



BRIEF ANSWERS
TO SPECIFIC
CLINICAL
QUESTIONS

Q: At what age should we discontinue colon cancer screening in the elderly?

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A: In general, you should stop screening for colorectal cancer when you do not expect the patient to live 7 to 10 more years. However, the full answer is more complicated.

There are clear recommendations about when to begin screening,¹ but not about when to stop. Most clinical trials have focused on the benefit of screening in younger patients, and many trials excluded patients older than 70 years. Thus, clinicians have to extrapolate the data for their older patients.²

In addition to the patient's age, we need to consider his or her functional status and comorbidities. The risks and possible benefits of colonoscopy should be discussed with the patient, and his or her preferences should be taken seriously.

The discussion below provides a framework for advising elderly patients about their individual benefit from colon cancer screening.

■ GUIDELINES ADVOCATE SCREENING

Colon cancer is the second-leading cause of cancer death in the general public, including in the elderly.³ Its prevalence in people 80 years and older is approximately 4%.^{4,5} Its incidence increases with age, is higher in African Americans than in whites, and is higher in men than in women. The overall incidence in people 85 years and older is 416 cases per 100,000, ranging from 393 per 100,000 in white women to 521 per 100,000 in African American men.⁶

Most guidelines advocate some method of screening (flexible sigmoidoscopy, fecal occult blood testing, double-contrast barium enema, colonoscopy) in adults over the age of 50 at average risk. Although definitive evidence is lacking, most experts consider colonoscopy to be superior to other screening methods because, unlike flexible sigmoidoscopy, it allows one to view the entire colon, and unlike the noninvasive methods, it allows one to take biopsy specimens immediately.

■ BUT DO ELDERS BENEFIT?

The prevalence of all types of colonic neoplasia increases with age: 13.8% in people 50 to 54 years old, 26.5% in people 70 to 79 years old, and 28.6% in people 80 years and older in one cross-sectional study.^{4,5} However, screening may not detect very many cases of carcinoma in older people who have no symptoms, or even in those with changes in bowel habits.

This low diagnostic yield was demonstrated in a study of 1,199 colonoscopies in people 80 years of age and older. Of 86 colonoscopies done in people without symptoms and not for surveillance of known polyps, two (2.3%) revealed advanced adenomas (defined as polyps larger than 1 cm, or having a villous component, or any degree of dysplasia), and none revealed cancer. Advanced adenoma and cancer were much more common in elderly patients with symptoms than in those without symptoms (**FIGURE 1**).⁷

Moreover, although colonoscopy is fairly safe for elderly patients, the risk of complications may be higher than in younger adults. Although the risk of perforating the colon was less than 0.5% in patients 75 years and older

We have firm guidelines about when to start screening, but not when to stop

'Positive' colonoscopies in people 80 years and older

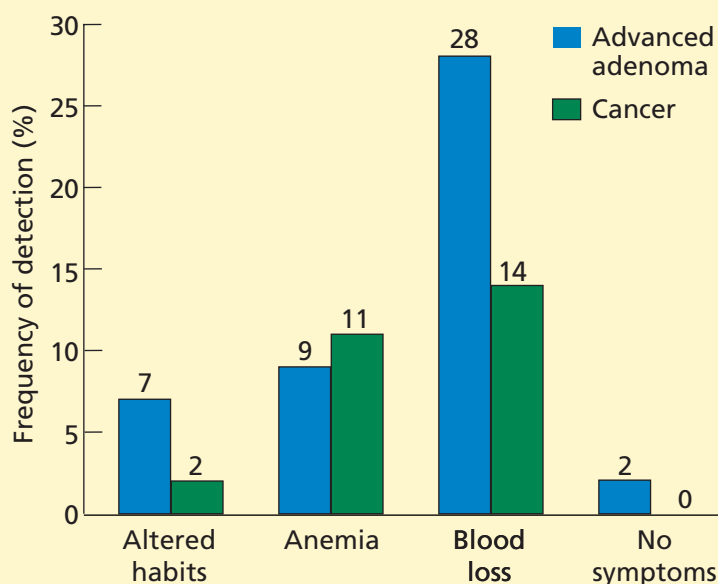


FIGURE 1. Colonoscopies reveal more cases of advanced adenoma and cancer in patients with symptoms than in those without symptoms. Blood loss includes hematochezia and occult blood loss.

ADAPTED FROM DUNCAN JE, SWEENEY WB, TRUDEL JL, MADOFF RD, MELLGREN AF. COLONOSCOPY IN THE ELDERLY: LOW RISK, LOW YIELD IN ASYMPTOMATIC PATIENTS. DIS COLON RECTUM 2006; 49:646-651.

in a study of 39,286 colonoscopies, it was still four times the risk in patients in the 65 to 69 age range.⁸ The risk of perforation in patients with two or more comorbidities was also nearly four times that in patients without comorbidity. Other patients at significantly higher risk of perforation were those with preexisting bowel conditions such as diverticulosis or inflammatory bowel disease.

Failure to reach the cecum is also more common in patients 80 years and older than in those younger than 80 years. This difference may be due to a higher frequency of inadequate bowel preparation and impassable strictures in this age group.⁹

■ WHEN DO THE RISKS EXCEED THE BENEFITS?

To determine the efficacy of a screening tool, the clinician needs to know the “number needed to treat”—or, in this case, the “number

needed to screen” to benefit one patient. When this number is larger than the number needed for a complication to occur, the risk outweighs the benefit. For patients older than 75 who have significant comorbidities and functional impairments that place them in the lowest quartile of life expectancy of their age group (discussed below), the risks of colonoscopy screening may outweigh the benefits.¹⁰

Clinicians may try to individualize colon cancer screening by balancing the likelihood of finding polyps and the time for neoplastic transformation of a polyp against the patient’s estimated remaining life expectancy. Given that few polyps transform into cancer in less than 10 years,¹¹ patients with a life expectancy less than 7 to 10 years may not benefit from detection and removal of precancerous polyps.

Estimating life expectancy

Although there are a variety of tools for calculating life expectancy, including one that relates the number of major comorbidities to the remaining life expectancy should cancer be found,¹² most do not incorporate functional disability, which is a major predictor of death in the very old.

A useful predictor is simply the physician’s subjective estimate of the patient’s health: excellent, average, or poor. Elderly patients in poor health include those with severe heart failure, end-stage renal disease, advanced chronic pulmonary disease, dementia, or severe functional dependencies in activities of daily living.¹³ Those who do not have any of these conditions and are relatively healthy may be in average health. As an example of an elderly patient in excellent health, Walter and Covinsky¹³ describe an 80-year-old woman with no health problems who walks 3 miles a day and cares for her older sister.

FIGURE 2 shows the 25th, 50th, and 75th percentiles of life expectancy for women and men by age.¹³

We could “guesstimate” that an 85-year-old woman in excellent health is in the upper end of the range of life expectancy for her age—let’s say the 75th percentile. Since from these data, she may well live another 10 years, it may be appropriate to offer her colon cancer

Life expectancy by age

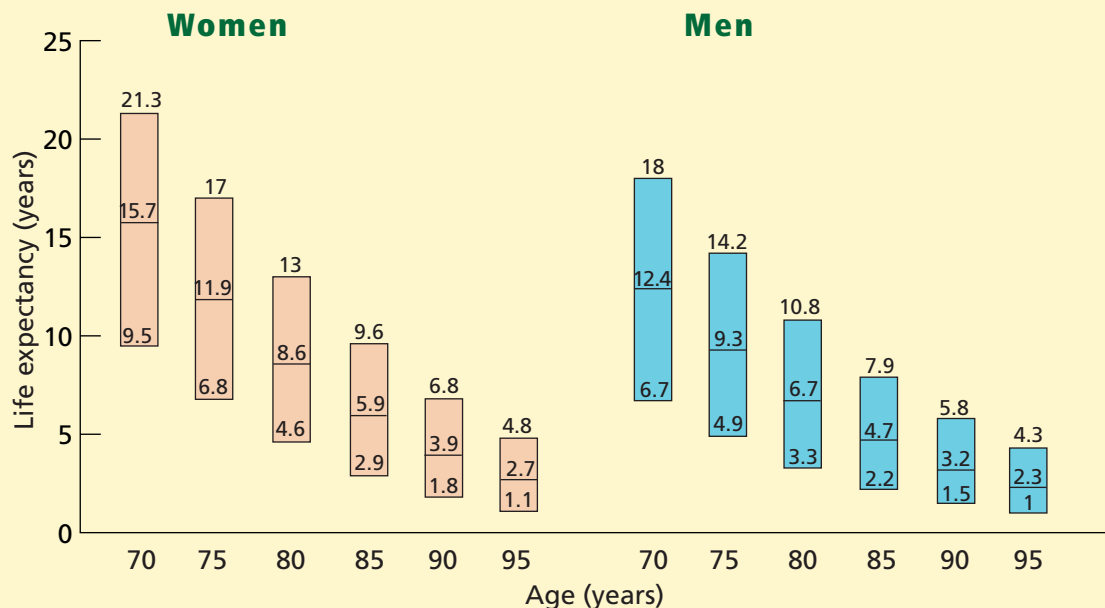


FIGURE 2. 75th (top number), 50th (middle), and 25th (bottom) percentiles of life expectancy by age and sex in the United States.

ADAPTED FROM WALTER LC, COVINSKY KE. CANCER SCREENING IN ELDERLY PATIENTS: A FRAMEWORK FOR INDIVIDUALIZED DECISION MAKING. JAMA 2001; 285:2750-2756.

screening. On the other hand, a 75-year-old man in poor health with impaired function has less than a 5-year life expectancy and may not be a good candidate.

■ IMPORTANT CONSIDERATIONS

The above discussion provides a framework for deciding whether an elderly patient should undergo colonoscopy screening. Important considerations are:

- **The patient's functional status and comorbidities and the clinician's estimate of the overall health status.** There is no benefit to removing a precancerous polyp if the patient's life expectancy is less than the time required for the polyp to turn into cancer. If, on the other hand, the patient is in exceptional health and has a high functional status, she or he is likely to live longer than the polyp lag time, and screening would be reasonable.

- **Is the patient's functional status likely to improve after colonoscopy?** One of the cornerstones of geriatric medicine is to provide patients

with treatment to improve function. If a highly functional elderly patient were to undergo colonoscopy and have a precancerous polyp removed, thereby avoiding future extensive surgery and debilitating treatments, one could argue that the screening test improved later function.

- **Colonoscopy is relatively safe.** However, the risk of complications is greater in the elderly, in patients with comorbidities, and in patients with preexisting bowel disease.

- **Does the patient have hematochezia or occult blood loss?** In such cases, colonoscopy is not a screening test but rather a diagnostic test. Colonoscopies performed in patients with symptoms are more likely to find colorectal disease than colonoscopies performed in patients without symptoms. If an older patient can tolerate the diagnostic procedure and is a candidate for intervention should disease be found, then colonoscopy should proceed. ■

ACKNOWLEDGMENT: We gratefully acknowledge input from Dr. Tyler Stevens, MD, Department of Gastroenterology and Hepatology, Cleveland Clinic.

An 85-year-old woman in excellent health has a life expectancy of nearly 10 years

■ REFERENCES

1. **Smith RA, von Eschenbach AC, Wender R, et al, ACS Prostate Cancer Advisory Committee, ACS Colorectal Cancer Advisory Committee, ACS Endometrial Cancer Advisory Committee.** American Cancer Society guidelines for the early detection of cancer: update of early detection guidelines for prostate, colorectal, and endometrial cancers. Also: Update 2001—testing for early lung cancer detection. *CA Cancer J Clin* 2001; 51:38–75.
2. **Walter LC, Lewis CL, Barton MB.** Screening for colorectal, breast, and cervical cancer in the elderly: a review of the evidence. *Am J Med* 2005; 118:1078–1086.
3. **CDC/NCHS.** Adult mortality by cause: US/State, 1999–2003 (Source: National Vital Statistics System) [Internet]. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. Last accessed 09/07/2006.
4. **Lin OS, Kozarek RA, Schembre DB, et al.** Screening colonoscopy in very elderly patients: Prevalence of neoplasia and estimated impact on life expectancy. *JAMA* 2006; 295:2357–2365.
5. **Stevens T, Burke CA.** Colonoscopy screening in the elderly: when to stop? *Am J Gastroenterol* 2003; 98:1881–1885.
6. **Surveillance, Epidemiology, and End Results (SEER) Program.** SEER*Stat Database: Incidence - SEER 17 Regs Public-Use, Nov 2005 Sub (2000–2003), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch. www.seer.cancer.gov, released April 2006, based on the November 2005 submission.
7. **Duncan JE, Sweeney WB, Trudel JL, Madoff RD, Mellgren AF.** Colonoscopy in the elderly: low risk, low yield in asymptomatic patients. *Dis Colon Rectum* 2006; 49:646–651.
8. **Gatto NM, Frucht H, Sundararajan V, Jacobson JS, Grann VR, Neugut AI.** Risk of perforation after colonoscopy and sigmoidoscopy: a population-based study. *J Natl Cancer Inst* 2003; 95:230–236.
9. **Arora A, Singh P.** Colonoscopy in patients 80 years of age and older is safe, with high success rate and diagnostic yield. *Gastrointest Endosc* 2004; 60:408–413.
10. **Ko CW, Sonnenberg A.** Comparing risks and benefits of colorectal cancer screening in elderly patients. *Gastroenterology* 2005; 129:1163–1171.
11. **Stryker SJ, Wolff BG, Culp CE, Libbe SD, Ilstrup DM, MacCarty RL.** Natural history of untreated colonic polyps. *Gastroenterology* 1987; 93:1009–1013.
12. **Gross CP, McAvay GJ, Krumholz HM, Paltiel AD, Bhasin D, Tinetti ME.** The effect of age and chronic illness on life expectancy after a diagnosis of colorectal cancer: implications for screening. *Ann Intern Med* 2006; 145:646–653.
13. **Walter LC, Covinsky KE.** Cancer screening in elderly patients: a framework for individualized decision making. *JAMA* 2001; 285:2750–2756.

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