POLICY BRIEF
January 2026

UNIVERSITY OF MINNESOTA
RURAL HEALTH
RESEARCH CENTER

Use of Preventive Services by Rurality, Disability Status, and Health Insurance

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Key Findings

- People with disabilities and adults 65 and older were more likely than their counterparts without disabilities and those under age 65 to have had a routine physical and to have received a flu vaccination within the last year.
- People who were uninsured had much lower probabilities of having a routine physical compared to their privately insured counterparts, regardless of rurality or disability status, ranging from over 48% - 58% without insurance compared to over 79% - 88% with private insurance.
- People who were uninsured had the lowest probabilities of flu vaccination, especially compared to people who were privately insured, regardless of rurality and disability. The lowest probability of flu vaccination overall was among uninsured rural residents without disability (19%).

Purpose

High-quality health care, including use of preventive services, is important to maximize health and well-being. Both rural residents and people with disabilities experience specific barriers to quality care, but less is known about use of preventive care at the intersection of disability status and geographic location. Even less is known about how those relationships vary by insurance status. In this policy brief, we examine rates of utilizing two types of preventive care (routine physicals and flu vaccination) by rural-urban location, disability status, and health insurance type.

Background and Policy Context

Access to quality health care, including preventive services, is important for supporting population health. Use of recommended preventive services are well-established process measures of quality,[1] and identifying differences among groups in use of preventive services is key in promoting improved health outcomes. Rural residents face health care access barriers, including anticipated and actual problems affording care, limited public transportation, longer distances to medical facilities, shortages of medical providers, and facility closures.[2–5] In addition, people with disabilities face challenges in finding accessible transportation, barriers to accessing high-quality care, as well as increased financial burdens.[6–8] As overall rates of disability are higher in rural areas,[9,10] understanding quality of health care for people with disabilities is an important avenue for promoting rural population health.

Preventive care, such as vaccinations, annual check-ups, and chronic health condition screenings are critical components of quality health care and thus essential to maintaining positive population health outcomes.[11] Health insurance generally covers these preventive services.[12,13] While 94.9% of people with disabilities have health insurance, with over two-thirds covered by public insurance (Medicaid or Medicare),[14] it is important to understand how people with disabilities utilize these preventive services, especially for individuals living in rural areas where access to care can be more challenging. Individuals within rural areas are less likely to have

insurance than those in urban areas and experience barriers to accessing high-quality care.[15,16] More research is needed on how access to quality care varies at the intersection of rurality and disability status. This policy brief examines rates of utilizing preventive care (routine physicals and flu vaccination) by rural-urban location, disability status, and health insurance type.

Approach

We used data from the 2022 National Health Interview Survey (NHIS), a nationally representative survey of the civilian, non-institutionalized U.S. population, accessed through IPUMS Health Surveys.[17] The sample includes all adults age 18 and older who had complete information on the measures defined below (N=27,424).

We examined use of preventive services through two individual variables: whether respondents had indicated that they had a wellness/general purpose/physical check-up appointment in the last year and receipt of the flu vaccine in the last year.

Disability status was measured in the NHIS using the Washington Group Short Set Composite Disability Indicator,[18] where respondents are defined as having a disability if they report having "a lot of difficulty" or "cannot do at all" any of the following: remembering or concentrating, washing or dressing, communicating in usual language, walking or climbing steps, hearing, or vision. This measure likely underestimates the size of the population with disabilities as it focuses on the two highest severity categories of difficulty of the ordinal scale instead of "any" difficulty (which would include those reporting "some" difficulty as well).[19] In our sample, 9.3% reported a disability.

We defined rural residency using the 2013 NCHS Urban-Rural Classification Scheme with all non-metropolitan counties categorized as rural.[20] Rural residents comprised 13.8% of the sample. A higher proportion of rural residents had disabilities compared to urban residents (13.0% vs 8.7%).

Health insurance status was categorized as private (60.4% of the sample), dual-eligible (both Medicare and Medicaid; 1.6%), Medicare Advantage (7.9%), Original Medicare (2.6%), Medicaid (12.1%), other government insurance (including other state, military, and federal insurance, 5.4%), and uninsured (9.7%).[19]

Our models control for age as it is associated with health status, and preventive care recommendations, and since 95% of US adults 65 and older have Medicare.[14] Age was categorized as 18-64 years old and 65 and older. 77.9% of the sample was 18-64 years old and 22.1% was age 65 or older.

We used chi-square tests to determine statistically significant differences in the distribution of health insurance type by rurality and disability status as well as to determine significant differences in the use of preventive services separately by rurality, disability status, and health insurance status. We then built multivariate logistic regression models and obtained adjusted predicted probabilities of using each preventive service at the intersections of rurality, disability status, and health insurance status, controlling for age. We used Stata 18 and employed survey weights to account for the complex sample design and to generate nationally representative estimates.

Results

Table 1 shows the distribution of health insurance type within each rurality and disability subgroup ($p<0.001$). Almost 64% of urban people without disabilities and almost 58% of rural people without disabilities had private insurance, while 31% of rural people with disabilities and almost 35% of urban people with disabilities had private insurance. About 26% of rural people with disabilities and 21% of urban people with disabilities had Medicaid for insurance. Rural people without disabilities were the most likely to be uninsured (11.3%) followed by urban people without disabilities (10.1%), urban people with disabilities (5.8%), and rural people with disabilities (3.6%).

Table 2 shows the associations between rurality, disability status, and health insurance type across each of the two preventive services. Overall, 77% of the sample had a routine physical within the last year, while less than half of the sample reported receiving a flu vaccine in the past year (47.2%). A larger percentage of urban residents compared to rural residents had received a flu vaccine (48.0% vs 42.1%, $p<0.001$). People with disabilities were more likely to have had a routine physical (85.7% vs 76.0%, $p<0.001$) and more likely to have been vaccinated for the flu in the last year (55.1% vs 46.4%, $p<0.001$) compared to people without dis-

Table 1. Insurance Status by Rurality and Disability Status Groups

	Rural, no disability	Rural, with disability	Urban, no disability	Urban, with disability	
Private	57.7%	31.3%	63.9%	34.7%	p<0.001
Dual eligible	1.3%	6.8%	1.1%	6.9%	
Medicare Advantage	6.8%	12.1%	7.2%	16.0%	
Original Medicare	3.5%	4.7%	2.1%	5.0%	
Medicaid	13.2%	26.1%	10.8%	21.0%	
Other government insurance	5.9%	14.9%	4.7%	10.1%	
Uninsured	11.3%	3.6%	10.1%	5.8%	
N	3,653	626	20,926	2,219	

Table 2. Use of Preventive Services by Rurality, Disability Status, Age, and Insurance Status

	Had routine physical in last year		Had flu vaccine in last year	
All	76.9%		47.2%	
Rural	78.3%	p=0.08	42.1%	p<0.001
Urban	76.7%		48.0%	
People with disabilities	85.7%	p<0.001	55.1%	p<0.001
People without disabilities	76.0%		46.4%	
Age 18-64	72.7%	p<0.001	40.5%	p<0.001
Age 65+	91.4%		70.6%	
Health insurance				
Private	78.3%	p<0.001	49.1%	p<0.001
Dual eligible	93.1%		64.8%	
Medicare Advantage	92.9%		72.0%	
Original Medicare	86.2%		63.4%	
Medicaid	78.4%		35.4%	
Other government insurance	86.0%		56.4%	
Uninsured	44.3%		17.8%	

NHIS 2022, N=27,424

abilities. Compared to 18-64 year olds, those who were 65 years or older were more likely to have had a routine physical (91.4% vs 72.7%, p<0.001) and more likely to have received a flu vaccine (70.6% vs 40.5%, p<0.001).

When examining across health insurance status, those with dual eligible and Medicare Advantage were the most likely to have had a routine physical with about 93% of both groups, followed by 86% of people with other government insurance and Original Medicare, and 78% of people with private insurance and Medicaid having a routine physical. People who were

uninsured were the least likely to have had a routine physical with 44.3% having one in the last year. Rates of flu vaccination also varied by insurance status. Rates were highest among those with Medicare Advantage (72.0%) followed by dual eligible (64.8%), Original Medicare (63.4%), and other government insured (56.4%). Less than half of those privately insured had been vaccinated for the flu (49.1%), followed by Medicaid (35.4%), and people without insurance (17.8%).

Table 3 shows the predicted probabilities of having a routine physical within the last year at the intersections of rurality, disability status, and health insurance, while controlling for age. Among people who were privately insured, rural residents with disabilities had a higher probability of having a routine physical compared to rural residents without a disability (88.3% vs 80.3%). Examining across health insurance type within rurality and disability status, people who were uninsured in all four rurality and disability groups had lower probabilities of having a routine physical compared to their privately insured counterparts (ranging from 48.0%-66.1% vs 79.3%-88.3%). In addition, those with Original Medicare had lower predicted probabilities of having a routine physical compared to the privately insured among rural people without disabilities (62.5% vs 80.3%), urban people without disabilities (73.1% vs 79.3%), and urban people with disabilities (70.8% vs 83.0%). Those with some of the other insurance types had significantly higher probabilities of a routine physical compared to people who were privately insured. These included, among rural people without disabilities, people who were dual eligible (92.5%) and with other government insurance (85.6%, both compared to 80.3%), and among urban residents without disabilities, those with Medicare Advantage and those with other government insurance (both over 83% compared to 79.3% of those with private insurance). All reported differences were significant at $p<0.05$.

Table 4 shows the predicted probabilities of receiving a flu vaccination within the last year at the intersections of rurality, disability status, and health insurance while controlling for age. We find a few significant differences between rurality and disability groups within insurance types. Among privately insured, rural residents without disabilities had the lowest probability of being vaccinated for the flu (41.3%) compared to their urban without disabilities (52.5%), rural with disabilities (53.0%), and urban with disabilities (54.2%) counterparts. Among those with Medicaid, urban residents with disabilities had an almost 15 percentage point higher probability of flu vaccination compared to their rural counterparts without disabilities (52.3% vs 37.7%).

Examining across health insurance type within rurality and disability status, people who were uninsured within three of the four rurality and disability groups had much lower probabilities of flu vaccination compared to their privately insured counterparts, ranging

Table 3. Predicted Probability of Having a Routine Physical within the Last Year by Rurality, Disability Status, and Health Insurance, Controlling for Age

	Rural, no disability	Rural, with disability	Urban, no disability	Urban, with disability
Private	80.3%	88.3%[1]	79.3%	83.0%
Dual eligible	92.5%[2]	90.3%	81.7%	83.1%
Medicare Advantage	86.1%	85.5%	83.6%[2]	78.9%
Original Medicare	62.5%[2]	68.7%	73.1%[2]	70.8%[2]
Medicaid	82.9%	87.6%	79.5%	87.0%
Other government insurance	85.6%[2]	88.8%	83.5%[2]	89.3%[2]
Uninsured	48.0%[2]	66.1%[2]	49.6%[2]	58.3%[2]

[1] Significantly different from Rural, no disability comparison group within insurance category, $p<0.05$

[2] Significantly different from Private insurance comparison group within Rurality and Disability group, $p<0.05$

Table 4. Predicted Probability of Receiving a Flu Vaccination within the Last Year by Rurality, Disability Status, and Health Insurance, Controlling for Age

	Rural, no disability	Rural, with disability	Urban, no disability	Urban, with disability
Private	41.3%	53.0%[1]	52.5%[1]	54.2%[1]
Dual eligible	47.7%	41.8%	39.3%[2]	47.6%
Medicare Advantage	48.5%	47.1%	51.5%	48.9%
Original Medicare	37.1%	39.1%	42.8%[2]	41.6%[2]
Medicaid	37.7%	37.1%[2]	40.1%[2]	52.3%[1]
Other government insurance	48.1%	49.3%	55.1%	53.2%
Uninsured	19.1%	32.1%	22.9%[2]	25.3%[2]

[1] Significantly different from Rural, no disability comparison group within insurance category, $p<0.05$

[2] Significantly different from Private insurance comparison group within Rurality and Disability group, $p<0.05$

from over 19% - 25% without insurance compared to over 41% - 54% with private insurance. Rural people with disabilities with Medicaid had a 16-percentage point lower probability of flu vaccination compared to their counterparts with private insurance. Among urban people without disabilities, those with dual eligible status (39.3%), Original Medicare (42.8%), and Medicaid (40.1%) had significantly lower probabilities of flu vaccination compared to their counterparts with private insurance (52.5%). And among urban residents with disabilities, those with Original Medicare had lower probabilities of flu vaccination compared to their counterparts with private insurance (41.6% vs 54.2%). All reported differences were significant at $p<0.05$.

Discussion and Implications

Overall, we find that a lack of health insurance remains a barrier to having received a flu vaccination or routine physical within the past year, as people who were uninsured were much less likely to have received these preventive services, regardless of rurality or disability status. This indicates a key area for policy attention to ensure that all individuals receive high-quality care across rurality and disability status: health insurance availability and design. While preventive services tend to be covered by insurance, the out-of-pocket cost of these services without insurance may make it less likely for the uninsured to seek out preventive services.

We find mixed results by insurance status across rurality and disability status in the likelihood of having received a routine physical or flu vaccination. In some cases, individuals with disabilities had higher rates of receiving preventive care. For example, among the privately-insured, rural residents with disabilities were more likely than rural residents without a disability to have received a routine physical exam in the past year, and privately-insured rural residents without a disability were the least likely to have received a flu vaccination. As individuals with disabilities often have more complex health needs and more health-related appointments, this may increase the medical necessity of receiving these preventive services. They may be prompted by health care staff at a visit for another health service to schedule or take part in a preventive service, which could explain some of the higher rates.

Within rurality and disability groups, we find some differences in receipt of preventive services by insurance status among those insured as well. Among rural people without a disability as well as urban people with and without disabilities, those with Medicare were less likely than their privately-insured counterparts to have had a physical, but those in these groups insured by Other government insurers (e.g., not Medicare, Medicaid) were more likely to have had a physical compared to their counterparts with private insurance. Private insurance encompasses a wide range of plans and plan benefits, including high-deductible health plans (HDHP), which have seen increasing uptake in recent

years.[21] Preventive services are generally excluded from out-of-pocket expenses associated with HDHP, yet evidence shows that enrollment in HDHPs is associated with less use overall, including less use of preventive services. More research is needed to understand how HDHP is associated with quality of care, especially for rural residents with disabilities. In contrast, we found that among some urban residents with insurance but not privately insured, rates of flu vaccination remained lower than those with private insurance. More research is needed on barriers to receiving preventive services among those with public insurance coverage.

Conclusion

In this brief, we showed significant differences in quality of care, as measured by use of preventive services, by rurality, disability status, and insurance status. We find that people with disabilities and those with insurance are generally more likely to have had a routine physical and flu vaccination in the past year, regardless of rurality. Quality care is essential to promoting overall population health. To the extent that quality of care varies by rurality, disability, and insurance status – especially at the intersection of the three – more policy attention is required to ensure that people have access to the services they need.

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Suggested Citation

Henning-Smith C. Use of Preventive Services by Rurality, Disability Status, and Health Insurance, *UMN Rural Health Research Center Policy Brief*. January 2026. https://rhrc.umn.edu/publication/use-of-preventive-services-by-rurality-disability-status-and-health-insurance

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Funded by the Federal Office of Rural Health Policy
www.ruralhealthresearch.org

Support for this study was provided by the Federal Office of Rural Health Policy, Health Resources and Services Administration, Cooperative Agreement U1CRH03717-13-00. The information, conclusions, and opinions expressed are those of the authors, and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.

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