

Colorectal cancer screening: It is not time for a radical shift

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Colorectal cancer, one of the most common cancers worldwide and the second-most common cancer in Canada,¹ is associated with a high burden of morbidity and mortality. In a linked Practice article, Forbes and colleagues outline evidence-based recommendations regarding use of the fecal immunochemical test for colorectal cancer screening.² In recent years, there has been an explosion of screening activities for colorectal cancer worldwide, largely through the creation of screening programs that use fecal immunochemical testing.³ It has been the recommendation of every major global screening and cancer society to screen all eligible individuals for colorectal cancer, with some differences in age eligibility and preferred modalities. However, a recent guideline published in the *BMJ* by Helsingen and colleagues substantially deviates from these recommendations by advising a personalized screening approach and no screening for some individuals deemed to be at low risk.⁴ The accompanying editorial heralded a radical shift in the philosophy on screening for colorectal cancer that prioritizes personal choice over maximal uptake.⁵ However, although such an approach has some theoretical benefits and sounds appealing, it fails to stand up to existing evidence of efficacy of screening for colorectal cancer or to logistical and methodological scrutiny.

In many ways, colorectal cancer is a model disease for screening: there are clear and simple ways to define at-risk populations to be screened; the disease has a long preclinical phase; there are multiple easy, safe and effective ways to screen for both colorectal cancer precursors and early-stage colorectal cancer; and early detection changes the natural history of the disease, as early-stage colorectal cancer carries a much better prognosis than cancer diagnosed at later stages (92% 5-year survival for stage I colon cancer v. 11% for stage IV).¹ As outlined in a review by the International Agency for Research on Cancer, screening tests for colorectal cancer have been shown to reduce mortality.⁶ Some screening strategies based on fecal immunochemical testing have also been shown to be cost saving compared with no screening.⁷

There are 2 approaches to cancer screening. Organized screening occurs when all eligible individuals in a defined population are invited to be screened in a uniform, systematic fashion, as part of an established program with infrastructure and policies

KEY POINTS

- Colorectal cancer is an important source of morbidity and mortality in Canada.
- Canadian adults aged 50–75 years who are at average risk of colorectal cancer should not be advised to forgo colorectal cancer screening, as high-level evidence shows that screening effectively decreases the risk of death from colorectal cancer.
- Organized screening for colorectal cancer is superior to opportunistic screening in achieving high screening uptake, reducing inequities and decreasing colorectal cancer mortality.
- Primary care physicians play a key role in the uptake of colorectal cancer screening, particularly because they can personalize screening for those who are reluctant to participate in organized screening.

to carry out the process from start to finish, monitor outcomes, and perform quality assurance. By contrast, opportunistic screening occurs outside of an organized program and can be triggered only once an individual has been in contact with a health care practitioner. Opportunistic screening tends to lead to lower participation, and there may be greater exposure to the harms of screening such as test-related complications, loss to follow-up, or even overscreening.⁸ A systematic review of the effectiveness of interventions to increase individual participation in colorectal cancer screening⁹ found that an organized approach is superior to an opportunistic one for enhancing uptake of colorectal cancer screening, reducing socioeconomic group inequalities in screening, and yielding substantial decreases in colorectal cancer mortality. The authors also found that the most effective modality to enhance screening uptake was receiving a fecal immunochemical test kit in the mail.⁹

Perhaps the best real-world evidence for the efficacy of organized screening comes from an observational community-based population study in a cohort of 4 million members of the Kaiser Permanente Northern California health care organization.¹⁰ The authors of this study presented rates of colorectal cancer screening, incidence and mortality over a 15-year period before and after implementation of an organized screening program using

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annual mailed fecal immunochemical tests or colonoscopy for patients aged 51–75 years. Implementation of organized screening increased participation from 39% to 83%. There was an initial sharp increase in colorectal cancer incidence, followed by an overall 25% reduction in annual colorectal cancer incidence, a 36% decrease in incidence of late-stage colorectal cancer, and a 52% reduction in colorectal cancer mortality.¹⁰ This real-world experience showed that organized screening for colorectal cancer effectively decreases the burden of this cancer in the population.

In an ideal world, organized screening should integrate a personalized approach, whereby age to start screening, screening intervals and choice of screening test would be adjusted for certain risk factors such as age, sex, family history and previous screening. The tailoring of the screening algorithm according to risk level within the parameters of organized screening is attainable through collaboration between screening programs and primary care providers. It is well recognized that support from the primary care provider is an important predictor of adherence to screening⁹ and the role of primary care providers is crucial, particularly in supporting and educating individuals who are reluctant to screen. Tools such as risk calculators and decision aids can thus be helpful for these providers to use as targeted interventions to enhance screening uptake among those less likely to participate in organized screening.

However, the complete personalization of screening, as promoted by Helsingen and colleagues,⁴ is unlikely to be helpful as it advocates submitting each invitee to a risk and preference exercise that requires a discussion with a health care provider. This extremely resource-intensive approach would reach a smaller proportion of the population and induce inequities, as underserved patients and those without family physicians would likely be left behind. Moreover, there are several methodological issues with the Helsingen practice guideline.⁴ In constructing their recommendations, the authors used a systematic review of the literature and microsimulation modelling to determine the efficacy and harms of 4 screening strategies. The authors acknowledged that the modelling estimates (which assumed 100% participation) were of low certainty. In an attempt to integrate values and preferences into the decision to screen for colorectal cancer, the authors enlisted a panel of methodologists, clinicians, screening experts and 3 patients who underwent screening to determine risk thresholds that would dictate whether patients would choose to proceed with screening. This resulted in establishing a 3% risk over 15 years as a threshold below which patients would be considered low risk and thus not worth screening, a number that comes off as somewhat arbitrary. There appears to be no certainty as to the validity of the online risk calculator promoted to quantify this risk. The guideline panel thus reached its conclusions based

on multiple assumptions, an approach that lacks the credibility to justify a drastic change in philosophy regarding colorectal cancer screening. In fact, a danger arises that such an approach could significantly reduce participation in screening for colorectal cancer and result in unnecessary cases of cancer and premature death.

Organized screening for colorectal cancer is an important public health intervention with a proven high level of efficacy. In Canada, a country with one of the highest incidences of colorectal cancer in the world, we should be focused on promoting proven methods to reduce our colorectal cancer burden; that is, increasing screening uptake and access to organized screening in all provinces.

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