

Disparities in Access to Specialists Explain Higher Preventable Hospitalization and Mortality Rates for Rural Medicare Patients: Implications for Missouri

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Introduction

Rural Americans have poorer health outcomes and higher rates of adverse health outcomes such as preventable hospitalizations¹ and emergency department visits² than their urban counterparts. Additionally, the gap in mortality rates between rural and urban areas has grown substantially over time.^{3,4} Medicare beneficiaries who have complex chronic conditions are an especially vulnerable group that are more likely to experience poor health outcomes.

According to 2017 data from the Center for Disease Control, 33.8% of Missouri residents (2.07 million residents) live in rural areas.⁵ These rural Missourians have significantly lower access to care, are more likely to be uninsured, and have shorter life expectancies than urban Missourians.⁵ Understanding what factors account for poorer rural health outcomes could inform policy interventions and more efficiently target them towards reducing urban-rural disparities in health.

This research investigates risk factors among rural, micropolitan, and metropolitan Medicare beneficiaries age 65 or older, and the association of these factors with mortality and preventable hospitalizations.

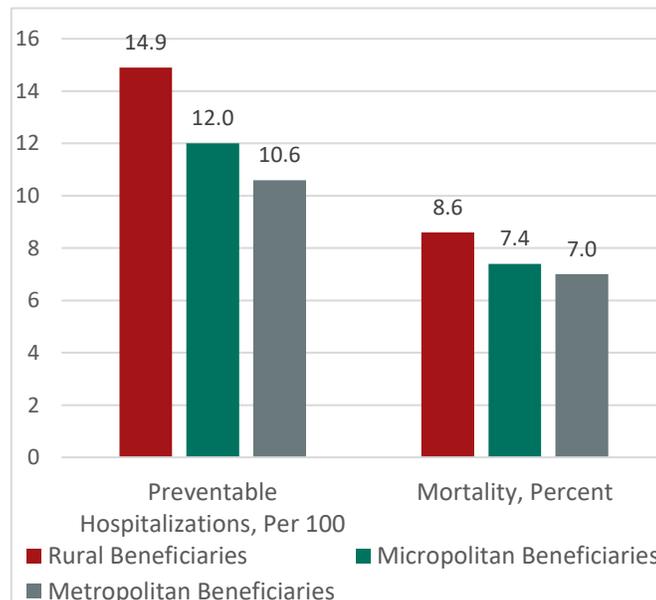
Data and Methods

Using 2006-2013 Medicare Current Beneficiary Survey data linked to claims and administrative data, we conducted a study of rural, micropolitan (town), and metropolitan (city) Medicare beneficiaries with complex chronic conditions to assess differences in patient risk factors, including demographics, health status, social risk factors, and quality and access to health care. To assess changes in outcomes, we compared data from a baseline year to the following year for each patient. Therefore, we report data on “patient years” rather than patients. Rurality status was defined according to Core-Based Statistical Area indicator codes determined by the US Census Bureau. Using statistical models, we analyzed the association and explanatory effect of these characteristics to the clinical outcomes of preventable hospitalization and mortality the following year.

Results

Our final study sample consisted of 66,585,996 patient years. In total, 11% were rural beneficiaries, 19% were micropolitan beneficiaries, and 70% were metropolitan beneficiaries. Rural residents experienced 40% higher preventable hospitalization rates and 23% higher mortality rates than their urban counterparts (Figure 1).

Figure 1: Preventable Hospitalization and Mortality Rates per 100 people



KEY FINDINGS

- Rural Medicare patients with complex chronic conditions had higher preventable hospitalization and mortality rates.
- Rural Medicare patients had less access to care by specialty health care providers, which was associated with adverse clinical outcomes.
- Access to care, specifically specialty care, explained a substantial portion of the difference in clinical outcomes between rural and urban beneficiaries.
- Expansion of access to key specialty health care providers and services may be particularly high-impact for Medicare beneficiaries with complex chronic conditions.
- Greater access to care may lower adverse clinical outcomes for rural populations.

POLICY BRIEF

Results (cont'd)

Having one or more visits with a specialist in addition to having visits with a primary care physician (PCP) was associated with 15.5% lower preventable hospitalization and 16.7% lower mortality rates relative to only having visits with a PCP (Figure 2). Demographics, medical status, functional status, and social factors were all also associated with the clinical outcomes.

Access to care factors explained 89% of the difference in probability of preventable hospitalization and 32% of the difference in mortality between rural and urban residents. The variable that explained most of the difference was the supply of specialists (included within the access to care variable). Access to specialists explained 55% of the difference in preventable hospitalization rates and 40% of the difference in mortality. Social risk factors explained 7% of the difference in preventable hospitalization and 12% of the difference in mortality.

In Missouri, rural areas have a lower supply of specialists compared to urban areas. Areas surrounding major cities such as St. Louis and Kansas City have greater specialist supply (Figure 3).⁶ No rural Missouri counties have a Level 1 Trauma Center, Pediatric Center, Stroke Center, or STEMI Center, and 55 counties in Missouri do not have a hospital.⁵

Policy Implications

Rural Medicare beneficiaries age 65 and older with complex chronic conditions had higher preventable hospitalization and mortality rates than their urban peers. Access to care, and particularly a lack of access to specialists, explained a substantial portion of the difference in clinical outcomes between rural and urban beneficiaries.

We did not find differences in primary care access between rural and urban areas and did not find primary care access to be a driver of outcome disparities. Although current policy recommendations for reducing rural health disparities are targeted at increasing access to primary care,^{7,8} these may be unlikely to reduce rural health disparities on their own. Multiple studies have found that regular treatment by specialist physicians is associated with better quality of care and reduced risk of death or hospitalization for individuals with chronic conditions.⁹⁻¹²

For Missouri, improving infrastructure for transportation and telehealth may help increase access to care. Expanding HealthTran, which provides affordable transportation services for rural South Central Missourians, could reduce costs and improve outcomes for more rural patients.¹³ Investing in programs like Show-Me ECHO, which connects rural PCPs with experts, could also help increase specialty care for rural Missourians.¹⁴

Overall, our results have implications for Missouri health policy and suggest that interventions to increase access to specialty care may be particularly high-impact among Medicare beneficiaries age 65 and older.

Figure 2: Specialist and PCP Visits and Clinical Outcomes (relative to having ≥1 PCP Visit and No Specialist Visit)

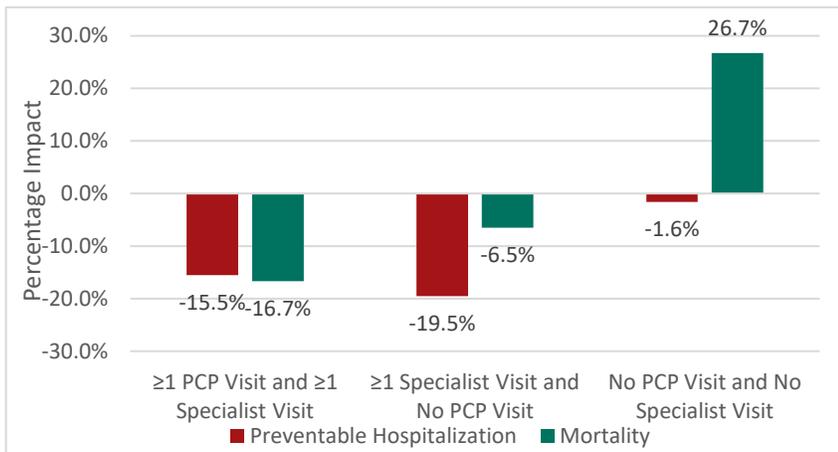
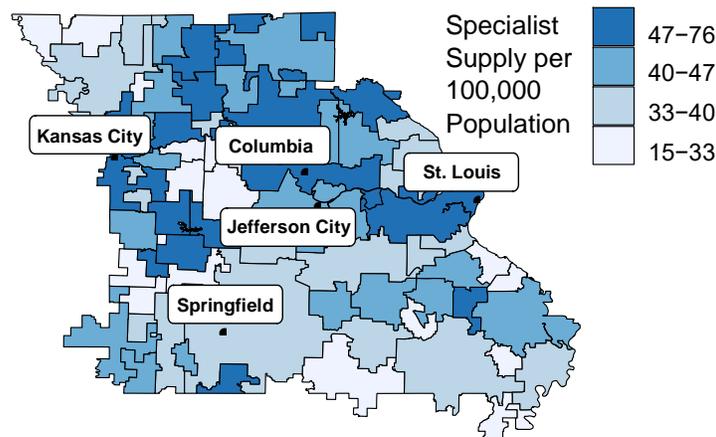


Figure 3: Specialist Supply in Missouri



1) Laditka JN, Laditka SB, Probst JC. *Health Place*. 2009;15:761-770. 2) Greenwood-Erickson MB, Koehler K. *JAMA Netw Open*. 2019;2(4):e191919. 3) Singh GK, Siahpush M. *J Urban Heal*. 2014;91(2):272-292. 4) Spencer JC, Wheeler SB, Rotter JS, Holmes GM. *Health Serv Res*. 2018;53(6):4310-4331. 5) Missouri Department of Health and Senior Services. Missouri Office of Rural Health's Biennial Report 2018-2019. 6) The Dartmouth Institute for Health Policy and Clinical Practice. Hospital and Physician Capacity (2011). 7) Bolin JN, Bellamy GR, Ferdinand AO, et al. *J Rural Heal*. 2015;31(3):326-333. 8) Bodenheimer T, Pham HH. *Health Aff*. 2010;29(5):799-805. 9) Johnston KJ, Hockenberry JM. *Health Serv Res*. 2016;51(6):2176-2205. 10) Ansari M, Alexander M, Tutar A, Bello D, Massie BM. *J Am Coll Cardiol*. 2003;41(1):62-68. 11) Smetana GW, Landon BE, Bindman AB, et al. *Arch Intern Med*. 2007;167(1):10-20. 12) Ezekowitz J, van Walraven C, McAlister F, et al. *CMAJ*. 2005;172(2):189-194. 13) Rural Health Information Hub. 2018. Health Tran. 14) University of Missouri. 2019. Extending Specialty Care into Primary Care.

For more information, see published article in *Health Affairs*: Kenton J. Johnston, Hefei Wen, and Karen E. Joynt Maddox. *Health Affairs* 2019 38:12, 1993-2002. Lack Of Access To Specialists Associated With Mortality And Preventable Hospitalizations Of Rural Medicare Beneficiaries. *Health Affairs* 2019 38:12, 1993-2002. <https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2019.00838>

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