Challenges for Colorectal Cancer Screening in Europe

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How can we screen for colorectal cancer?

- Tests for blood in faeces
- Lower GI Endoscopy
- Novel tests
Pilot study

National program

Regional programs

Pilot study
Screening Tests Used

gFOBt

FIT

Flex-Sig

Colonoscopy
Invitation methods used

- Direct invitation from central agency using national registers
- Invitation by General Practitioner
- Self referral encouraged by central agency
UK National Screening Committee (NSC)

- Advises ministers and NHS
  - Starting, changing and stopping screening programmes

- Monitors new evidence

- Advises all four countries of the UK
Proving Screening Works

Population RCT

No screening offered

Screening Offered (including those who choose not to participate and those developing interval disease)

Compare numbers of deaths or adverse outcomes from disease
Tests for Blood in Faeces
Guaiac Faecal Occult Blood (gFOBT) Trials

Reduction in death from CRC of 16%
gFOBT vs FIT

- **gFOBT**
  - Based on Guaiac reaction
  - Not specific for haemoglobin
  - Inconvenient to do

- **FIT**
  - Immunological
  - Specific for human haemoglobin
  - Easy to do
  - Quantitative
Lower GI Endoscopy
What are the options?

- Colonoscopy
  - Very sensitive and 100% specific
  - Expensive
  - No RCTs (4 in progress world-wide)

- Flexible Sigmoidoscopy
  - Misses R-side disease
  - RCT evidence (UK, Italy, Norway, US)
UK Flexible Sigmoidoscopy Trial
Mortality from CRC
UK Flexible Sigmoidoscopy Trial

Incidence of CRC

Control and intervention groups

Colorectal cancer, all sites: cumulative incidence (%)

Number at risk

Intervention: 57,099, 56,111, 55,106, 53,893, 52,501, 50,597, 9,459
Colorectal Screening in Scotland

- Everyone aged 50-74 invited centrally every two years
- Based on biennial gFOBT 2000-2017
- No flexible sigmoidoscopy
- Changed to FIT at 80µg/g in November 2017
Challenges for FIT

1. Uptake

2. Lowering the threshold
Uptake - gFOBT and FIT

Uptake, by level of deprivation and gender

- Males
- Females
Quantitative FIT – changing the threshold

Sensitivity

Cancer detection

Specificity

False positives
<table>
<thead>
<tr>
<th>Faecal haemoglobin concentration (µg Hb/g faeces)</th>
<th>Positivity rate</th>
<th>CRC detected</th>
<th>CRC missed</th>
<th>% CRC missed</th>
<th>PPV</th>
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<td>80</td>
<td>3.1%</td>
<td>711</td>
<td>-</td>
<td>5.2%</td>
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<td>182</td>
<td>25.6%</td>
<td>7.2%</td>
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</tbody>
</table>
Challenges for Flexible Sigmoidoscopy

1. Uptake
2. Delivery
3. Quality
Problems with current flexible sigmoidoscopy programme in England

- Uptake poor (~40%)
- Yield of pathology low
- Delivery difficult
- Unpopular with endoscopists
Uptake
Why don’t people accept CRC screening?

- Not invited
- Financial barriers
- Apathy / fatalism
- Fear
- Ignorance
- Disgust
- Informed choice
What can we do to increase uptake?

- Direct invitation
- Remove financial barriers
- Modifying the test
- Pre-notification
- Psychological Intervention
- National Publicity Campaigns
- Engaging with Primary Care
Delivery
UK NSC Recommendation

- Cost-effectiveness analysis
- FIT a threshold of 20 µg Hb/g faeces
- Age range 50 - 74
Positivity at Different Thresholds

- 6% at 20
- 1.8% at 140
- gFOBT
Challenges for Europe

• Population coverage
  – Direct invitation of entire eligible population
  – Removal of financial barriers

• Delivery of the most effective test
  – Low FIT threshold
  – Investment in colonoscopy