Risk assessment tools for the symptomatic population

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Overview

• The target population
• Symptoms
• Current strategies and endpoints
• The ideal tool or test
• Current data
The Target Population

- Individuals with lower abdominal symptoms: abdominal pain, altered bowel habit, rectal bleeding, unexplained weight loss...
- Presenting to primary care physician
- Increasing prevalence
- Make up majority of patients referred for colonoscopy in Australia\(^1\) – over 90% including those on surveillance (as compared to those in a national screening programme)

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\(^1\)Department of Health AG. Public Release of Linkable 10% Sample of Medicare Benefits Scheme (Medicare) and Pharmaceutical Benefits Scheme (PBS) Data 2016

\(^2\)National Bowel Cancer Screening Program: Monitoring Report [press release], 2016
Symptoms

• Poor indicator of underlying significant bowel pathology
• Lack of either sensitivity and/or specificity where colorectal cancer detection is primary endpoint\(^1\):

Iron deficiency – 0.13 (sensitivity) and 0.92 (specificity)
rectal bleeding – 0.44 (sensitivity) and 0.66 (specificity)
• Does not add much to demographics – age, gender and other items in medical history\(^2\)


# PPV of referral symptoms for CRC

<table>
<thead>
<tr>
<th>Symptom or sign at referral</th>
<th>Positive predictive value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palpable mass</td>
<td>50.0</td>
</tr>
<tr>
<td>Weight loss</td>
<td>14.3</td>
</tr>
<tr>
<td>Anaemia</td>
<td>9.0</td>
</tr>
<tr>
<td>Rectal bleeding</td>
<td>4.3</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>3.6</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>2.4</td>
</tr>
<tr>
<td>Altered bowel habit</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Taken from Mowat, A et al. 755 referred cases who had undergone both FIT test and a colonoscopy.
Current strategies

- Refinement and update of guidelines
- GP education
- But pick up rate of significant bowel pathology (SBP) (CRC, high risk adenoma, inflammatory bowel disease) in symptomatic patients remains low

- Simplicity of approach (FIT ± additional data)


The ideal diagnostic test

• Results are different between those with and without condition(s) of interest
• Patients with specific test results are more likely to have the condition(s)
• Results distinguish patients between those with and without condition(s)
• Patients undergoing the diagnostic test fare better than a similar group not undergoing test

Sackett D, Haynes RB. BMJ 2002;324:539-41
Recent studies

Faecal haemoglobin and faecal calprotectin as indicators of bowel disease in patients presenting to primary care with bowel symptoms

Craig Mowat, 1 Jayne Digby, 2 Judith A Strachan, 3 Robyn Wilson, 3 Francis A Carey, 4 Callum G Fraser, 2 Robert J C Steele 2

- Embedded within a primary care setting
- FIT performance ± Faecal calprotectin (FC)
- CRC ± “significant bowel pathology (SBP)”
- 1043 subjects returned samples
- 755 of these went on to have a colonoscopy
• CRC in 28 (3.8%), HRA 41 (5.4%), SBP 103 (13.6%)
• Normal 241 (32%), diverticular disease 190 (25%)

• For any detectable faecal Hb, NPVs were:
  CRC – 100%
  High Risk Adenoma – 97.8%
  Inflammatory Bowel Disease – 98.4%

• Adding faecal calprotectin (cut off ≥ 200) detected further
  3 lesions (2 IBD, 1 HRA, no CRC)
- Simplicity and availability of test
- More scopes using any detectable FHb
- “Rule out” principal for symptomatic patients
- Requires further user acceptability testing
Further studies

Development and external validation of a faecal immunochemical test-based prediction model for colorectal cancer detection in symptomatic patients

Joaquín Cubiella\textsuperscript{1,2*}, Pablo Vega\textsuperscript{1}, María Salve\textsuperscript{1}, Marta Díaz-Ondina\textsuperscript{3}, María Teresa Alves\textsuperscript{4}, Enrique Quintero\textsuperscript{5}, Victoria Álvarez-Sánchez\textsuperscript{5}, Fernando Fernández-Bañares\textsuperscript{6}, Jaume Boadas\textsuperscript{8}, Rafel Campo\textsuperscript{9}, Luis Bujanda\textsuperscript{10}, Joan Clotet\textsuperscript{11}, Ángel Fernández\textsuperscript{12}, Leyanira Torrealba\textsuperscript{13}, Virginia Piñol\textsuperscript{13}, Daniel Rodríguez-Alcalde\textsuperscript{14}, Vicent Hernández\textsuperscript{2,15}, Javier Fernández-Seara\textsuperscript{1,2} and on behalf of the COLONPREDICT study investigators

- Embedded in a secondary care setting
- Derivation and validation cohorts
- Faecal, blood tests and clinical variables
- Risk stratification of target population
- Primary endpoint CRC
1572 subjects in derivation cohort:
214 CRC (13.6%) [3.8%*]
251 HRA (16%) [5.4%]
36 “colitis” (2.3%) [4.5%]
501 with SBP (31.8%) [13.6%]

Study nurses administered questionnaire
Stool and blood samples collected per protocol
Prediction score identified 11 variables (from 32)

*As compared to Mowat A, et al.
Above table provides two score thresholds
Greater number of variables
23% of subjects from primary care
Can be used as a rule out test
Cut-offs in score – cut-offs in FIT
Summary

• Active field of investigation
• A number of issues that require further study:
  single or multiple variables (simplicity)
  cut-offs, definitions (HRA, SBP)
  implementation – “real-life” – studies
  primary care and/or secondary care settings
  cost-effectiveness
  dealing with the “fear factor”
Thank you

www.qimrberghofer.edu.au
- Low risk has predict score of < 3.5
- High risk predict score of ≥ 5.6
- Number needed to colonoscopy increases