



# Using FIT for polypectomy surveillance

**Manon Spaander**

**Erasmus University Medical Center, Rotterdam  
the Netherlands**





**Faecal Immunochemical tests (FIT) versus  
colonoscopy for surveillance after screening and  
polypectomy:  
a diagnostic accuracy and cost-effectiveness study**

**prof. Wendy S. Atkin**



# Background

- 3- yearly colonoscopy surveillance is recommended for patients at intermediate risk for CRC.
- Intermediate risk defined as:
  - 3- 4 small adenomas or
  - 1 adenoma  $\geq 10$  mm



# Background

- Colonoscopy carries risk of complication, time-consuming, discomfort and demand on colonoscopy capacity and costs.
- FIT is non-invasive, performed at home, automated analysis. In case of quantitative FIT: positivity rates can be modified.
- FIT established for screening, less is known for surveillance



# Faecal Immunochemical tests (FIT) versus colonoscopy for surveillance after screening and polypectomy

- Aim to determine if annual FIT is:
  - Feasible and safe
  - Acceptable
  - Cost- effectiveness
  
- Intermediate risk patients under surveillance

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## Study design and participants

- 60-72 years
- at intermediate risk of CRC following colonoscopy
- colonoscopy performed < 1 year previously in BCSP for a positive gFOBT
- scheduled to undergo 3 yearly colonoscopy surveillance

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## Study design and participants

- Quantitative FIT (OC-sensor) sent to participants and returned by prepaid envelope
- Positivity threshold 40  $\mu\text{g/g}$
- FIT at 1, 2 and 3 years post-polypectomy



## Study design and participants

- Participants positive FIT at 1 or 2 years → early colonoscopy
- All participants offered a 3 year FIT → routine colonoscopy





# Results

- 8008 invitees
  - > 65 years 50.7%; 34.7 % female
- 5946 (74.3%) participants
- 97% returned FIT at 2 and 3 years



## Results

- Annual FIT positivity rate: 5.8% to 4.1% over 1-3 years
- Colonic examinations were performed in 5199/5946 (87%)
- Yield:
  - CRC 26 (0.5%)
  - AAs 443 (8.5%)



# Results

- Location CRC: n=23/26
  - Proximal n= 12
  - Distal n= 11
  
- Stage 23/26 CRC:
  - Stage I/II: n= 14
  - III/IV: n= 9
  - pT3 or T4 n= 11

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## Outcome FIT over 3 years



- 744/ 5946 (13%) underwent colonic examination after positive FIT
- Adherence to colonic examination after positive FIT: 94%



## FIT threshold at 40 µg/g

- Cumulative positivity rate 13%
- PPV 2.4%
- Missed CRC n=8 (31%)
- Missed AA n=291 (65%)
- Sensitivity for CRC:59%
- Sensitivity for AA: 33%

## FIT threshold at 10 µg/g

- Cumulative positivity rate 29%
- PPV 1.4%
- Missed CRC n= 4 (15%)
- Missed AA n= 189 (42%)
- Sensitivity for CRC:72%
- Sensitivity for AA:57%



## CRC missed by FIT

- FIT<sup>40</sup> CRC missed n=8
  - Location CRC: proximal n= 4, distal n=1 (NET), unknown n=3
  - Stage CRC: stage I: n= 2 stage II: n= 3 unknown: n=3
- FIT<sup>10</sup> CRC missed n= 4
  - Location CRC: proximal n= 2, distal n= 1(NET) unknown: n=1
  - Stage CRC:
    - stage I: n= 2 stage II: n= 1 unknown:n= 1

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## Cost- effectiveness

- Total costs 3 yearly colonoscopy surveillance: £2,633,382
- FIT + colonoscopy in positive cases FIT<sup>40</sup> £485,236
- FIT + colonoscopy in positive cases FIT<sup>10</sup> £ 956,602
- Incremental cost-effectiveness per AA not detected £7382 and £268,518 per CRC not detected
- Incremental cost-effectiveness per AA not detected £8872 and £419,195 per CRC not detected
- Replacing colonoscopy with FIT in the UK: £ 3.6 to £ 4.6 million to be saved

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## Patient preference

- Questionnaires, discussion groups and interviews
- 198 people invited (average risk and intermediate risk)
  - 45 (22.7%) participants
- 3-yearly colonoscopy plus annual FIT (57.9%)
- Annual FIT with colonoscopy in positive cases (31.5%)



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## Conclusion

- Annual low-threshold FIT with colonoscopy in positive cases achieved high sensitivity for CRC
- Reduce colonoscopies by 70%
- Is cost saving compared with 3-yearly colonoscopy.
- However, at higher thresholds, this strategy could miss 15–30% of CRCs and 40–70% of AAs.
- Most participants preferred annual FITs plus 3-yearly colonoscopy.

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