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A Pilot Study to Examine Colorectal Cancer Screening in Two Assisted Living Communities

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To the Editor: Colorectal cancer (CRC) is a leading cause of cancer death.¹ Current guidelines for CRC screening recommend universal screening for adults ages 50-75,¹ From ages 76-85, screening decisions should be based on health status and personal values. After age 85, screening is not recommended given lack of benefit.^{1,2} However, studies of adults living independently and in nursing homes have shown inappropriate CRC screening (overuse and underuse) in all age ranges.³⁻⁵ Whether CRC screening rates for individuals in assisted living (AL) communities—who are less impaired than those in nursing homes—are inappropriate is unknown. To explore CRC screening in AL, we conducted interviews and chart review of a cross-sectional sample in two AL communities in central North Carolina.

METHODS

This study included residents ages 50-90 recruited during the summer of 2012 who had no history of colon cancer or irritable bowel disease. Consent was obtained from residents or, for those residents with dementia, their family members. The study consisted of an interview with either the AL resident or a family member and a review of the resident's AL site and primary care provider (PCP)'s chart. Subjects provided basic demographic and health information. Residents were placed in 3 health status categories using the Charlson

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Comorbidity Index (CCI) score modified by age, as used in prior work examining the appropriateness of CRC screening.⁶ Additional information included the resident's CRC screening history and the most recent results of any colonoscopy, fecal occult blood test (FOBT), or sigmoidoscopy. We compared CRC screening rates across health status categories, using the Cochran-Armitage χ^2 test for trend using SAS software, version 9.2 (SAS Institute, Cary, North Carolina) and Stata/SE, version 10.0 (StataCorp, College Station, Texas).

RESULTS

Of 153 eligible residents, 93(61%) participated, (62% by family proxy). Based on the modified CCI, 24 (26%) residents were in good health, 13 (14%) in intermediate health, and 56 (60%) in poor health. The mean age of the residents and family members was 79.2 years and 58.2 years respectively. Most residents were women (69%) and racially and educationally diverse (e.g., 45% Black/African American; 39% some college).

Colorectal cancer screening history and likelihood of benefit

As shown in Figure 1a, 30 residents (32%) had never received CRC screening. There was no association between health status and having ever been screened ($p=0.63$). Sixteen residents (17%) had had a colonoscopy, 17(18%) had had a FOBT, 20 (22%) had had both, and 10 (11%) had another combination. Overall, 28 (30%) were up-to-date with CRC screening (Figure 1b), with those in good health significantly more likely to be up-to-date than others ($p=0.011$). However, 21% of those in poor health were up-to-date with screening. Most who were up-to-date had had a colonoscopy in the past 10 years (15 of 27 residents). The two AL communities did not differ significantly in the number of residents who had ever been screened (64% v. 71%, $p=0.66$), but did differ in the number of residents up-to-date with screening (19% v. 39%, $p=0.04$) and health status (74% v. 37% in poor health, $p=0.002$).

DISCUSSION

In this pilot study, about half of the AL residents were no longer receiving CRC screening and only 29% were up-to-date with screening, suggesting room for improvement. Screening rates for the healthiest older adults (50%) were similar to rates in non-AL community dwelling adults reported elsewhere,³ providing evidence of under-screening. Contrary to research in other populations,^{7,8} we found significant differences in screening by health, such that healthier individuals were more likely to be up-to-date with screening. However, 20% of those unlikely to benefit and in poor health continued to be screened, providing evidence of over-screening.

This study is limited by its small sample size and its findings are not generalizable. However, we chose sites with diverse populations purposefully to increase variability, and found that problems with appropriate screening at both sites. Other than possible regional variability, it seems likely that inappropriate rates of being up-to-date with screening are typical of this population. Further work should examine CRC screening rates and other preventive services on a larger scale in AL communities, to confirm the generalizability of these findings and explore the reasons for the overuse and underuse of screening.

Acknowledgments

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REFERENCES

1. Force USPST. Screening for colorectal cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2008; 149:627–637. [PubMed: 18838716]
2. Walter LC, Covinsky KE. Cancer screening in elderly patients: A framework for individualized decision making. *JAMA.* 2001; 285:2750–2756. [PubMed: 11386931]
3. Bellizzi KM, Breslau ES, Burness A, et al. Prevalence of cancer screening in older, racially diverse adults: still screening after all these years. *Arch Intern Med.* 2011; 171:2031–2037. [PubMed: 22158573]
4. Kistler CE, Kirby KA, Lee D, et al. Long-term outcomes following positive fecal occult blood test results in older adults: Benefits and burdens. *Arch Intern Med.* 2011; 171:1344–1351. [PubMed: 21555655]
5. Schonberg MA, Leveille SG, Marcantonio ER. Preventive health care among older women: Missed opportunities and poor targeting. *Am J Med.* 2008; 121:974–981. [PubMed: 18954844]
6. Katz JN, Chang LC, Sangha O, et al. Can comorbidity be measured by questionnaire rather than medical record review? *Med Care.* 1996; 34:73–84. [PubMed: 8551813]
7. Walter LC, Lindquist K, Nugent S, et al. Impact of age and comorbidity on colorectal cancer screening among older veterans. *Ann. Intern. Med.* 2009; 150(7):465. [PubMed: 19349631]
8. Carlson CM, Kirby KA, Casadei MA, et al. Lack of follow-up after fecal occult blood testing in older adults: Inappropriate screening or failure to follow up? *Arch Intern Med.* 2011; 171:249–256. [PubMed: 20937917]

a

Figure 1a.
CRC Screening by Type of Screening Test and Health Status

b

Figure 1b.
CRC Screening by Type of Screening Test and Health Status