

Research Paper

Trends in colorectal cancer screening over time for persons with and without chronic disability

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Abstract

Background: Persons with disabilities have often experienced disparities in routine cancer screening. However, with civil rights protections from the 1990 Americans with Disabilities Act, such disparities may diminish over time.

Objective: To examine whether disability disparities exist for colorectal cancer screening and whether these screening patterns have changed over time.

Methods: We analyzed National Health Interview Survey responses from civilian, non-institutionalized U.S. residents 50–75 years old from selected years between 1998 and 2010. We specified 7 chronic disability indicators using self-reported functional impairments, activity/participation limitations, and expected duration. Separately for women and men, we conducted bivariable and multivariable logistic regression analyses examining associations of self-reported colorectal cancer screening services with sociodemographic factors and disability type.

Results: Patterns of chronic disability differed somewhat between women and men; disability rates generally rose over time. For both women and men, colorectal cancer screening rates increased substantially from 1998 through 2010. Over time, relatively few statistically significant differences were reported in colorectal cancer screening rates between nondisabled persons and individuals with various disabilities. In 2010, reported screening rates were generally comparable between nondisabled and disabled persons. In the few statistically significant differences, persons with disabilities almost always reported higher colorectal cancer screening rates than nondisabled individuals.

Conclusions: According to national survey data, reported use of colorectal cancer screening is similar between nondisabled persons and individuals with a variety of different disability types. Despite physical demands of some colorectal cancer screening tests, disparities do not appear between populations with and without disability. © 2016 Elsevier Inc. All rights reserved.

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For nearly two decades, *Healthy People* initiatives sponsored by the Office of Disease Prevention and Health Promotion in the U.S. Department of Health and Human Services and other federal agencies have included persons with disability among populations at risk of experiencing health care disparities.^{1,2} These assessments have focused largely on tests recommended by the U.S. Preventive Services Task Force (USPSTF), such as routine cancer screening.³ In addition to *Healthy People* analyses, multiple studies and other public reports have documented disparities in mammography and Pap test screening between women with and without disability, although the extent of

these disparities varies by specific disability type and some findings are contradictory.⁴

Although screening for colorectal cancer receives an A-level endorsement from USPSTF,³ far fewer studies have examined disability disparities for this service.⁵ Changes in the types of tests used to detect colorectal cancers over time can complicate these analyses.⁶ Those studies that have compared colorectal screening for disabled and nondisabled populations have sometimes produced somewhat surprising findings.^{7–10} Some studies have found roughly equivalent colorectal cancer screening rates across persons with and without disability,^{8,9} while others have identified significant differences but sometimes for only subgroups of persons with disability.¹¹ Occasionally these differences involve persons with disability having lower colorectal cancer screening rates than nondisabled persons.¹¹ But in other studies, individuals with disability have higher colorectal cancer screening rates than nondisabled persons.^{7,8,10}

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These findings are surprising because of the physical demands of some colorectal cancer screening tests,^{5,9} particularly the bowel preparation required before colonoscopy. In a qualitative study of primary care and persons with disabilities, some interviewees with significant physical disability mentioned this concern.¹² For example, Connie, who uses a power wheelchair because of muscular dystrophy, was scheduled for a routine screening colonoscopy as recommended by USPSTF, but she could not manage the bowel “cleanout” regimen at home. Her physician hospitalized her the night before the colonoscopy to assist with this process, but as Connie reported:

I called the hospital in advance. I told them specifically what I needed: an egg-crate mattress and padded commode seat. They said there was no problem, but when I came in, they had none of it. I had to make a special trip back home to get what I needed. I brought back my PCA [personal care assistant] to train the nightshift how to transfer me. I had to bring in my own mattress and commode. I did all the work.¹²

Other screening tests — such as fecal occult blood testing (FOBT) are less physically burdensome. Thus, it is possible that observed higher cancer screening rates among persons with disability might be explained by greater use of FOBT for screening in this population. No prior studies have compared screening rates by type of colorectal cancer screening test.

This study examined trends in colorectal cancer screening from 1998 to 2010 for persons with versus without chronic disability. Drawing upon findings from other studies,^{6,13,14} our first hypothesis was that colorectal cancer screening has increased since 1998 for all persons in the target age group, including individuals with disability. Also based on the literature, our second hypothesis was that persons with disability had comparable screening rates as nondisabled persons (a null hypothesis). Finally based upon the differing physical burden of various colorectal cancer screening tests, we explored whether relative screening rates between persons with versus without disability vary by the type of test (e.g., FOBT versus colonoscopy).

Materials and methods

Because we used de-identified data, the Massachusetts General Hospital-Partners HealthCare Institutional Review Board exempted this study from oversight.

Data

We accessed NHIS Public Release data from the National Center for Health Statistics (NCHS) website, downloading information from years that included supplemental questionnaires on cancer screening services recommended by the USPSTF: 1998, 2000, 2003, 2005, 2008, and 2010. The NHIS

Basic Module includes Family Core, Sample Adult Core, and Sample Child Core questionnaires. The Family Core gathers information on all family members in sampled households. One randomly selected adult (age ≥ 18) receives the Sample Adult Core survey, which asks more details about health and functional status and the supplemental questions about cancer screening. A knowledgeable adult family member provides proxy responses when the randomly sampled adult is unavailable (e.g., not home) or physically or mentally unable to participate. NHIS oversamples black and Hispanic populations and since 2006 has oversampled Asians. By using NHIS sampling weights, analyses produce nationally representative estimates for civilian, non-institutionalized U.S. residents.

Chronic disability indicators

As described elsewhere,¹⁵ we developed our chronic disability measures starting with algorithms specified at NCHS.¹⁶ These algorithms take responses from Sample Adult Core “Adult Health Status and Limitations” questions about “difficulties” performing various functions “without using any special equipment” because of “any physical, mental, or emotional problem or illness (not including pregnancy).” Combining responses from different questions produces 7 disability indicators within two broad categories, as follows:

Basic Action Difficulties (BADs)

- Movement difficulty: walking, standing, stair climbing, sitting, stooping, reaching, grasping, or carrying “somewhat difficult,” “very difficult” or “can’t do at all”
- Sensory (hearing or seeing) difficulty: trouble seeing even when wearing glasses or contact lenses or blind/ unable to see at all; deaf or a “lot of trouble” hearing without a hearing aid
- Emotional difficulty: sad, nervous, restless, hopeless, “everything was an effort,” and worthless feelings in the past 30 days
- Cognitive difficulty: limited in any way because of difficulty remembering or because of periods of confusion

Complex Activities Limitations (CALs)

- Self-care limitation: difficulty with any component of activities of daily living (ADLs) or instrumental ADLs (IADLs)
- Social limitation: going out, participating in social activities or relaxing “somewhat difficult,” “very difficult” or “can’t do at all”
- Work limitation: cannot work at a job or business or limited in the kind or amount of work because of physical, mental or emotional problem

The 7 disability indicators are conceptually not mutually exclusive (e.g., individual BADs might contribute to CALs). We subdivided movement difficulties into 5 severity levels

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