POLICY BRIEF
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RURAL HEALTH
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County-Level Differences in Health Professional Shortage Areas by Rurality, Age, and Disability Status

Andrew Abram, MPH
Alexis Swendener, PhD
Mariana Tuttle, MPH
Katie Rydberg, MPH
Carrie Henning-Smith, PhD, MPH, MSW

Key Findings

- Individuals in rural counties had less access to primary care providers compared to individuals in urban counties measured by primary care Health Professional Shortage Area (HPSA) designations (84.2% vs 53.3%)
- Individuals in rural counties had less access to dental care providers compared to individuals in urban counties measured by dental care HPSA designations (73.8% vs 45.6%)
- Individuals in rural counties had less access to mental health care providers compared to individuals in urban counties measured by mental health care HPSA designations (93.5% vs 72.9%)
- As disability prevalence at the county level increased, health care professional shortages increased across these three measures.
- Rural counties with the highest disability prevalence had the highest rates of HPSAs with the 19-64 age category consistently demonstrating the highest rates in primary care (95.5%), dental care (91.0%), and mental health care (96.7%) shortages.

Purpose

Access to quality health care is shaped in part by the availability of medical professionals for a given population and geography, and Health Professional Shortage Area (HPSA) designations can be a useful indicator to measure this provider access.[1] While differences in health care access are well explained for both disability and rurality throughout literature using HPSAs, there are fewer studies which investigate differences in health care access at the intersection of rurality and disability across the working-age adult and older adult experience. This study addresses this gap.

Background and Policy Context

Access to health care is essential to achieving population health. However, people living in rural areas often encounter access challenges including health professional shortages, and reduced availability of services due to transportation, geographic distance from health care services, or limited availability of specialty care.[2] Similarly, individuals with disabilities experience persistent barriers to health care access including physical inaccessibility of facilities, medical equipment limitations to accommodate disability, and inadequate provider training of disability-specific needs.[3]

Health professional shortage data indicate that rural residents are more likely to lack access to dental and mental health professionals compared to urban residents.[4,5] At the same time, adults with disabilities experience difficulties finding providers equipped to meet their needs.[6] These barriers can result in lower use of preventive services, delayed diagnoses, and poorer health outcomes across both populations.[4,5,6] While HPSA designations offer both a standardized approach to classify reported geographic areas with inadequate health care professional availability and a useful metric for measuring location-based barriers to care, less is known about HPSAs at the intersection of rurality and disability.[7,8] While past studies have investi-

gated rural-urban differences and disability-related access barriers separately, there has been less focus on how the two factors interact to shape access to care. In this brief, we examine county-level differences in provider availability as measured by HPSA designations, with a focus on rurality and disability status across two adult age groups.

Approach

We leveraged data from the Health Resources and Services Administration (HRSA) for HPSAs of three major categories of health professionals (Primary Care, Dental Care, and Mental Health Professionals). This dataset was filtered to establish shortage areas at the whole county level and those who are currently 'designated' a HPSA as of the April 3, 2025 dataset download, which removed counties classified as 'withdrawn' and 'proposed for withdrawal' from this analysis. Additionally, 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) categorization of metro and nonmetro county categories.

Disability rates at the county level report the percentage of the population that had a disability using the 2022, 5-year American Community Survey (ACS) estimate measure. We categorized disability separately for two age categories: working-age adult (19-64) age group and older adult (65+) age group. Each age category was sorted into quartiles based on the percentage of the population with a disability with quartile 1 indicating the lowest disability rate through to quartile 4 indicating the highest. Counties were further divided into rural and urban in order to make comparisons between rural and urban disability quartiles for each age category.

We chose to investigate the adult population in two age groups (19-64 & 65+) to reflect meaningful differences in disability rates and health care access patterns between the two groups, including eligibility for Medicare and age-related care needs. While a segment of individuals under 65 qualify for Medicare due to disability, older adults (65+) are nearly universally eligible for Medicare, which can influence health care access and service utilization.

For the adult (19-64) age category and among urban counties, average percent disability ranged from 7.9% in quartile 1 to 17.7% in quartile 4. Among rural counties, average percent disability ranged from 9.0% in quartile 1 to 21.5% in quartile 4. The overall average disability among urban counties was 12.3% compared to 14.8% in rural counties in the working-age adult (19-64) age group.

For the older adult (65+) age category and among urban counties, average percent disability ranged from 27.7% in quartile 1 to 43.2% in quartile 4. Among rural counties average percent disability ranged from 28.2% in quartile 1 to 48.2% in quartile 4. The overall average disability among urban counties was 34.7% compared to 37.8% in rural counties in the older adult (65+) age group.

To evaluate disparities in health care access, we analyzed categorical county-level HPSA designation (Yes/No) for each HPSA category and across disability quartiles, rural/urban classifications, and for age categories using Pearson Chi-square tests of independence. To assess within-group differences, we examined whether the proportion of counties designated as HPSAs in each category differed significantly across disability quartiles. This comparison was conducted for each possible category, i.e. within rural and within urban categories separately, and for each age grouping separately. We also conducted comparisons between each disability quartile to determine significant differences between rural and urban counties for their relative likelihood of an HPSA designation; again for each HPSA category and for each age group. This approach allowed us to test across both intra-group (ex. differences between quartiles for rural primary care HPSA in older adults) and inter-group (ex. differences between quartile 1 rural and quartile 1 urban primary care HPSA in older adults) differences in health care access by both rurality and level of disability for each age group.

Results

First, reviewing the total number of county-level Primary Care HPSAs nationwide, we found that 72.5% of all counties qualify at the time of analysis. When comparing Primary Care HPSAs between urban and rural counties we found that 53.3% of urban and 84.2% of rural counties qualify.

Figure 1 shows the percentage of counties designated as Primary Care HPSA by county-level disability quartile in the working-age adult (19-64) age category and rural vs urban county classification. The highest proportion (95.5%) was among rural counties in disability quartile 4, while the lowest proportion (18.6%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Primary Care HPSAs was lower among urban vs rural counties within each disability quartile and the proportion increased 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.

Figure 2 shows the percentage of counties designated as Primary Care HPSA by county-level disability quartile in the older adult (65+) age category and rural vs urban county classification. The highest proportion (94.1%) was among rural counties in disability quartile 4, while the lowest proportion (25.7%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Primary Care HPSAs was lower among urban vs rural counties within each disability quartile and the proportion increased 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.

Next, reviewing the total number of county-level Dental Care HPSAs nationwide, we found that 63.1% of all counties qualify at the time of analysis. When comparing Dental Care HPSAs between urban and rural counties, we found that 45.6% of urban and 73.8% of rural counties qualify.

Figure 1. Percent of Counties Qualifying as Primary Care HPSA by Disability Quartile and Rural/Urban Status (Age 19-64)

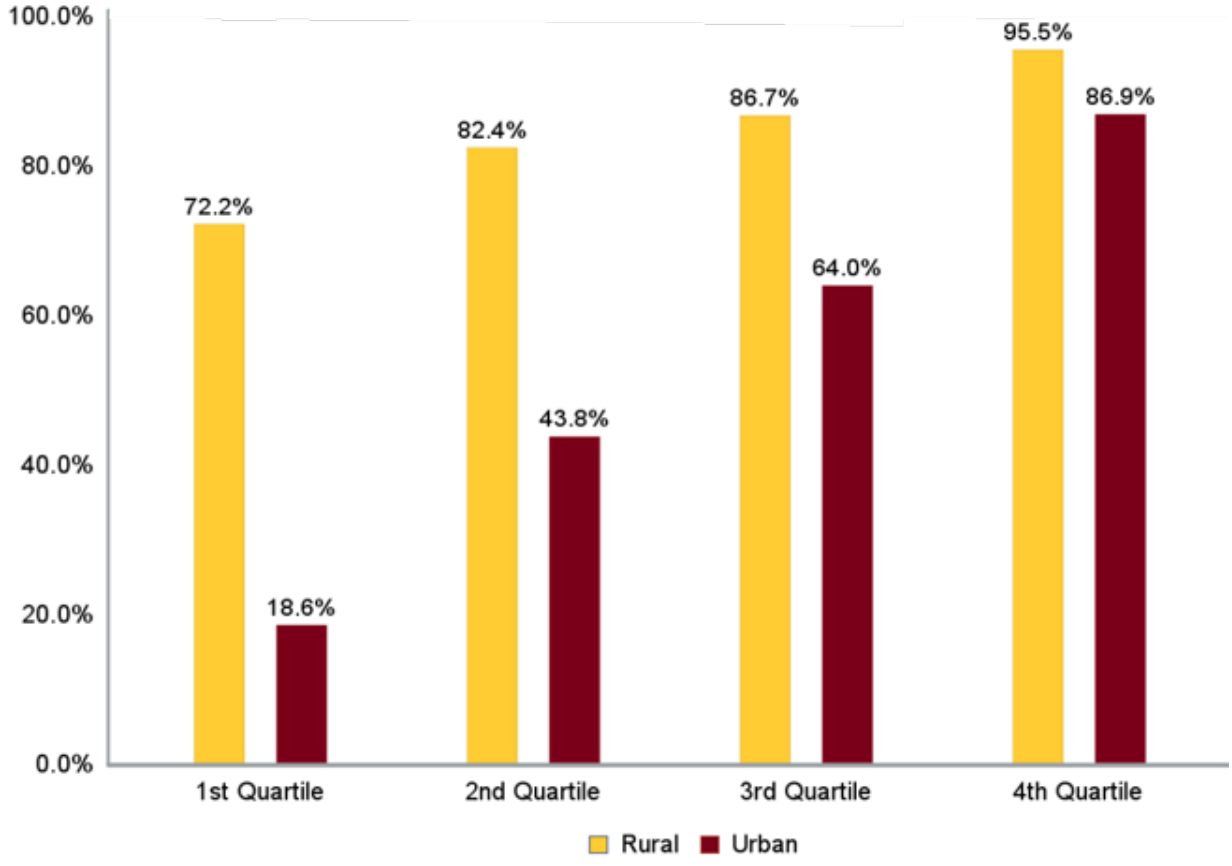


Figure 2. Percent of Counties Qualifying as Primary Care HPSA by Disability Quartile and Rural/Urban Status (Age 65+)

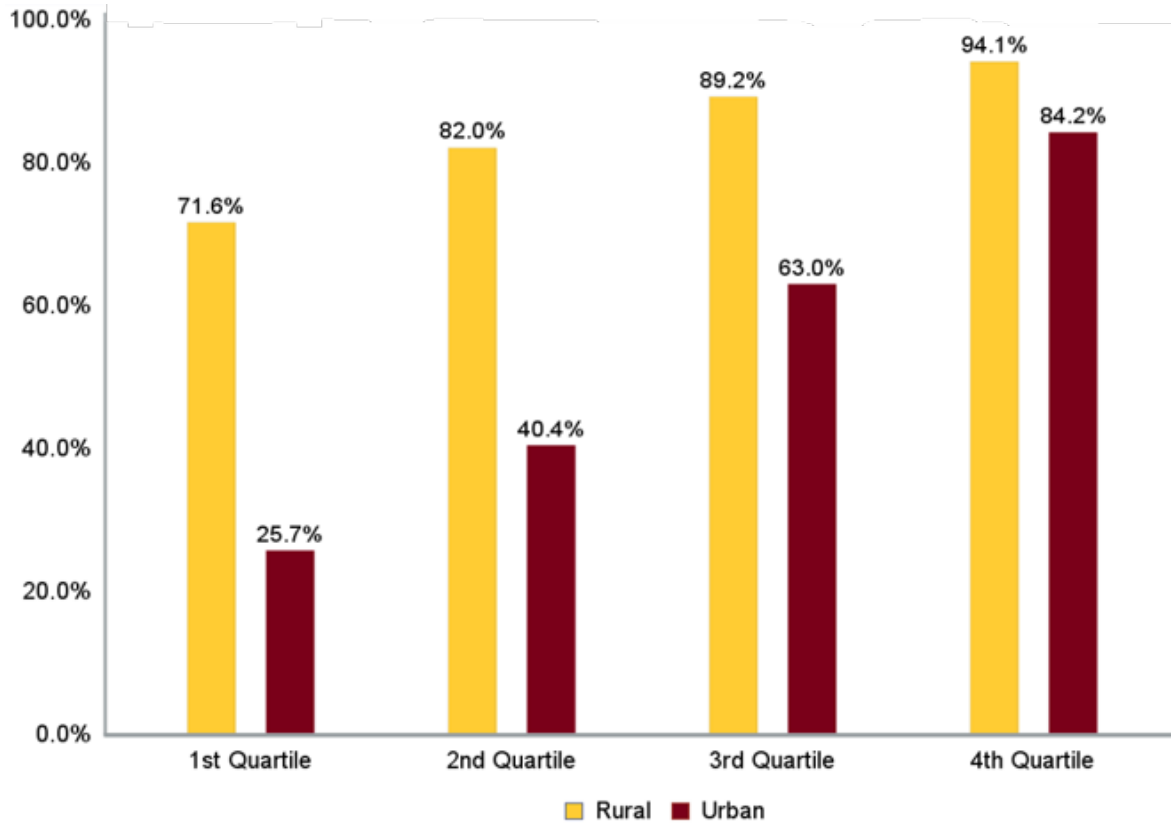


Figure 3 shows the percentage of counties designated as Dental Care HPSA by county-level disability quartile in the working-age adult (19-64) age category and rural vs urban county classification. The highest proportion (91.0%) was among rural counties in disability quartile 4, while the lowest proportion (14.9%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Dental Care HPSAs was lower among urban vs rural counties within each disability quartile, and the proportion increased 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 comparisons: within category (rural or urban) difference across disability quartiles and between rural and urban categories when comparing each quartile.

Figure 4 shows the percentage of counties designated as Dental Care HPSA by county-level disability quartile in the older adult (65+) age category and rural vs urban county classification. The highest proportion (87.1%) was among rural counties in disability quartile 4, while the lowest proportion (21.3%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Dental Care HPSAs was lower among urban vs rural counties within each disability quartile, and the proportion increased 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.

Lastly, reviewing the total number of county-level Mental Health Care HPSAs nationwide, we found that 85.7% of all counties qualify at the time of analysis. When comparing Mental Health Care HPSAs between urban and rural counties we found that 72.9% of urban and 93.5% of rural counties qualify.

Figure 3. Percent of Counties Qualifying as Dental Care HPSA by Disability Quartile and Rural/Urban Status (Age 19-64)

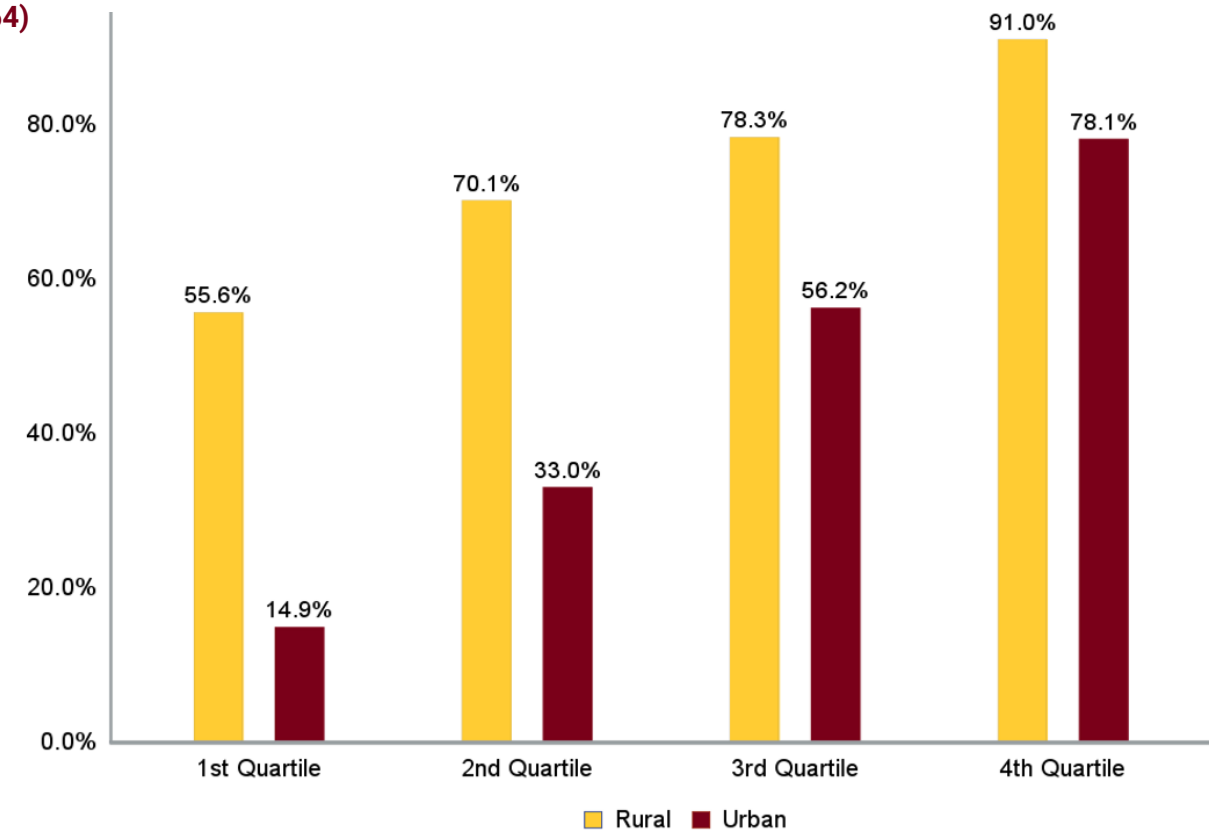


Figure 4. Percent of Counties Qualifying as Dental Care HPSA by Disability Quartile and Rural/Urban Status (Age 65+)

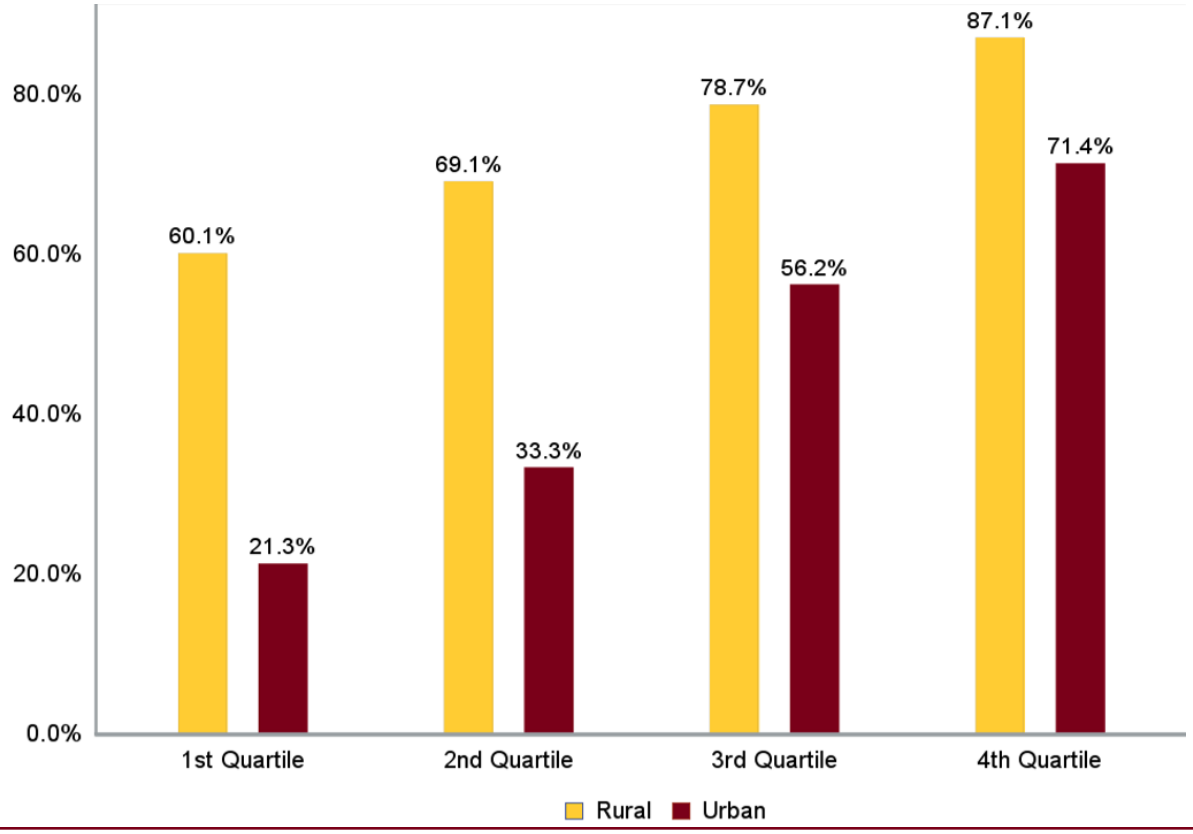


Figure 5 shows the percentage of counties designated as Mental Health HPSA by county-level disability quartile in the working-age adult (19-64) age category and rural vs urban county classification. The highest proportion (96.7%) was among rural counties in disability quartile 4, while the lowest proportion (50.3%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Mental Health HPSAs was lower among urban vs rural counties within each disability quartile and the proportion increased within both rural and urban counties as county-level disability prevalence increased. Differences by rurality and disability quartile were significant at $p<0.01$ for both within category (rural or urban) difference across disability quartiles, and between rural and urban categories when comparing each quartile (1st, 2nd, 3rd quartile $p<0.001$; 4th quartile $p<0.05$).

Figure 6 shows the percentage of counties designated as Mental Health HPSA by county-level disability quartile in the older adult (65+) age category and rural vs urban county classification. The highest proportion (96.9%) was among rural counties in disability quartile 4, while the lowest proportion (51.4%) was among urban counties in disability quartile 1. Overall, the percentage of counties with Mental Health HPSAs was lower among urban vs rural counties within each disability quartile and the proportion increased 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 (1st, 2nd, 3rd quartile $p<0.001$; 4th quartile $p<0.05$).

Figure 5. Percent of Counties Qualifying as Mental Health HPSA by Disability Quartile and Rural/Urban Status (Age 19-64)

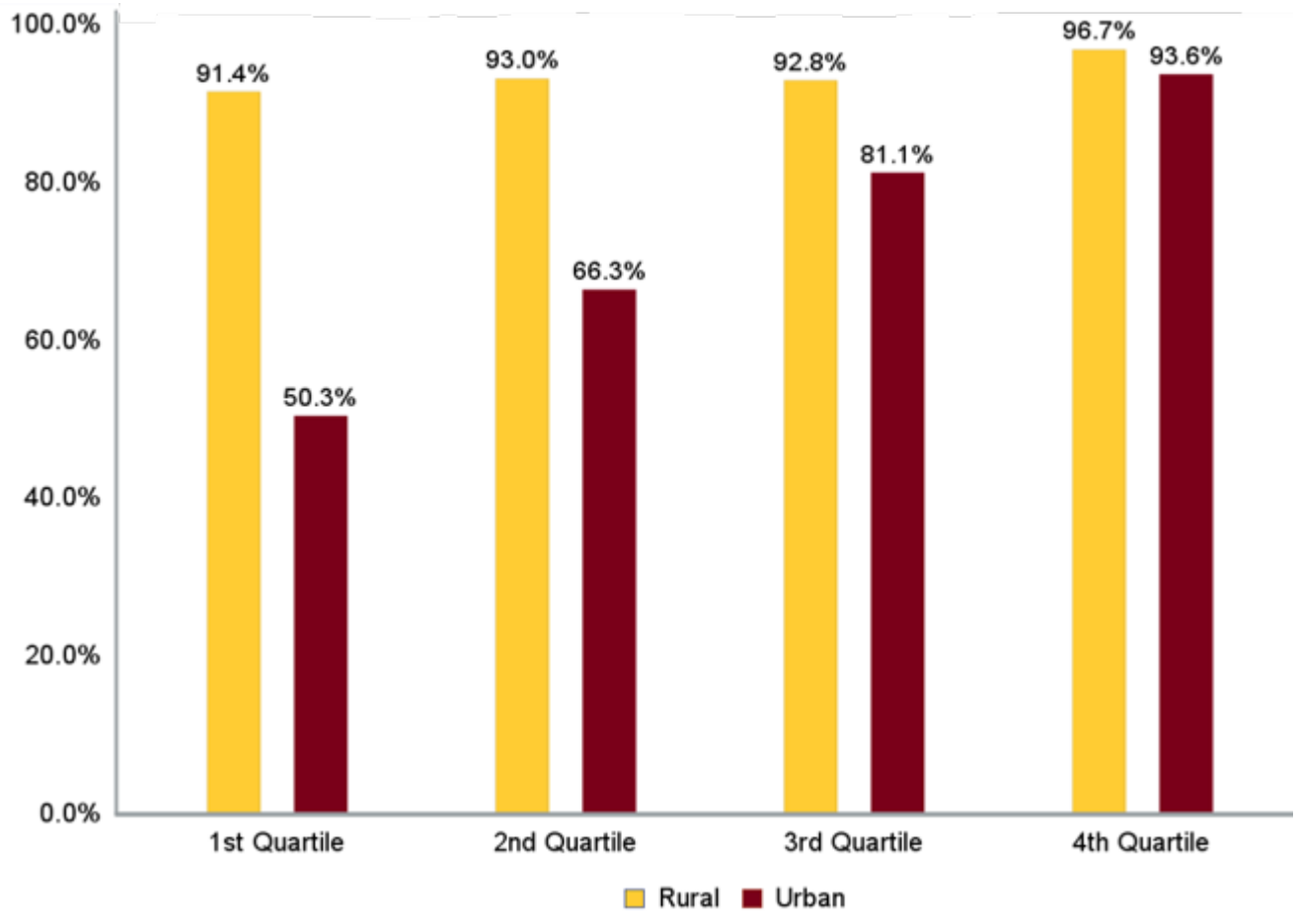
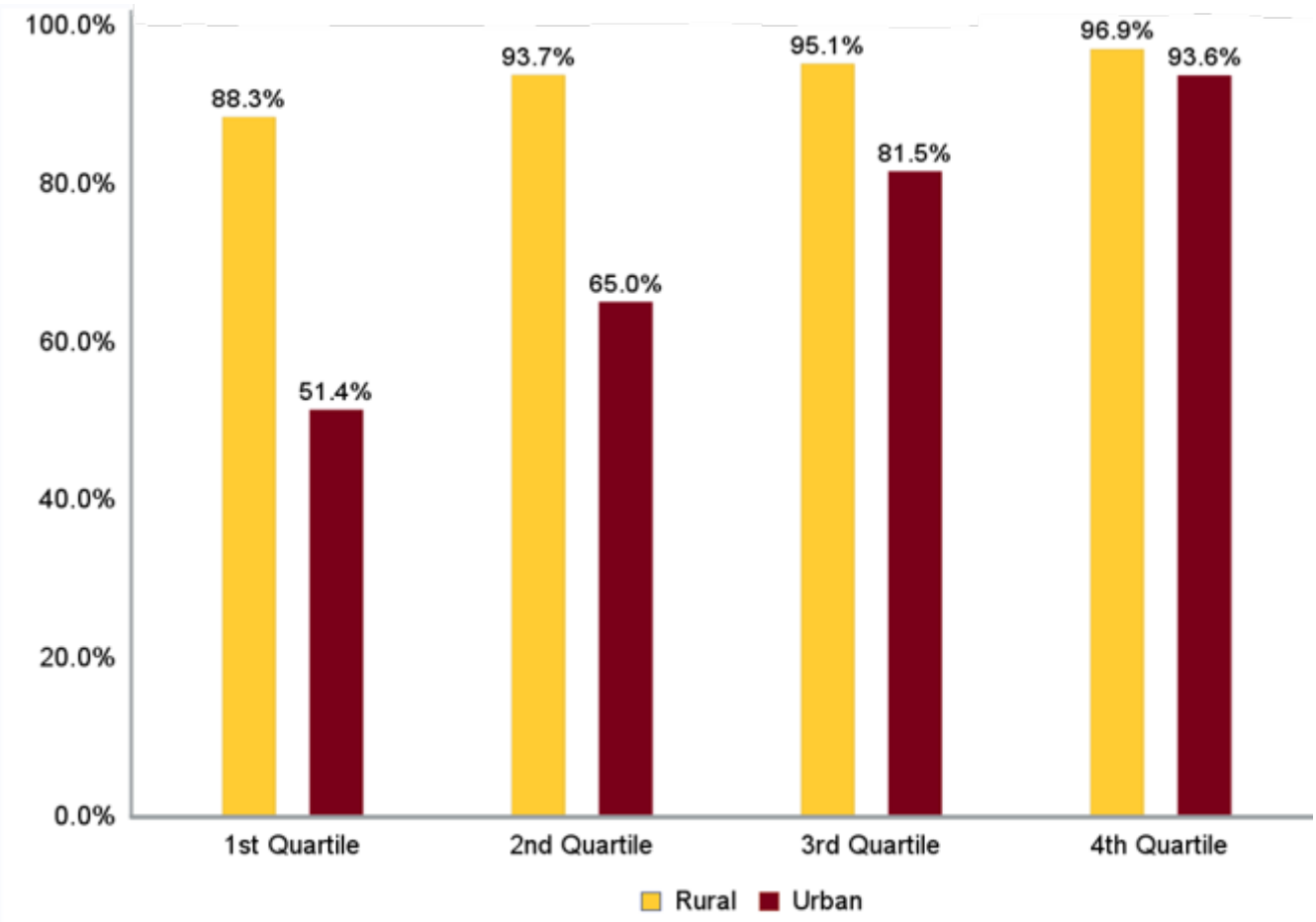


Figure 6. Percent of Counties Qualifying as Mental Health HPSA by Disability Quartile and Rural/Urban Status (Age 65+)



Discussion and Implications

In this brief, we found that rurality was associated with county-level disability status and health professional shortage areas across three categories (primary care, dental care, and mental health) for both working-age adults (19-64) and older adults (65+) age groups. Overall, rural counties demonstrated higher proportions of HPSAs than urban counties. Further, counties with higher disability rates demonstrated higher proportions of HPSAs compared to counties with lower disability prevalence. The highest proportion of health care professional shortages for each of the three HPSA categories we examined was within the group of rural counties with the highest rates of disability. In other words, counties with the highest rates of disability had the highest rates of health care workforce shortages.

These results could be used to direct attention toward incentivizing increases in provider staffing to promote access, especially for rural residents with disabilities. Efforts to improve access may include additional education for providers about health care shortages for rural residents with disabilities; policies to incentivize more even distribution of services; and additional supports to improve access to care for rural residents with disabilities (e.g., transportation voucher programs, telehealth, resources for identifying providers, case management to navigate system shortages) to ensure that they receive access to providers and minimize barriers to quality care.

Conclusion

This brief investigates county-level differences in health care professional shortages as a proxy for access to health care by rurality and disability status for work-

ing-age adult and older adult populations. Individuals living in rural counties experience higher shortages of health care professionals compared to urban counties. This was especially true for rural counties with higher rates of disability. Rural counties with the highest rates of disability disproportionately face the most limited access to health care professionals due to shortages across all HPSA categories for both working-age adults and older adults. Efforts to incentivize provider practice in rural counties could be strengthened throughout the provider training-to-practice pipeline and through programs to support individuals with disabilities specifically. Further investigation is needed to investigate younger populations' provider access and across other access metrics while also accounting for the ever-changing HPSA county landscape in the face of dwindling rural health care resources.

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For more information, contact Carrie Henning-Smith (henn0329@umn.edu)

University of Minnesota Rural Health Research Center
Division of Health Policy and Management, School of Public Health,
2221 University Avenue SE, #350 Minneapolis, MN, 55414