medicare beneficiaries with disabilities, including accounting for variation in types of disability and accommodations needed.

Conclusion

This brief highlights county-level differences in fee-for-service Medicare quality measures by rurality and disability status. Rural counties demonstrate poorer quality of care for individuals with disabilities than urban counties, with the poorest quality of care being in rural counties with the highest rates of disability prevalence. While efforts are in place to address access to care for individuals with disabilities in rural communities, similar efforts could be made to address differences in quality of care. Future research should also consider if similar trends exist for non-Medicare populations and across other quality measures, in addition to individual-level differences.

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