Colorectal Cancer Screening

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Disclosures

- None

What's new in CRC screening?

- Fecal Immunochemical Tests (FITs) come to Canada
- Results from UK flexible sigmoidoscopy trial
- CAG Update on CRC screening
- BC Guidelines on CRC screening – under review
- Colon Check: a pilot of population-based CRC screening in BC

FIT

- Antibody test that reacts with the globin portion of human hemoglobin
  - Qualitative and quantitative
- Semi-automated = objective results
- Specific for human hemoglobin
- Specific for colonic bleeding (?)
- Does not interact with food or medications
- Fewer stool specimens needed
- More sensitive for detecting cancer and advanced polyps than guiaic-based fecal occult blood tests
- Improved compliance

FIT

- Randomized trial of FIT vs guaiac fecal occult blood test
- Invited 20,623 individuals 50-75 years of age
- Tests returned for 10,933

	Participation	Positivity	PPV *
FIT	60%	5.5%	52%
gFOBT	47%	2.4%	55%

* Cancer and advanced adenomas (> 9mm +/- high risk histologic features)

- FIT over twice the advanced adenomas and cancers
- FIT participation is higher

Van Rossum et al. Gastroenterology 2008;135:82-90

Flexible Sigmoidoscopy

- Randomized trial of one-time flexible sigmoidoscopy (55-64 years) *vs* usual care
- 170, 432 Britons
- Median follow-up 11.2 years
- Decrease CRC mortality by 31%
- Decrease CRC incidence by 23%
- Decrease in CRC incidence in the rectum and sigmoid by 50%

- Decreases CRC mortality and incidence

Atkin et al. Lancet 2010;375:1624

CT Colonography

- 2600 asymptomatic individuals
- Tandem CT colonography and colonoscopy
- CT colonography detected 90% of neoplasms ≥ 10 mm
  - Missed one rectal cancer
- CT colonography detected 65% neoplasms ≥ 5mm

- Comparable to colonoscopy for detection of cancers and large polyps but less accurate in the detection of small polyps
- Multiplicity

Johnson et al. NEJM 2008;359:12 (American College of Radiology Imaging Network)

Colonoscopy

- RCT underway to assess for efficacy in CRC screening
- Ontario case-control trial demonstrating that colonoscopy decreases CRC mortality
- 10,292 cases and 51,460 controls identified from claims data
  - OR 0.63 (95% CI 0.57-0.69)
  - Left sided CRC OR 0.33 (95% CI 0.28-0.39)
  - Right sided CRC OR 0.99 (95% CI 0.86-1.14)
- I

Baxter et al. Annals of Internal Medicine 2008;150:1-8

Colonoscopy

- 4,883 individuals (50-80 years old) with colorectal cancer diagnosed between 1992-2008 in Manitoba
- 7.9% were missed/early cancers
  - Missed = colonoscopy within 3 years to 6 months of diagnosis
- Proximal cancers were an independent risk factor

Singh et al. Am J Gastro epub 28 Sept 2010

Colonoscopy

- Retrospective study of 45,026 individuals undergoing CRC screening by 186 physicians
- Identified 42 interval cancers over 188,788 person-years
- A physician's adenoma detection rate was significantly associated with development of CRC in the screening program (p=0.008)
- Cecal intubation rate was not significantly associated with interval CRC

Kaminski et al. NEJM 2010;362:1795

Physicians and colonoscopy quality

- Physicians performing less colonoscopies/year have a higher rate of perforation and bleeding
- Physicians with a lower adenoma detection rate have a higher rate of interval colorectal cancer
- The physician performing the colonoscopy is an independent predictor of adenoma detection rate and interval cancers, controlling for withdrawal time

CAG Recommendations on CRC Screening

CAG Recommendations

- Update to the 2004 consensus conference
- Favor programmatic screening over opportunistic screening where available
- For *programmatic screening* recommend:
  - FIT annual or biennial
  - Flexible sigmoidoscopy every 10 years
- For *opportunistic screening* recommend:
  - FIT annual or biennial
  - Flexible sigmoidoscopy every 10 years
  - Colonoscopy every 10 years
- Do not recommend CT colonography, DCBE, fecal DNA

Colon Check

Colon Check Overview

- Operated through population screening at the BCCA
- Develop the processes for programmatic CRC screening
- Field test in 3 BC communities
  - Penticton (January 2009), Powell River (October 2009) , Vancouver core (April 2010)
- Pilot completed March 31, 2011 and screening continues in pilot communities
- Evaluation and formulation of an action plan for province-wide roll-out

CRC Screening Programs in Canada

Province	Start	Provincial program	Regional program, expanding province-wide	Provincial program launch anticipated over the next year	Pilot in small communities
Ontario	2007	◆			
Manitoba	2007	◆			
Alberta	2007	◆			
Nova Scotia	2009		◆		
Saskatchewan	2009		◆		
New Brunswick	2011			◆	
Quebec	2011			◆	
Newfoundland	2011			◆	
BC	2009				◆
PEI	2009				◆

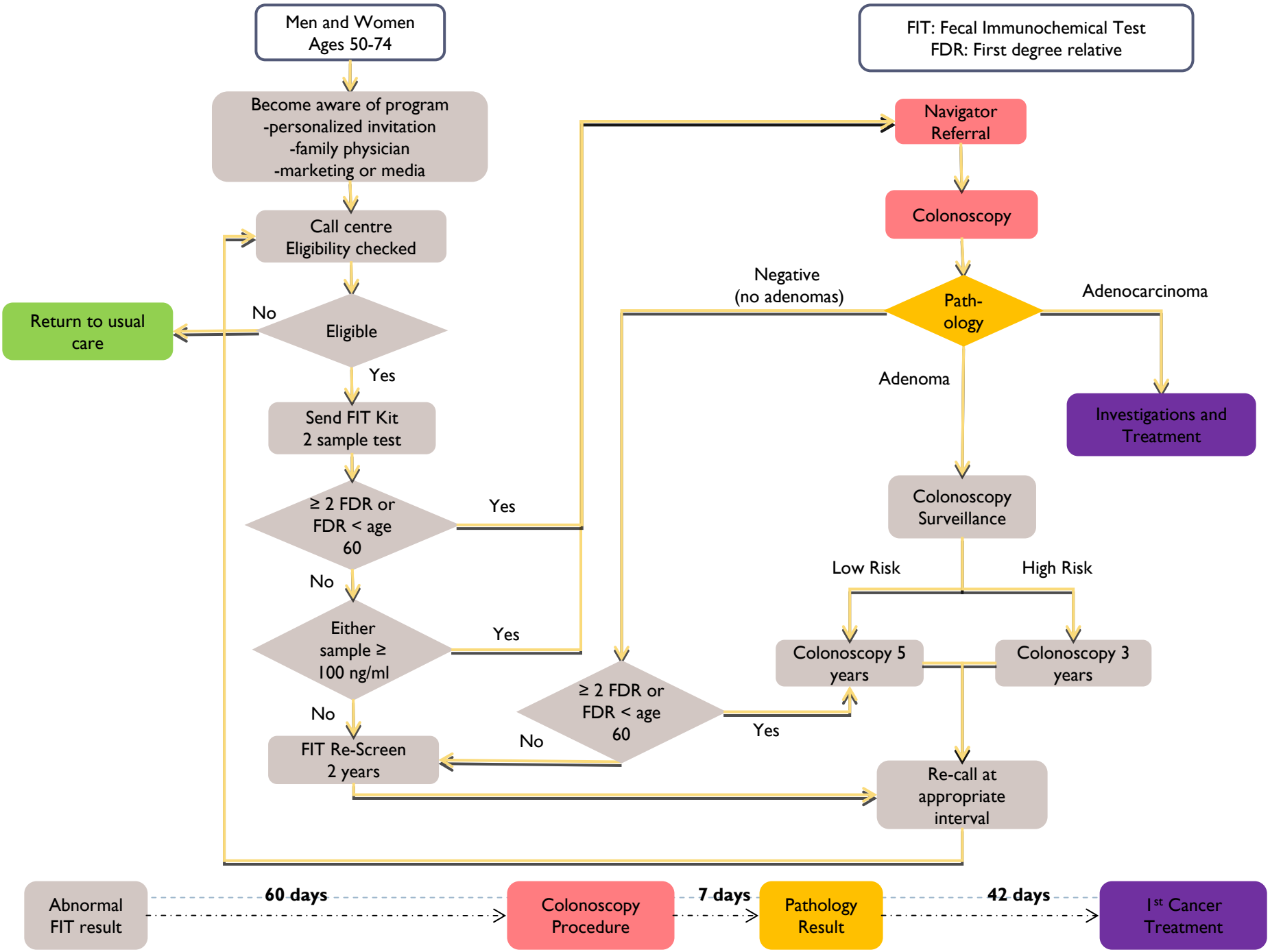
Current CRC Screening in BC

- Current opportunistic screening
  - Not equitable
  - No formal quality control
  - Not working – less than 10% CRC diagnosed through screening. No decrease in incidence despite evidence for screening 20 years ago!

- 30-40% of individuals 50-74 years of age in BC are up to date with CRC screening

Colon Check Principles

- Equitable access
- Identify participants with a family history of CRC
- Participant navigation = Nurse Navigator
- Colonoscopy and pathology quality standards
- Registration through each screening session or to 1st cancer treatment
- Standardized surveillance


Men and Women
Ages 50-74
FIT: Fecal Immunochemical Test
FDR: First degree relative
Become aware of program
-personalized invitation
-family physician
-marketing or media
Call centre
Eligibility checked
Return to usual care
No
Eligible
Yes
Send FIT Kit
2 sample test
≥ 2 FDR or FDR < age 60
Yes
No
Either sample ≥ 100 ng/ml
Yes
No
FIT Re-Screen
2 years
Navigator
Referral
Colonoscopy
Negative
(no adenomas)
Path-
ology
Adenocarcinoma
Adenoma
Investigations and Treatment
Colonoscopy
Surveillance
Low Risk
High Risk
Colonoscopy 5
years
Colonoscopy 3
years
≥ 2 FDR or FDR < age 60
Yes
No
Re-call at
appropriate
interval
Abnormal
FIT result
60 days
Colonoscopy
Procedure
7 days
Pathology
Result
42 days
1st Cancer
Treatment

Quality Assurance

- FIT
  - Standard operating procedures and outcomes monitoring
- Colonoscopist and Endoscopy Unit
  - Colonoscopy standards
    - DOPS
    - Global Rating Scale
    - Standardized colonoscopy reporting
  - Standardized surveillance
  - Quality indicator reporting back to colonoscopists
- Pathology
  - Standardized pathology reporting
  - Quality reviews

Preliminary Evaluation

- Registered before April 1, 2011
  - 8805 without a first degree relative with CRC
    - FIT Positivity 8%
    - Follow-up colonoscopy 93%
  - 744 (8.5%) with a first degree relative with CRC
    - 650 completed FIT
      - FIT Positivity 10%
    - Colonoscopy 70%

  - All eligible participants in Penticton and Powell River have been invited and 30-40% have participated

Colonoscopy Findings

	No Family History n=603	Family History n=518
Cancer*	21 (4%)	2 (.4%)
High risk adenoma	189 (31%)	43 (8%)
≥ 3 low risk adenomas	19 (3%)	11 (2%)
Any neoplasia	361 (60%)	66 (30%)
High risk findings	**229 (40%)**	**56 (11%)**
Number needed to scope	**3**	**9**
Number needed to screen	**39**	**--**

*20 cancers are stage I or II

Quality Indicators

- Cecal intubation 98.8%
- Satisfactory bowel prep 98%
- Serious adverse events 8 (.7%)
  - 3 perforations
  - 3 hemorrhage
  - 1 small bowel obstruction
  - 1 diverticulitis

Satisfaction Survey

Participants

- Response rate > 80%
- Over 95% were highly satisfied, would participate again and would recommend the program
- 82% felt comfortable using the FIT kit

Family Physicians

- Response rate 60%
- 100% were highly satisfied and would continue to refer patients

Summary

- Programmatic screening using FIT is effective
- Requires closely linked quality assurance
- Will require increased colonoscopy services
- Opportunistic screening will continue until Colon Check province-wide and may run in parallel long term
- BCMA guidelines available soon to guide choices for opportunistic screening

www.bccancer.ca/coloncheck