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Research Paper

Rural disparities in receipt of colorectal cancer screening among adults ages 50–64 with disabilities

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Abstract

Background: Colorectal cancer is the third leading cause of cancer deaths in the United States. Early detection can reduce mortality; however, only 59% of U.S. adults age 50 and over meet recommended colorectal cancer screening guidelines. Studies in the general population have observed that rural residents are less likely to have received colorectal cancer screening than residents of urban areas.

Objective: To determine whether urban/rural disparities in colorectal cancer screening exist among people with disabilities, similar to the disparities found in the general population.

Methods: We analyzed Medical Expenditure Panel Survey annual data files from 2002 to 2008. We conducted logistic regression analyses to examine the relationship between urban/rural residence and ever having received screening for colorectal cancer (via colonoscopy, sigmoidoscopy, or fecal occult blood test).

Results: Among U.S. adults ages 50–64 with disabilities, those living in rural areas were significantly less likely to have ever received any type of screening for colorectal cancer. The urban/rural difference was statistically significant regardless of whether or not we controlled for demographic, socioeconomic, health, and health care access variables.

Conclusions: Disparity in screening for colorectal cancer places rural residents with disabilities at greater risk for late stage diagnosis and mortality relative to people with disabilities in urban areas. Thus, there is a need for strategies to improve screening among people with disabilities in rural areas.

Keywords: People with disabilities; Cancer screening; Rural population; Health care disparities; Population surveillance

Colorectal cancer is the third most common cancer diagnosed among men and women in the United States, and the third leading cause of cancer deaths.[1] Despite recent reductions in both incidence and mortality, an estimated 50,310 deaths due to colon cancer were expected in the U.S. during 2013.[2] Early detection by sigmoidoscopy, colonoscopy or fecal occult blood testing and removal of pre-cancerous polyps can prevent both the development of colorectal cancer and mortality.[3–7] There is evidence that increased screening for colorectal cancer has driven the observed reduction in mortality.[8–10] However, colorectal cancer screening rates remain suboptimal, with only 59% of U.S. adults age 50 and over being current with recommended screening guidelines.[1]

Prevalence of screening is lower among people ages 50–64 than it is for older adults, and screening is particularly low among individuals who have limited English proficiency or are non-white, poor, less educated, or uninsured.[1,11–15] Screening also varies by region of the U.S. (especially for non-whites) and by gender and marital status.[11,16,17] Obesity and chronic conditions such as diabetes increase the risk for colorectal cancer.[18–21] Further, individuals with chronic health problems tend to interact with health care providers more frequently and hence may be more likely to receive timely recommendations for colorectal cancer screening.[22] The importance of the physician role is underscored by findings that individuals without a usual source of health care (even if insured) are less likely to receive regular preventive screenings.[23]

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Studies in the general population have observed that rural residents are less likely to have received colorectal cancer screening than residents of urban areas.[24–26] Though rural communities are variable, overarching differences in demographics, socioeconomic status, health, and access to health care may contribute to screening disparities.[27] Barriers to health care experienced by rural Americans may be exacerbated by disability.[28] Similarly, health care barriers encountered by people with disabilities may be compounded by the restrictions of a rural environment (e.g. greater distance to providers, less public transportation, fewer specialists, and limited availability of providers with appropriate training and competence in caring for patients with disabilities).[28] The proportion of people living with a disability is higher in rural areas,[29] yet few studies have examined health care access and utilization in rural populations with disabilities. The studies that have been published indicate substantial impediments to primary care and reduced receipt of breast and cervical cancer screening among rural residents with disabilities.[28,30] However, the impact of rural residence on colorectal cancer screening for individuals with disabilities has not yet been examined.

The goal of the present study was to determine whether urban/rural disparities in colorectal cancer screening, similar to those found in the general population, exist among people with disabilities. Disparity can be defined in a variety of ways. One approach is to consider any difference between groups to be evidence of disparity. In analysis terms, this definition is represented by unadjusted models of group differences without controlling for any other variables. This approach has been used by the Agency for Healthcare Research and Quality in reports of health care disparities[31] and by the Centers for Disease Control and Prevention in the recent *CDC Health Disparities and Inequalities Report*.[32]

A different approach was presented in the Institute of Medicine (IOM) report, *Unequal Treatment*, which defined racial health care disparities as differences in treatment not justified by underlying health conditions or patient preferences.[33] This approach is rooted in the concept of equity. Therefore, rather than merely examining simple differences between groups, adjustments for health and patient preferences should be made to the extent possible in analyses of health care disparities. The IOM definition does not suggest controlling for socioeconomic status (SES) because doing so may underestimate the disparities experienced by groups who have disproportionately low SES. However, the IOM report did acknowledge the important role of SES as a mediator of health care disparities.[33]

A related approach used by many analysts is to control for as many variables associated with group differences as possible, with any remaining difference attributable to the primary independent variable being considered evidence of disparity.[34–36] The disparity identified by this approach was referred to by McGuire et al[37] as the residual direct effect (RDE). Importantly, RDE models typically account for SES and other social determinants of health to the extent possible. The RDE strategy seeks to clarify what differences exist between groups that are not explained by other factors.

Rural and urban residents with disabilities differ on a number of demographic, socioeconomic, health care access, and health condition variables that may be associated with receipt of colorectal cancer screening.[38] We therefore decided to use an RDE approach and control for these variables in our analysis of disparity in colorectal cancer screening between urban and rural residents with disabilities.

Methods

Data source

The Medical Expenditure Panel Survey (MEPS) is administered by the Agency for Healthcare Research and Quality (AHRQ) to collect data regarding health care use and expenditures. Participating households are selected for inclusion in the MEPS from a subsample of the previous year's National Health Interview Survey. Data are derived from in-person interviews and weighted to be nationally representative. Panel members are interviewed five times across a two year period.[39,40] AHRQ creates full-year consolidated files that include data from two consecutive panels, weighted to provide annualized estimates for the U.S. population. We conducted cross-sectional analyses of pooled full-year consolidated files for the years 2002–2008.

Sample

Our pooled MEPS data file included 12,472 people with disabilities who were 50–64 years of age. Presence of disability was defined based on an affirmative response to one or more items reflecting difficulty with basic actions.[41] These included any limitation in physical functions such as walking, lifting, standing, bending, reaching, or grasping; cognitive limitations such as confusion or memory loss or difficulty making decisions; and any degree of difficulty with vision or hearing. These categories are similar to broad functional categories described in the International Classification of Functioning, Disability and Health (ICF).[42] Our method of operationalizing disability is imperfect in that the data source did not allow assessment of the interaction of functional limitations with environmental supports and barriers. However, basing disability on self-reported activity limitations is typical in analyses of population-based survey data (e.g., Refs.[41,43,44]).

We limited our analyses to individuals older than 50 years based on the U.S. Preventive Services Task Force (USPSTF) recommendation that only those 50 years or older receive routine colorectal cancer screening.[45] In the