

# Recommendations on Screening for Colorectal Cancer in Primary Care 2016

Canadian Task Force on Preventive Health Care  
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Putting Prevention  
into Practice

Canadian Task Force on Preventive Health Care  
Groupe d'étude canadien sur les soins de santé préventifs

# CTFPHC Working Group Members

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# Overview of Presentation

- Background on Colorectal Cancer in Canada
- Methods of the CTFPHC
- Recommendations and Key Findings
- Implementation of Recommendations
- Conclusions
- Questions and Answers

# Background – Canadian perspective

- Colorectal cancer (CRC) is the second most common cause of cancer mortality in men and the third most common in women with a current lifetime probability of dying from this disease of 3.5% and 3.1% respectively
- The incidence and mortality of CRC are low until middle age, and rise rapidly thereafter
- It is estimated that 25,000 Canadians were diagnosed with CRC in 2015 and 9,300 died from the disease
- Most CRCs appear to arise from colonic polyps that develop slowly, some of which transform to cancers
- CRC screening programs aim to reduce deaths by detecting and removing polyps and/or early stage CRCs

# Background - Guideline Objectives

- The purpose of this guideline is to present recommendations for screening for CRC in asymptomatic adults aged 50 and older who are not at high risk for CRC and to update previous CTFPHC recommendations (2001)
- This guideline provides guidance for primary care practitioners on different screening tests, screening intervals and recommended ages to start and stop screening
- These guidelines do not apply to those with previous CRC or polyps, inflammatory bowel disease, signs or symptoms of CRC, history of CRC in one or more first degree relatives, or adults with hereditary syndromes predisposing to CRC such as familial adenomatous polyposis or Lynch Syndrome

# Methods of the CTFPHC

- Independent panel of:
  - Clinicians and methodologists
  - Expertise in prevention, primary care, literature synthesis, and critical appraisal
  - Application of evidence to practice and policy
- Colorectal Cancer Working Group
  - 7 Task Force members
  - Establish research questions and analytical framework

# Methods of the CTFPHC

- Evidence Review and Synthesis Centre (ERSC)
  - Undertook a systematic review of the literature based on the analytical framework
  - Prepared a systematic review of the evidence with GRADE tables
  - Participated in working group and task force meetings
  - Consulted with clinical experts

# CTFPHC Review Process

- Internal review process involving guideline working group, Task Force, scientific officers and ERSC staff
- External review process involving key stakeholders
  - Generalist and disease specific stakeholders
  - Federal and Provincial/Territorial stakeholders
- Canadian Medical Association Journal (CMAJ) undertook an independent peer review journal process to review guidelines

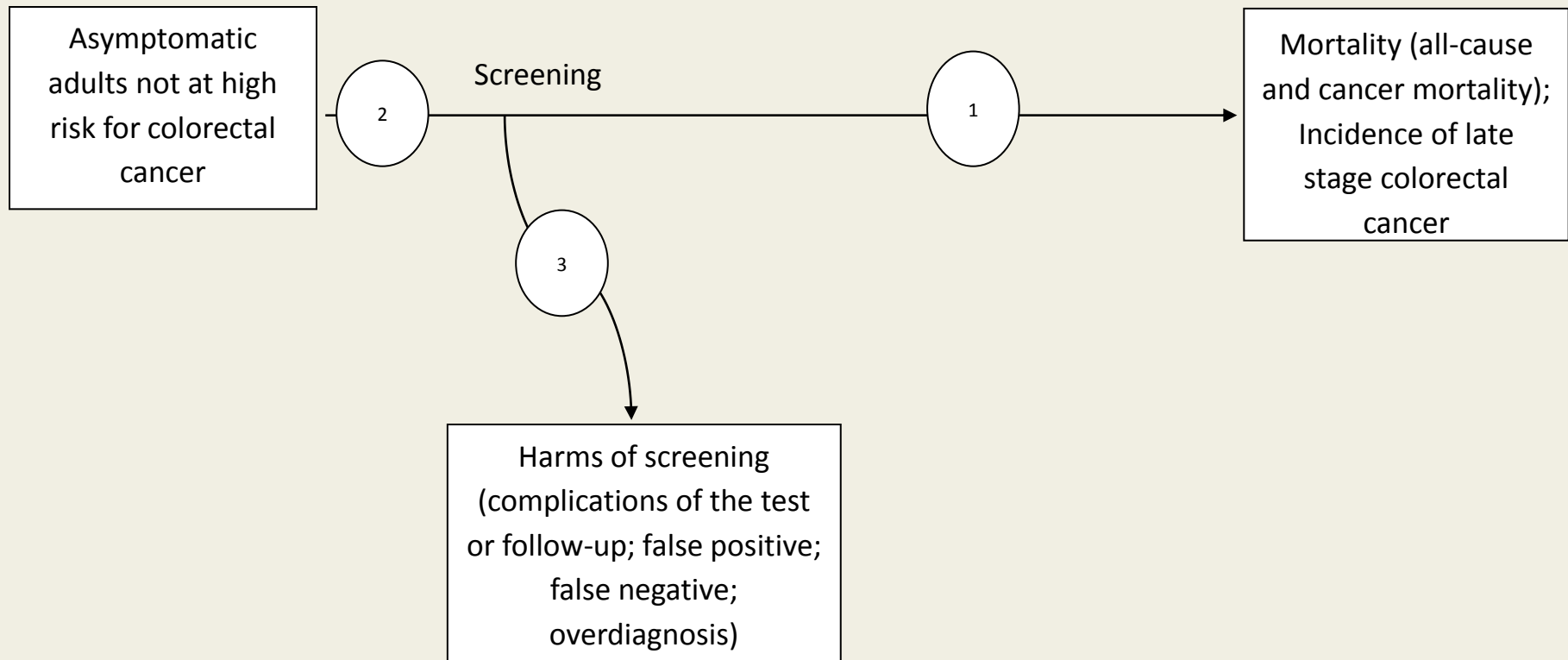


# Research Questions

- The systematic review for effectiveness of screening tests included:
  - (2) key research question with (2) sub-questions
- The systematic review for harms of screening included:
  - (1) key research question
- The systematic reviews for patient preferences, differences for sub-groups, risk assessment tools and cost effectiveness comprised:
  - (4) contextual questions

For more detailed information please access the systematic review  
[www.canadiantaskforce.ca](http://www.canadiantaskforce.ca)

# Analytical Framework



# How is Evidence Graded?

The “**GRADE**” System:

- **G**radings of **R**ecommendations, **A**ssessment, **D**evelopment & **E**valuation

What are we grading?

## 1. **Quality of Evidence**

- Degree of confidence that the available evidence correctly reflects the theoretical true effect of the intervention or service.
- high, moderate, low, very low

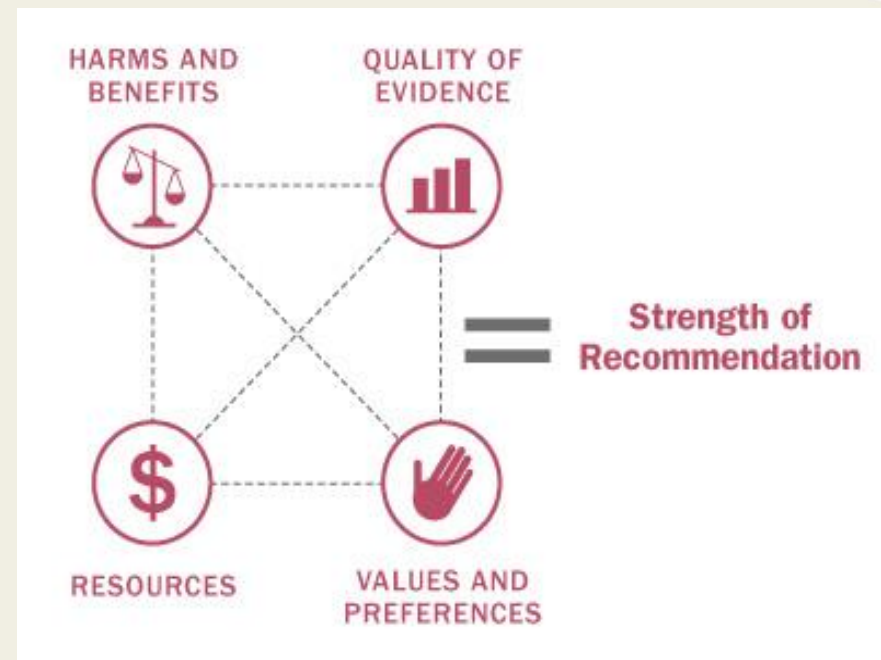
## 2. **Strength of Recommendation**

- Quality of evidence; the balance between desirable and undesirable effects; the variability or uncertainty in values and preferences of citizens; and whether or not the intervention represents a wise use of resources.
- strong and weak

# How is the Strength of Recommendations Determined?

The strength of the recommendations (strong or weak) are based on four factors:

- **Quality** of supporting evidence
- Certainty about the **balance between desirable and undesirable** effects
- Certainty / variability in **values and preferences** of individuals
- Certainty about whether the intervention represents a **wise use of resources**



# Interpretation of Recommendations

Implications	Strong Recommendation	Weak Recommendations
For patients	<ul style="list-style-type: none"><li>• Most individuals would want the recommended course of action;</li><li>• Only a small proportion would not.</li></ul>	<ul style="list-style-type: none"><li>• The majority of individuals in this situation would want the suggested course of action but many would not.</li></ul>
For clinicians	<ul style="list-style-type: none"><li>• Offer to all eligible</li><li>• Most individuals should receive the intervention.</li></ul>	<ul style="list-style-type: none"><li>• Recognize that different choices will be appropriate for individual patients;</li><li>• Clinicians must help patients make management decisions consistent with values and preferences.</li></ul>
For policy makers	<ul style="list-style-type: none"><li>• The recommendation can be adapted as policy in most situations.</li></ul>	<ul style="list-style-type: none"><li>• Policy making will require substantial debate and involvement of various stakeholders.</li></ul>

# Summary of Key Findings

Screening tool	Age	Risk Ratio			
		CRC Mortality	95% CI	Incidence of late stage CRC	95% CI
FOBT ( 4 RCT MA)	45-80	0.82	0.73-0.92	0.92	0.85-0.99
FS (pooled analysis, 4 RCTs)	55-74	0.74	0.67-0.82	0.73	0.66–0.82

No RCTs have reported on the mortality benefits of screening colonoscopy, CT colonography, barium enema, DRE or fecal DNA testing

No screening test reduced all cause mortality

# FOBT or Flex Sig Screening: Ages 50-74

**Recommendation 1:** We recommend screening adults aged 60 to 74 for CRC with FOBT (either gFOBT or FIT) every two years OR flexible sigmoidoscopy every 10 years.

• Strong recommendation; moderate quality evidence

**Recommendation 2:** We recommend screening adults aged 50 to 59 for colorectal cancer (CRC) with FOBT (gFOBT or FIT) every two years OR flexible sigmoidoscopy every 10 years.

• Weak recommendation; moderate quality evidence

# FOBT or Flex Sig Screening: Ages 50-74

## **Basis of the recommendation:**

- In the judgment of the CTFPHC, FOBT and flexible sigmoidoscopy are both reasonable screening tests for patients aged 50-74 years based on RCT evidence.
- Splitting this recommendation for screening into two age groups places a relatively higher value on the different balance of benefits to harms by age, and a relatively lower value on the added complexity of two recommendations rather than one.
- Although the relative benefits are similar for older (60-74) and younger (50-59) age groups, the absolute benefits are smaller in those 50-59 due to the lower incidence. This warrants a weak recommendation to screen in those aged 50-59 as compared to the strong recommendation for people aged 60-74 years.



# Not Screening Adults Aged 74+

**Recommendation 3:** We recommend not screening adults aged 75 years and over for colorectal cancer (CRC).

- *Weak recommendation; low quality evidence*

## **Basis of the recommendation:**

- Lack of RCT data on benefits of screening in this age group (varied, but upper ages included were 64 years, 74 years, 75 years, and 80 years for gFOBT and 64 years and 74 years for flexible sigmoidoscopy).
- Reduced life expectancy in older age groups
- Adults over 74 years of age who are healthy (with longer life expectancy) and are less concerned with the lack of reported benefit or the potential harms may choose to be screened.

# Not Screening Using Colonoscopy

**Recommendation 4:** We recommend not using colonoscopy as a screening test for colorectal cancer (CRC).

• *Weak recommendation; low quality evidence*

## **Basis of the recommendation:**

- Although colonoscopy may offer clinical benefits that are similar to or greater than those associated with flexible sigmoidoscopy, direct RCT evidence of its efficacy in comparison to the other screening tests (in particular FIT) is currently lacking.
- In addition to a lack of evidence, there are also issues related to wait lists, resource constraints and a greater potential for harms.
- Patients who are less concerned about the potential harms of colonoscopy and/or who are more interested in a test that allows a longer screening interval may still request screening with colonoscopy.

# NNS for CRC Mortality by Age-Groups with Varying Underlying Baseline Risk

Outcome	Screening test	Age Group (years)	ARR	NNS	LL-NNS	UL-NNS
CRC Mortality	Biennial gFOBT	< 60 (45 to 59)	0.0377%	2655	1757	6244
CRC Mortality	Biennial gFOBT	≥ 60 (60 to 80)	0.2032%	492	326	1157
CRC Mortality	Flex Sigmoidoscopy	< 60 (45 to 59)	0.0540%	1853	1441	2713
CRC Mortality	Flex Sigmoidoscopy	≥ 60 (60 to 80)	0.2912%	343	267	503

# Comparison of Screening for Colorectal Cancer Recommendations

- Our recommendations are consistent with the previous 2001 CTFPHC guideline
- Provincial screening programs recommend screening with FOBT (the majority recommend FIT) every 1-2 years
- No province currently recommends screening with flexible sigmoidoscopy
- The USPSTF published recommendations in 2008 (currently being updated), and recommended either FOBT, flexible sigmoidoscopy, or colonoscopy

# Comparison: CTFPHC guideline vs. USPSTF draft guideline

<b>GUIDELINE</b>	<b>CTFPHC (2015)</b>		<b>USPSTF DRAFT (2015)</b>	
AGE GROUPS & RECOMMENDATIONS	50-59 YEARS	SCREEN (WEAK)	50-75 YEARS	SCREEN - Grade A
	60-74 YEARS	SCREEN (STRONG)		SCREEN - Grade A
	> 75 YEARS	DO NOT SCREEN (WEAK)	76-80 YEARS	SCREEN - Grade C
CRC SCREENING MODALITIES & INTERVALS	gFOBT or FIT	Every 2 years	gFOBT or FIT	Every year
	Flexible Sigmoidoscopy	Every 10 years	Flexible Sigmoidoscopy	Every 10 years plus FIT every year
	Colonoscopy	Do not recommend	Colonoscopy	Every 10 years

# Implementation - Resources

- We expect that most Canadians will be screened with either FIT or gFOBt due to limited access to and availability of flexible sigmoidoscopy
- Although flexible sigmoidoscopy is not available in many jurisdictions, it may warrant further consideration as it can be completed in the same facilities as colonoscopy and using similar equipment, but without the requirement of a specialist such as a gastroenterologist
- Screening programs would need to consider the implications of establishing screening facilities such as training of providers, the bowel preparation required by patients and the resources needed for flexible sigmoidoscopy as compared to FOBt

# Values and Preferences of CRC Screening

- A Canadian survey on screening test preferences indicated that invasiveness, level of preparation required and pain from the test were concerns.
- A US study rated patient priorities as preventing cancer (55%), avoiding test side effects (17%), minimizing false positives (15%) and the combination of screening frequency, test preparation and test procedures (14%).
- When patients have the option of screening tests, sedation needs, perceived test accuracy, confidence in completing the test, bowel preparation and frequency of tests may influence decision.

# Conclusions

- The CTFPHC recommends that starting at age 50 age, primary care providers should discuss the most appropriate choice of test with patients who are interested in screening
- Screening for CRC with FOBT or flexible sigmoidoscopy reduces CRC mortality and the direct harms associated with these tests are minimal
- The strong recommendation to screen adults aged 60-74 years with gFOBT, FIT or flexible sigmoidoscopy indicates that primary care providers should offer this service to all individuals in this age group



# Conclusions

- The weak recommendation to screen adults aged 50-59 years with gFOBT, FIT or flexible sigmoidoscopy indicates that a more nuanced discussion of the harms and benefits will be required
- Starting at age 75, primary care providers should discuss individual screening preferences
- The CTFPHC recommends not using colonoscopy as a screening tool at this time based on the lack of high quality RCT data. Four trials are currently underway investigating the mortality benefit of screening with colonoscopy. These will be considered by the CTFPHC as the results become available.

# Take Home Messages

- CRC is a common cause of cancer mortality
- We can reduce mortality from CRC – screening with FOBT and Flexible sigmoidoscopy have been shown to decrease mortality from CRC in those aged 50-74
- Individuals over the age of 50 should discuss screening for CRC with their primary care providers
- Patient values and preferences, test availability and life expectancy should be considered in determining the best screening options for individuals

# Questions & Answers

**Thank you**

# Eligible Study Types

- **Population:** Asymptomatic adults 18 years and older who were not at high risk of colorectal cancer. Excluded were adults who were at high risk, patients with symptoms suggesting underlying colorectal cancer, those with known genetic mutations associated with increase colorectal cancer risk.
- **Language:** English, French
- **Study type:** Randomized control trials (RCTs), cohort (with comparison) and case control studies.
- **Outcomes:** For benefits – CRC mortality, all-cause mortality, and incidence of late stage CRC. For harms – complications of the test/follow-up test, false positive, false negative, and over-diagnosis.

# Research Gaps

- Trials investigating mortality benefit of CRC screening are underway: Northern European Initiative on CRC (2026); Screening of Swedish COLons (2034); Barcelona (2021); and CONFIRM (2025).
- Trials demonstrating a mortality benefit of colonoscopy, fecal DNA assays, and other tests are needed before they can be recommended for population-based screening.
- Research about how to increase access to colonoscopy in Canada would be useful to inform population-based screening with this test.

# Research Gaps

- More data are needed on effectiveness of FIT in all age groups, on all screening tests in populations aged less than 60 years or older than 74 years and on the impact of screening on overdiagnosis and overtreatment-monitoring for these harmful outcomes at a national level is recommended to address this research gap.

# Harms of Screening

- No high quality studies evaluating the harms of screening for colorectal cancer
- Possible harms related to screening include:
  - Death
  - Perforation
  - Bleeding (with or without hospitalization)
  - False-positive or false-negative
  - Over-diagnosis

# Considerations for Implementation of Recommendations

## **Recommendations 1 & 2 - Screening with FOBT or FS:**

- The weak recommendation for people aged 50-59 years vs the strong recommendation for people aged 60-74 years is based on the less favourable balance of benefits to harms for the former, and implies that the decision to be screened will require more discussion among people aged 50-59 years.
- Screening will be more appropriate for patients aged 50-59 years who are interested in a small absolute reduction in the risk of death from CRC, and who are less concerned about the potential harms and inconvenience of testing.
- In contrast, patients aged 50-59 years who are more concerned about harms and inconvenience could make a valid decision to defer screening until 60 years of age or older.



# Considerations for Implementation of Recommendations

## **Recommendations 1 & 2 - Screening with FOBT or FS (con't):**

- FIT is more sensitive and specific than both gFOBT and high sensitivity gFOBT, and is the primary screening test in all of the provinces with the exception of Ontario and Manitoba. Given FIT's increased sensitivity, screening programs may consider setting a high cut-off in order to reduce the false positive rate, but still provide appropriate screening.
- Limited access to flexible sigmoidoscopy may result in most Canadians being appropriately screened with FOBT
- Patients who wish to be screened but prefer less frequent testing and/or are averse to stool testing with FOBT may be more likely to choose flexible sigmoidoscopy rather than FOBT.

# FOBT & FLEX Sigmoidoscopy

## Screening Intervals

- CTFPHC selected a 2 year screening interval for FOBT (gFOBT and FIT) as this was the interval most commonly used in gFOBT RCTs
  - RCT data showed no significant difference found between annual and biennial screening on CRC specific mortality
- CTFPHC selected a 10 years screening interval for Flex Sig. based on three factors:
  - Data show a reduction in CRC mortality and incidence until 11 years of follow-up
  - RCT data show beneficial effects of screening are maintained over follow-up period
  - Observational data show mortality benefits last for at least 10-15 years