Colorectal Cancer:

Isn't Everybody Getting Screened?

Marty Fishman, MD, FRCPC
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Colorectal carcinoma (CRC) is the second leading cause of cancer mortality in Western society. An estimated 6% of Canadians will develop CRC, half of whom will be asymptomatic until advanced stages of the disease.

CRC usually arises from mucosal adenomas over a period of five to 10 years. Adenoma removal has been shown to reduce CRC incidence and mortality rates, prompting the development of CRC screening guidelines by various organizations worldwide, including the Canadian Association of Gastroenterology in conjunction with the Canadian Digestive Health Foundation. Central to these guidelines is the concept of CRC risk stratification.

George's Case

- George, 44, reluctantly seeks your advice because his father was recently diagnosed with rectal cancer at age 71.

- George's wife pays attention to American media and has told him that everyone should have a colonoscopy.
- He is asymptomatic and in otherwise excellent health.
- He does not want a colonoscopy and asks you to tell his wife he does not need one.

What should you tell George?

For the answer, go to page 80.

Who's at risk?

The main risk factors in CRC are a personal or family history of CRC or adenoma and longstanding ulcerative colitis or colonic Crohn's disease.

Approximately 30% of CRC is thought to be genetically determined. The greater the number of relatives affected, the closer the relationship and the younger the age at onset, the greater the risk.

Two specific syndromes account for approximately 5% of CRC combined:

1. Familial adenomatous polyposis (Table 1)
2. Hereditary nonpolyposis colorectal cancer (Table 2)

Table 1

FAP

- Multiple colonic polyps with cumulative 100% malignant potential.
- Several variants (classic FAP, attentuated FAP, Gardner's syndrome).
- Genetic counselling and testing for patients and family members recommended where available.
- Begin screening at about age 12, under the direction of a gastroenterologist.

FAP: Familial adenomatous polyposis

What are the appropriate tests?

Several screening tests are generally available in Canada (Table 3). The gold standard is colonoscopy because of its completeness, sensitivity, specificity and ability to remove adenomas. Colonoscopy provides the

Table 2

HNPCC

- Fewer polyps than FAP, but each polyp has increased malignant potential.
- Two variants (one poses only CRC risk, the other poses for CRC and other malignancies, especially endometrial carcinoma).
- Genetic counselling and screening recommended for patients and family members where available.
- Two classification systems, the most common being the Amsterdam criteria:
  1. Three or more relatives affected by CRC or another HNPPC malignancy (*i.e.*, endometrium, small bowel, ureter or renal pelvis).
  2. The malignancy involves at least two successive generations.
  3. One affected relative is a first degree relative of the other two.
  4. At least one affected relative is age 50 or younger.

HNPCC: Hereditary nonpolyposis colon cancer syndrome
FAP: Familial adenomatous polyposis
CRC: Colorectal carcinoma

Advising George

George fits into risk group 2. You explain his risk, the rationale for screening and his options, including the advantages and disadvantages of each.

You recommend colonoscopy, but the choice is ultimately his.

Like 70% of your group 2 patients, George opts for colonoscopy.

The chance that we will find and remove at least one adenoma is about 15%.

Dr. Fishman is a Clinical Instructor, Division of Gastroenterology, University of British Columbia, and a Gastroenterologist, The Richmond Hospital, Richmond, British Columbia.

Table 3

Screening tests

Colonoscopy
- Complete
- Highly sensitive
- Highly specific
- Allows polypectomy
- Requires preparation and sedation
- Small risk

Flexible sigmoidoscopy (FS)
- Incomplete colonic examination
- Allows polypectomy
- Requires preparation, but not sedation
- Minimal risk

Fecal occult blood test (FOBT)
- Noninvasive
- Low sensitivity
- Moderate inconvenience
- Does not specifically diagnose colorectal carcinoma or adenoma
- Positive result requires colonoscopic followup
- Otherwise virtually no risk

FS & FOBT
- Combines the attributes of FS and FOBT

Barium enema
- Much less sensitive and specific than colonoscopy
- Does not allow polypectomy
- Requires preparation, but not sedation

Computed tomography colonography
- Sensitivity and specificity intermediate between colonoscopy and barium enema
- Requires preparation, but not sedation
- Does not enable polypectomy
- Minimal risk

greatest reassurance that a colon is free of neoplasms and, hence, a longer interval is accepted for subsequent followup.

All other tests are less reliable, but are acceptable for patients who are not considered to be at high-risk for CRC; their minor advantages are related to availability and risk. Cost-effectiveness tends to be similar for all available tests.

FAQ

Are diagnostic imaging studies appropriate for CRC screening?	*What should I recommend to my average-risk patient?*	*The colonoscopy waiting list in my community is already too cluttered with patients who really need it—what should I do?*
Barium enema is losing favour relative to colonoscopy. Computed tomographic colonography ("virtual colonoscopy") is increasingly available and may become an alternative.	Give them information about the options listed in the guidelines and let them participate in the decision.	Under these circumstances, my preference for group 1 patients would be FOBT, but I would also lobby to increase funding for colonoscopy by contacting the Canadian Digestive Health Foundation at **www.cdhf.ca**.

Who should be screened?

Risk stratification results in four major groups (Table 4). Screening recommendations for each group are as follows:

Group 1

- Begin at age 50
- Any of the following modalities is acceptable:
  a. Fecal occult blood test (FOBT) every one to two years
  b. Flexible sigmoidoscopy (FS) every five years
  c. FS and FOBT every five years
  d. Barium enema every five years
  e. Colonoscopy every 10 years

Group 2

- Same as group 1, but begin at age 40

Group 3

- Colonoscopy every five years, beginning at age 40 or 10 years younger than youngest affected relative (whichever comes first).

Group 4

- Regular specialist followup is required with the appropriate screening measures to be determined by the involved specialist.

Table 4

CRC stratified risk groups

Group 1	• Average risk • All patients not in group 2 to 4
Group 2	• Slightly increased risk a. One first-degree relative with CRC or adenoma above age 60 b. Two or more second-degree relatives with CRC or adenoma at any age
Group 3	• Moderately increased risk a. One first-degree relative with CRC or adenoma at or below age 60 b. Two or more first-degree relatives with CRC or adenoma at any age
Group 4	• Highest risk a. FAP b. HNPCC c. Longstanding ulcerative colitis or chronic colonic Crohn's disease d. Previous CRC or adenoma

CRC: Colorectal carcinoma
FAP: Familial adenomatous polyposis
HNPCC: Hereditary nonpolyposis colorectal cancer