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

<table>
<thead>
<tr>
<th></th>
<th>Participation</th>
<th>Positivity</th>
<th>PPV *</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIT</td>
<td>60%</td>
<td>5.5%</td>
<td>52%</td>
</tr>
<tr>
<td>gFOBT</td>
<td>47%</td>
<td>2.4%</td>
<td>55%</td>
</tr>
</tbody>
</table>

* 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)

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

<table>
<thead>
<tr>
<th>Province</th>
<th>Start</th>
<th>Provincial program</th>
<th>Regional program, expanding province-wide</th>
<th>Provincial program launch anticipated over the next year</th>
<th>Pilot in small communities</th>
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</thead>
<tbody>
<tr>
<td>Ontario</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Manitoba</td>
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<td></td>
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<tr>
<td>Alberta</td>
<td>2007</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nova Scotia</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Saskatchewan</td>
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<tr>
<td>New Brunswick</td>
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<tr>
<td>Quebec</td>
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<td>Newfoundland</td>
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<td>BC</td>
<td>2009</td>
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</tr>
<tr>
<td>PEI</td>
<td>2009</td>
<td></td>
<td></td>
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</tbody>
</table>
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

Become aware of program
- personalized invitation
- family physician
- marketing or media

Call centre
Eligibility checked

Eligible

Send FIT Kit
2 sample test

≥ 2 FDR or
FDR < age 60

Either
sample ≥
100 ng/ml

FIT Re-Screen
2 years

No

Return to usual care

Yes

FIT: Fecal Immunochemical Test
FDR: First degree relative

Navigator Referral

Colonoscopy

Pathology

Negative
(no adenomas)

Adenocarcinoma

 لو اهتمام معالجة

Colonoscopy 5
years

Colonoscopy 3
years

Low Risk

High Risk

Re-call at
appropriate interval

60 days

Colonoscopy Procedure

7 days

Pathology Result

42 days

1st Cancer Treatment

Abnormal
FIT result
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

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

*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
If colorectal cancer is detected at its earliest stage, the chance of survival is over 90%.

Screening saves lives.

Colon Check

To get your free test kit, call Colon Check today (toll-free): 1-877-70-COLOR (1-877-702-6566)