Controversy

Colorectal cancer screening: Now is the time

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? Articles under the Controversy flag appear in the form of a debate. An invited response to Drs. Winawer and Zauber's article, by Dr. Kenneth G. Marshall, begins on page 545. Rebuttals follow on pages 547 and 548.

Cancer Care Ontario should develop and introduce a program of colorectal cancer screening for average risk individuals. The program should be available to all individuals age 50 years or older.[1]

The Ontario Expert Panel on Colorectal Cancer Screening — a multidisciplinary group including representatives from primary care, surgery, gastroenterology, oncology, radiology, public health, epidemiology, ethics and the public — drew the above conclusion after reviewing the available published evidence.[1] A similar recommendation was made in the United States by a multidisciplinary committee sponsored by the Agency for Health Care Policy and Research and 5 national medical organizations.[2] Recommendations in favour of colorectal cancer screening were also made by the American Cancer Society,[3] the US Preventive Services Task Force,[4] the European Group for Colorectal Cancer Screening[5] and the World Health Organization.[6]

The effectiveness and public benefit of colorectal cancer screening is not considered to be a controversy any longer. In the United States provisions have been made by Congress for reimbursement through Medicare for colorectal cancer screening. Present efforts have turned to raising awareness among men and women of the risk of colorectal cancer and the benefit of available screening, accurate diagnosis and effective surgery for early-stage cancer.[7] The United Kingdom is planning national feasibility programs,[8]and the Australian Health Technology Advisory Committee has recommended similar pilot studies.[9] There is a unique opportunity for cancer control in this area. Not only can early-stage disease be detected and treated surgically, but colorectal cancer can be prevented almost entirely by the detection and removal of adenomatous polyps, the most frequent neoplastic finding of screening.[2] Colorectal cancer screening is as cost-effective as screening mammography.[2] The failure to screen also has a cost, because cases that are detected are predominantly advanced; this cost is equal to that of screening when cancer care costs are $40 000 per case or higher.[10]

Several screening options have been recommended, including annual fecal occult blood testing.[2,3] Three randomized controlled trials, from Minnesota,[11] Great Britain[12] and Denmark,[13] showed that testing of 2 samples from each of 3 consecutive stools, followed by colonoscopy if occult blood is present, reduced the risk of death from colorectal cancer. Annual testing with a sensitive slide was associated with the largest reduction in mortality (by 33%).[11] Reductions observed in the 3 trials resulted from a combination screening with fecal occult blood testing, followed by colonoscopy in subjects with a positive test result. The effectiveness of fecal occult blood testing depends on the performance of regular screening in an annual program. When this is done the sensitivity of the program in detecting colorectal cancer in screened participants is 90%.[11]

The addition of flexible sigmoidoscopy every 5 years to annual fecal occult blood testing has been recommended as a more effective strategy than one using either test alone.[14] Studies are underway to examine the feasibility of screening colonoscopy in the general population; the preliminary results of one trial have indicated that it is a feasible approach.[15] The Ontario expert panel recommended screening with fecal occult blood testing because this method has the strongest evidence of effectiveness.[1] The panel further recommended that the benefits of combining fecal occult blood testing with flexible sigmoidoscopy be assessed and that studies of screening with colonoscopy and double-contrast barium enema be initiated. The panel insisted that screening should be supported by adequate resources and accommodated within existing patterns of practice and referral.

A study was commissioned by the the Agency for Health Care Policy and Research in the United States to model the effects of screening strategies for average-risk people beginning screening at age 50 and continuing in the same strategy until age 85 or death.[2] All screening strategies were shown to be more effective in saving lives than no screening. The computer-simulated model predicted that fecal occult blood testing could save 12 325 life-years per 100 000 people screened annually.[2] Screening for colorectal cancer in average-risk people is within the range of cost-effectiveness commonly accepted for other screening tests and many therapeutic interventions. All colorectal cancer screening strategies cost less than $20 000 per life-year saved.[2]

Is colorectal cancer screening justified? According to the World Health Organization[6] screening is justified if (a) a disease is common and associated with serious morbidity or

mortality; (b) screening tests are accurate in detecting early-stage disease, are acceptable to patients and are feasible in general clinical practice; (c) treatment after the detection through screening has been shown to improve prognosis relative to treatment after usual diagnosis; and (d) evidence exists that the potential benefits outweigh the potential harms and costs of screening.[16] Colorectal cancer fulfills all of these criteria. It is the second leading cause of death from cancer in Ontario, affecting men and women about equally. This year an estimated 6400 new cases of colorectal cancer will be diagnosed and 2250 people will die of the disease in Ontario.[1] Various screening tests have been shown to result in accurate detection of early-stage cancers. Evidence from controlled trials and case–control studies indicates that the removal of adenomatous polyps reduces the incidence of colorectal cancer,[17] that the detection of early-stage disease decreases mortality from the disease[11–13] and that the benefits of screening outweigh the harms.[16]

An area of concern with a population-based screening program is compliance. Rates of compliance with fecal occult blood testing were reported to range from 59% to 90% in the 3 randomized controlled trials.[11–13] In the British trial colorectal cancer mortality was reduced by only 15%[12] in intention-to-treat analysis, but it was reduced by 39% among subjects who complied.[16] Compliance rates in the general population would be much lower. A successful screening program requires considerable public education.[2]

Ensuring that patients are fully informed about the harms and benefits of screening is an essential part of the screening strategy. The Ontario expert panel concluded that public education must be a priority, that all people in Ontario have access to screening and that all participants be fully informed of the benefits and harms of screening.[1,16]

Rigorous studies conducted on the biological and epidemiological features of colon cancer over the past 20 years have led to a rapidly expanding knowledge about this disease.[18] We now have sensitive screening tools and accurate diagnostic tests to aid in the detection of adenomatous polyps and early-stage cancer. About 50% of all deaths from colon cancer can be prevented through lifestyle changes and implementation of widespread screening. The Ontario expert panel has requested that the screening program be of high quality with continuous monitoring and have a commitment to modify the screening strategy on the basis of new scientific evidence.[1] The panel has also recognized the need to ensure adequate resources for follow-up of patients. We now have clearer insight into the natural history of colorectal cancer, better understanding of its biological features, and the clinical skills with which to make a difference for many people. Now is the time to screen.[18]

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