

## CLINICAL INQUIRIES

# How does colonoscopy compare with fecal occult blood testing as a screening tool for colon cancer?

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### EVIDENCE-BASED ANSWER

No studies have directly compared colonoscopy with fecal occult blood testing (FOBT). Multiple screening trials have demonstrated that a primary strategy of 3-card home FOBT with follow-up colonoscopy for positive results is associated with a significant reduction in mortality from colorectal cancer (strength of recommendation [SOR]: **A**, based on systematic reviews of randomized and nonrandomized controlled trials). A single negative office-based digital FOBT does not decrease the

likelihood of advanced neoplasia (SOR: **B**, based on a single prospective cohort study).

There are no publications of screening trials with colonoscopy, but the odds of dying from colorectal cancer are lower for patients undergoing colonoscopy compared with patients not having a colonoscopy (SOR: **B**, based on extrapolation from a case-control study). Both strategies are cost-effective (SOR: **A**, based on a systematic review of high-quality cost-effective analyses).

### CLINICAL COMMENTARY

**For those at average risk, consider patient preference, likelihood of adherence to follow-up, community resources**

While a clear answer does not emerge for a preferred strategy for colorectal cancer screening between FOBT and colonoscopy, colorectal cancer causes a significant burden of suffering including death. Clinicians must find a systematic way to address colorectal cancer screening with their own

patient populations, and find an effective way to determine whether their patients are at average or increased risk for colorectal cancer. For those at average risk, consider patient preference, likelihood of patient adherence to follow-up screening, and community resources as you and your patient try to find common ground. When discussing three-card home FOBT with patients, make them aware that positive test results will lead to colonoscopy.

### ■ Evidence summary

A Cochrane review conducted a meta-analysis looking only at FOBT for colorectal cancer screening. This review, based on published and unpublished data from 5 controlled trials, demonstrated that 3-card home FOBT conferred a reduction in colorectal cancer mortality of 16% (relative risk [RR]=0.84; 95% confidence interval [CI], 0.77–0.92) and a number needed to screen of 1173 (95% CI, 741–2807) to prevent 1 death from colon cancer over a 10-year period.<sup>1</sup> If adjusted for adherence to screening, the reduction in mortality increased to 23% (RR=0.77; 95% CI, 0.57–0.89).

In addition, long-term follow up of

one of the RCTs in the review showed a continued reduction in colorectal cancer mortality of 34% (RR=0.66; 95% CI, 0.54–0.81) in subjects adhering to the FOBT screening protocol over a 13-year interval.<sup>2</sup> Overall mortality did not differ between the screened and unscreened groups.

A systematic review performed for the US Preventive Services Task Force (USPSTF) incorporated more recent data on colorectal cancer screening including colonoscopy.<sup>3</sup> This review reached similar conclusions as above. This review also looked at office FOBT performed after digital rectal exam. It is important to note that

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a single office FOBT has a lower sensitivity than 3-card home FOBT and its effectiveness for reducing colorectal cancer mortality was unknown at the time of the systematic review. A subsequent 2005 Veterans Affairs prospective cohort study found that the sensitivity for detecting advanced neoplasia was only 4.9% for digital FOBT, and negative results did not decrease the likelihood of advanced neoplasia.<sup>4</sup>

The USPSTF review did not find any screening trials of colonoscopy but analyzed data from the National Polyp Study and a case-control study to draw its conclusions.<sup>3</sup> The review reported an odds ratio for colorectal cancer mortality for patients who had colonoscopy to be 0.43 (95% CI, 0.30–63).

The USPSTF review also looked at the sensitivity and adverse effects of FOBT compared to colonoscopy. One-time 3-card home FOBT had a sensitivity of 30% to 40% for detecting cancer. The sensitivity of one-time colonoscopy was difficult to determine since it was the criterion standard examination, but it was estimated to be greater than 90%, with a risk of perforation of 1/2000.

The USPSTF review found both screening strategies cost-effective (<\$30,000 per additional life-year gained) compared to no screening. FOBT had a cost per life-year saved of \$5691 to \$17,805 compared with \$9038 to \$22,012 for colonoscopy performed every 10 years.<sup>5</sup>

**Recommendations from others**

The USPSTF found strong evidence to recommend screening in this age group beginning at age 50 but found insufficient evidence to determine a preferred strategy. The evidence reviewed here does not apply to patients at higher risk for colorectal cancer based on personal history, family history or symptoms.

The **TABLE** details the American Cancer Society and the US Multisociety Task Force on Colorectal Cancer’s 2003 updates recommending options for screening average-risk individuals for colorectal cancer beginning at age 50.<sup>6,7</sup>

**TABLE**

**Recommended options for screening average-risk individuals for colorectal cancer**

TEST OR PROCEDURE	FREQUENCY*
3-card fecal occult blood test	Annually
Flexible sigmoidoscopy	Every 5 years
Double-contrast barium enema	Every 5 years
Colonoscopy	Every 10 years

\*Beginning at age 50 for men and women.

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**FAST TRACK**

**A 3-card home fecal occult blood test with follow-up colonoscopy for positive results is associated with a reduction in mortality from colon cancer**