

## Screening colonoscopy: Is it time?

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Colonic screening is a hot topic these days, and rightly so. Colorectal malignancy is a major cause of cancer deaths, yet most cases are preventable. The majority of cases evolve insidiously from benign adenomatous polyps, which typically grow slowly and silently for several years before they turn malignant. Endoscopic polypectomy can abort this adenoma–carcinoma sequence and dramatically decrease the incidence of cancer.<sup>1</sup>

On the basis of this simple but important concept, periodic surveillance colonoscopy is widely practised for patients known to be at increased tumour risk — for example, those who have already had adenomatous polyps removed or who have a strong family history of colon cancer. But what about the “average risk” general population of middle-aged and elderly people from whom the large majority of bowel cancers actually arise? Screening strategies for this all-important group have mainly focused on fecal occult blood testing (FOBT) and sigmoidoscopy, but both of these tests are flawed.

Long-term FOBT surveillance has been found to provide a modest mortality benefit in controlled clinical trials,<sup>2</sup> but this is countered by limited sensitivity and specificity, low predictive value, disappointing public and professional compliance and arguable cost-effectiveness.<sup>3</sup> Although FOBT screening is endorsed by several influential professional organizations, especially in the United States,<sup>4,5</sup> it remains controversial.<sup>6,7</sup>

Controlled trials of sigmoidoscopy are lacking, but persuasive evidence from case–control studies suggests a 60%–70% mortality benefit for up to a decade from cancers within reach of the instrument.<sup>8</sup> Those who favour FOBT surveillance therefore also advise flexible sigmoidoscopy every 5 years beginning at the age of 50,<sup>4,5</sup> although issues such as cost and compliance require further evaluation. Sigmoidoscopy has a major weakness, however — its limited reach. Even the modern 60- to 70-cm flexible instruments overlook about half of all colorectal lesions.<sup>4</sup>

If sigmoidoscopy is effective but examines only half of the bowel, why not go “whole hog” and use full colonoscopy to screen the general population? There have been a few proponents of this viewpoint, but until recently the idea seemed too radical to seriously contemplate.

However, 2 recent articles<sup>9,10</sup> in the *New England Journal of Medicine* have dramatically raised the ante on this question. In a multicentre Veterans Affairs study conducted by David Lieberman and colleagues<sup>9</sup> over 3000 asymptomatic subjects, aged 50 to 75 years, underwent colonoscopic examinations; 37.5% had at least 1 adenoma and 10.5% had advanced neoplasia (defined as an adenoma with a diameter

of at least 1 cm or with villous features, high-grade dysplasia or invasive cancer). Thomas Imperiale and colleagues<sup>10</sup> similarly screened almost 2000 asymptomatic subjects over the age of 50 and found advanced neoplasia in 5.6%. The higher prevalence in Lieberman’s study may partly reflect the inclusion of subjects at greater risk because of a family history of colon cancer, but nevertheless it is clear that a significant minority of asymptomatic individuals harbour dangerous colonic polyps or early malignancy. Importantly, in both studies fully half of the patients with advanced lesions in the proximal portion of the colon had no adenomas in the distal bowel,<sup>9,10</sup> so sigmoidoscopic results for these subjects would have been normal.

Does this mean that we should start colonoscoping all healthy middle-aged people? In an editorial appearing in the same issue of the journal, Daniel Podolsky<sup>11</sup> concludes that it does and states, as others have as well, that sigmoidoscopic screening is as illogical as examining only 1 breast with mammography to screen women for breast cancer. Although catchy, this is an invalid analogy because colonoscopy is a far more complex exercise than sigmoidoscopy. Bowel preparation takes much longer and is more uncomfortable; the procedure itself requires more skill and is more difficult and prolonged; patient discomfort requires conscious sedation with attendant recovery time and professionally manned observation units; proportionate risks are much higher (although absolute risks are low); and costs are much higher. Perhaps most importantly, economic barriers to colonoscopic screening extend well beyond the procedure’s higher technical and professional fees. A large cadre of additional skilled professionals would need to be trained because gastroenterologists and endoscopic surgeons are already overwhelmed with work. New or expanded endoscopic units would have to be built, along with extensive infrastructure support. The overall resource consumption would probably be prohibitive and beyond the ability of an already-burdened health care system to afford, even when discounted by the program’s undoubted benefits. Even sigmoidoscopic screening of the general population poses major economic and logistic problems, but in this case half a loaf may actually be better than the whole.

The impressive data from Lieberman et al.<sup>9</sup> and Imperiale et al.<sup>10</sup> focus attention on larger and challenging issues. Can physicians reconcile their obligation to do what is best for individual patients with the potentially detrimental collective impact it may have on the overall health care system? Can societal will overcome the growing gap between scientific justification and economic reality? How high a

priority should cancer (and other) screening hold among other competing claims on our resources? The issues are major and the stakes are high. Will science and logic determine the outcome ... or will politics and lobbying by interest groups? Stay tuned.

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*Competing interests:* None declared.

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