

4 Arguments Against Colon Cancer Screening

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It has been long acknowledged that screening for colorectal cancer reduces associated deaths. In fact, it was in 1993 that the results of the Minnesota Colon Cancer Control Study were published. The study showed that annual fecal occult blood testing (FOBT), followed by, if required, a colonoscopy or a barium enema with or without sigmoidoscopy, reduced mortality by 33% within a 13-year period.¹ Two other studies have established the advantages of the screening by showing that biennial FOBT reduced associated mortality by 18% in the first testing and 15% in the second.^{2,3}

Many organizations have since taken a position in favour of colorectal cancer screening, including the Canadian Task Force on Periodic Health Examination, whose recommendations are outlined in Table 1.⁴ Despite wide-reaching support, as seen through recommendations and data, Quebec has yet to establish a program for systematic screening of colorectal cancer.

Arguments against systemic screening for colorectal cancer

Essentially, not all diseases or conditions lend themselves to screening. The condition needs to be frequent or serious and have a long asymptomatic phase to allow for early detection. Moreover, the screening tests need to be feasible and valid, as well as beneficial for the patient.

Table 1:

Statement of recommendations from the Canadian Task Force on Preventive Health Care

Recommendations

For asymptomatic people with no personal history of ulcerative colitis, polyps, or colorectal cancer.

People at normal risk:

There is good evidence to include annual or biennial fecal occult blood testing (Grade A recommendation), and fair evidence to include flexible sigmoidoscopy (Grade B recommendation) in the periodic health examination of asymptomatic people over 50 years of age.

There is insufficient evidence to make recommendations about whether only one or both tests should be performed (Grade C recommendation).

There is insufficient evidence to include or exclude colonoscopy as an initial screening test in the periodic health examination of people in this age group (Grade C recommendation).

Reason #1 Screening tests are poor examinations

The screening for colorectal cancer relies first and foremost on FOBT, as identified through the Hemoccult II test. The Hemoccult II test uses guaiac, a resin that oxidizes and changes colour in the presence of hemoglobin. Unfortunately, many situations can falsify the results of this test.



Table 2:

Main causes of Hemoccult II inaccuracy

	<u>False positives</u>	<u>False negatives</u>
Dietary reasons	<ul style="list-style-type: none"> • Red meat • Horseradish • Turnips 	<ul style="list-style-type: none"> • Vitamin C • Antioxidant
Digestive reasons	<ul style="list-style-type: none"> • Gingivitis • Epistaxis • Gastritis • Inflammatory disease • Diverticular disease • Anal fissures • Hemorrhoids 	<ul style="list-style-type: none"> • Less vascularized cancers • Less voluminous cancers • Localization in the right colon or the caecum

Table 3:

Complications associated with a colonoscopy

Intestinal perforations:

Intestinal perforations occur at a rate of 1 per 2,222 colonoscopies; however, depending on the study, the rate has also been seen to vary enormously, ranging from 1 per 716 to 1 per 16,810.

Hemorrhages:

The rates for significant hemorrhages are considerable, starting with 1 in 81 in the presence of a polypectomy, to 1 in 1,352 without polypectomy.

Cardiovascular complications:

Some data report up to 20%; these are side-effects of the intestinal cleaning and the sedation.

Infections:

According to one study, 24% of endoscopes were contaminated and two cases of hepatitis C were documented in France.

Mortality:

1 in 16,745.

Morbidity:

The operative morbidity associated with the resection of polyps that can be resected per colonoscopy ranges from 1% to 7%.

The cancers that bleed the least are normally located in the caecum or the ascending colon; factors such as the diameter of the intestinal opening and the less abrasive consistency of the stool are what cause less bleeding.

The Hemoccult II test proves to be a rather poor screening method. Its sensitivity, (*i.e.*, its capacity to be positive in presence of colorectal cancer) is only 30%, while its specificity, (*i.e.*, its capacity to be negative in the absence of cancer) is 98%.

The positive prognostic value in the studies was around 2%, meaning the colonoscopy turned out normal in 98% of cases with fecal blood diagnosed as positive. In fact, a large number of cancers were discovered, even in those with a negative Hemoccult test result. The main causes of false negatives and false positives are listed in Table 2.

Both false positive and false negative results

Moreover, not all colorectal cancers are necessarily accompanied by bleeding, particularly caecum cancers.

have serious consequences. The screenings inevitably entail personal, physical, and psychological harm, as well as social detriment.

Table 4:

Causes of death in screening and control groups between August 1985 and August 1995

Cause of death	Number of people in screening group (n=6,228)	Number of people in control group (n=6,303)
Cardiovascular disease	2,497 (40.1%)	2,443 (38.8%)
Lung disease	614 (9.9%)	623 (9.9%)
Other benign disease and trauma	824 (13.2%)	779 (12.4%)
Malignant disorders other than CRC	1,624 (26.1%)	1,721 (27.3%)
Unknown	464 (7.4%)	488 (7.7%)
CRC	182 (2.9%)	230 (3.6%)
Complications arising from treatment of CRC	23 (0.4%)	19 (0.3%)

CRC: Colorectal cancer

Detrimental impacts related to false positives

Positive results inevitably generate anxiety, compelling patients and physicians to pursue investigations which have their own inherent complications. In the Minnesota study, between 2.4% and 9.8% of screened participants had positive FOBT results, prompting a total colonoscopy. Yet, the colonoscopy is not an exam to be taken lightly; it requires appropriate intestinal cleaning and can cause complications (Table 3).⁵⁻⁹

The most disconcerting fact remains that the majority of people with positive FOBT results

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did not actually have cancer. According to studies, the positive prognostic value of the Hemoccult test ranges from 2% to 17% (29% if adenomatous polyps are included in the calculation).

Detrimental effects linked to false negatives

FOBT creates a false sense of security; 50% of diagnosed cancers are not discovered by way of the Hemoccult test.¹⁰

Reason #2 *Screening is not as effective as we're made to believe*

If it's true that colorectal cancer screening decreases inherent mortality, it does nothing to lower overall mortality (Table 4). It is estimated that 1,000 people need to be screened for 10 years to save one life.¹¹

Reason #3 *We have neither the means nor the resources*

The costs associated with FOBT are rapidly becoming unaffordable for our health-care system. Table 5 lists the costs associated with screening.¹²



Table 5:

Summary of colorectal cancer screening costs

Different elements for the screening program	Basic cost (\$)	Maximum cost (\$)
Head office, satellite offices, and promotion	15,000,000	30,000,000
Additional medical consultations	43.58	58.10
FOBT screening kits	4.65	9.30
Sample processing	6.00	8.00
Consultation (in case FOBT is positive)	123.70	161.10
Colonoscopy	350.00	425.00
Polypectomy	147.00	147.00

FOBT: Fecal occult blood testing

Considering that approximately 1.37 million people aged 50 to 70 in Quebec are deemed to be possible beneficiaries of screening (estimating a participation of 70%), FOBT would be carried out on roughly 1 million individuals. Seeing that the positivity rate averages around 5%, and the cost of a colonoscopy and consultation is roughly \$400 and \$150, respectively, the total price tag amounts to about \$25 million. When adding administrative costs, it would not be surprising if the systematic screening program were to ultimately consume \$50 million per year. To put that number in perspective, \$50 million corresponds to the entire budget of some hospitals in Quebec.

Reason #4 *The recommendations are often untrustworthy*

The fact that such a large number of advisory bodies recommend colorectal cancer screening naturally puts an immense pressure on health-care practitioners. Nevertheless, the recommendations of advisory bodies should be considered carefully,

as they often issue controversial and sometimes even contradictory advice.

In fact, after the results of the Minnesota Colon Cancer study were published, the Canadian Task Force on the Periodic Health Examination¹³ (1994) and the U.S. Preventive Task Force¹⁴ (1996) issued diverging recommendations. While the Canadian body cited a lack of sufficient evidence, the American one claimed to dispose of all the necessary

evidence to recommend systematic screening.

Overall, preventive recommendations should be interpreted with caution. The recent controversy surrounding hormone replacement therapy for menopause serves well to prove that point; for years doctors have actively promoted the treatment and now they are being advised to discourage people from it.

Take-home message



- Not all diseases or conditions lend themselves to screening; in order for screening to be most effective, the disease/condition needs to be frequent or serious and have a long asymptomatic phase to allow for early detection.
- The Hemoccult II test, the primary means of detecting colorectal cancer, proves to be a poor screening method.
- It has been estimated that 1,000 people need to be screened over a 10-year period in order to save one life.



The last word

Despite the decade-long debates, all the favourable advice, and convincing data that demonstrate associated mortality could be decreased, we should not subscribe to systematic screening for the following reasons:

1. The screening tests are poor examinations that inevitably entail harm for individuals and society.
2. The screening will in no way change the overall mortality and, to save one life, would require screening 1,000 persons over a 10-year period.
3. We simply do not have the financial means, nor the resources required.
4. Just because the vast majority recommends screening doesn't mean we should necessarily engage in the practice. CME

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