

Is 45 the new 50 in colorectal cancer screening?

Paul Fritsch MD CCFP Clarence Wong MD FRCPC Michael R. Kolber MD CCFP MSC

Clinical question

Should we lower the age at which average-risk patients commence colorectal cancer (CRC) screening from 50 to 45?

Bottom line

In developed countries, the incidence of CRC in persons younger than 50 years has increased by 20% to 30% in the past 20 years. However, the absolute risk increase is only 1 to 4 per 100 000 persons. Screening average-risk patients younger than 50 should not be encouraged at this time.

Evidence

- There are population-based data on CRC incidence among those younger than 50 in developed countries, but no RCTs examining commencing screening at 45 years versus 50 years are available.
 - In Canada, a study¹ of those younger than 50 years, comparing 2015 with 1971, found an increased incidence of 1 to 2 per 100 000 (from 10 or 11 to about 12 per 100 000). The relative risk increase (RRI) was about 20%.
 - In a study in Alberta² among those 35 to 49 years old, comparing 2014 with 1995, incidence increased by 4 per 100 000 (from 13 to 17): RRI was about 30%.
 - In those younger than 50 years, comparing 2017 with 2010,³ incidence increased by 1 per 100 000 (from 6 to 7): RRI was about 20%.
 - Alberta number differences are due to different ages and time frames studied.
 - In a US study,⁴ among those 40 to 49, comparing 2013 with 1992, incidence increased by 4 per 100 000 (from 18 to 22): RRI was about 25%.
- Many developed countries report small annual increases in CRC rates in patients younger than 50 years.⁵

Context

- Screening for CRC (between 50 and 75 years old) decreases CRC mortality but not overall mortality.⁶
- Improving screening compliance between those 50 to 75 years old to 80% (currently 55% in Canada⁷) would prevent about 3 times as many CRCs at a third of the cost of early-age screening.⁸
- Most CRCs (88% to 92%) occur in patients older than 50.^{3,9}
- The median age of CRC diagnosis has decreased from 72 years (2002) to 66 years (2016).⁹

- In the United States, rectal cancer is the most common CRC subtype in those younger than 50.⁹
- Generally, guidelines recommend screening for CRC in those aged 50 to 75.^{10,11}
- Options for screening with RCT evidence⁶: fecal occult blood testing or fecal immunochemical testing every 1 to 2 years, or sigmoidoscopy every 10 years.¹¹

Implementation

Those older than 75 are unlikely to benefit from screening.⁶ For those 50 to 75, the decision should be personalized. Patients with substantial comorbidity or functional limitation are unlikely to benefit, as some programs (especially outside primary care)¹² offer screening without considering comorbidity.¹³ Tools (eg, <https://eprognosis.ucsf.edu>) to help determine the effect of comorbidities and function on life expectancy¹⁴ can aid discussions. Fecal immune testing should only be used for asymptomatic patients,¹⁵ as it might delay definitive investigations in symptomatic patients. 🌿

Dr Fritsch is a family medicine resident at the University of Calgary in Alberta. Dr Wong is Associate Professor in the Division of Gastroenterology and Dr Kolber is Professor with the PEER Group in the Department of Family Medicine, both at the University of Alberta in Edmonton.

Competing interests
None declared

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

References

1. Brenner DR, Heer E, Sutherland RL, Ruan Y, Tinmouth J, Heitman SJ, et al. National trends in colorectal cancer incidence among older and younger adults in Canada. *JAMA Netw Open* 2019;2(7):e198090.
2. Alberta Health Services, Health Standards, Quality and Performance Division, Analytics and Performance Reporting Branch. *Health trends Alberta: colorectal cancer incidence time trends*. Edmonton, AB: Alberta Health Services; 2017.
3. Liu EY, Wong CK. Increasing incidence of colorectal cancer in adults under age of 50 in Alberta. *J Can Assoc Gastroenterol* 2020;3(Suppl 1):33-4.
4. Murphy CC, Lund JL, Sandler RS. Young-onset colorectal cancer: earlier diagnoses or increasing disease burden? *Gastroenterology* 2017;152(8):1809-12.e3. Epub 2017 Apr 28.
5. Araghi M, Soerjomataram I, Bardot A, Ferlay J, Cabasag CJ, Morrison DS, et al. Changes in colorectal cancer incidence in seven high-income countries: a population-based study. *Lancet Gastroenterol Hepatol* 2019;4(7):511-8. Epub 2019 May 16. Erratum in: *Lancet Gastroenterol Hepatol* 2019;4(8):e8. Epub 2019 Jun 10.
6. Canadian Task Force on Preventive Health Care. Recommendations on screening for colorectal cancer in primary care. *CMAJ* 2016;188(5):340-8. Epub 2016 Feb 22.
7. Singh H, Bernstein CN, Samadder JN, Ahmed R. Screening rates for colorectal cancer in Canada: a cross-sectional study. *CMAJ Open* 2015;3(2):E149-57.
8. Ladabaum U, Mannalithara A, Meester RGS, Gupta S, Schoen RE. Cost-effectiveness and national effects of initiating colorectal cancer screening for average-risk persons at age 45 years instead of 50 years. *Gastroenterology* 2019;157(1):137-48. Epub 2019 Mar 28.
9. Siegel RL, Miller KD, Sauer AG, Fedewa SA, Butterly LF, Anderson JC, et al. Colorectal cancer statistics, 2020. *CA Cancer J Clin* 2020;70(3):145-64. Epub 2020 Mar 5.
10. US Preventive Services Task Force, Bibbins-Domingo K, Grossman DC, Curry SJ, Davidson KW, Epling JW Jr, et al. Screening for colorectal cancer: US Preventive Services Task Force recommendation statement. *JAMA* 2016;315(23):2564-75. Erratum in: *JAMA* 2016;316(5):545. Erratum in: *JAMA* 2017;317(21):2239.
11. Helsingen LM, Vandvik PO, Jodal HC, Agoritas T, Lytvyn L, Anderson JC, et al. Colorectal cancer screening with faecal immunochemical testing, sigmoidoscopy or colonoscopy: a clinical practice guideline. *BMJ* 2019;367:l5515.
12. Powell AA, Saini SD, Breitenstein MK, Noorbaloochi S, Cutting A, Fisher DA, et al. Rates and correlates of potentially inappropriate colorectal cancer screening in the Veterans Health Administration. *J Gen Intern Med* 2015;30(6):732-41. Epub 2015 Jan 21.
13. Saini SD, Vijan S, Schoenfeld P, Powell AA, Moser S, Kerr EA. Role of quality measurement in inappropriate use of screening for colorectal cancer: retrospective cohort study. *BMJ* 2014;348:g1247.
14. Cruz M, Covinsky K, Widera EW, Stijacic-Cenzer I, Lee SJ. Predicting 10-year mortality for older adults. *JAMA* 2013;309(9):874-6.
15. Lee MW, Pourmorady JS, Laine L. Use of fecal occult blood testing as a diagnostic tool for clinical indications: a systematic review and meta-analysis. *Am J Gastroenterol* 2020;115(5):662-70.

Tools for Practice articles in *Canadian Family Physician* are adapted from articles published on the Alberta College of Family Physicians (ACFP) website, summarizing medical evidence with a focus on topical issues and practice-modifying information. The ACFP summaries and the series in *Canadian Family Physician* are coordinated by Dr G. Michael Allan, and the summaries are co-authored by at least 1 practising family physician and are peer reviewed. Feedback is welcome and can be sent to toolsforpractice@cfpc.ca. Archived articles are available on the ACFP website: www.acfp.ca.