Effect of CRC Screening on Incidence

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Declaration of Interests

Employee of NHS National Services Scotland
Trends in CRC incidence – 10 year change

Colon

Rectal

Changes in colorectal cancer incidence in seven high-income countries: a population-based study

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http://dx.doi.org/10.1016/S2468-1253(19)30147-5

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Trends in CRC incidence - age

Colon

Rectal
Can screening prevent CRC?
Flexible sigmoidoscopy trials

23% reduction

Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial

Wendy S Atkin, Rob Edwards, Ines Kralj-Hans, Kate Wooldrage, Andrew R Hart, John M A Northover, D Max Parkin, Jane Wardle, Stephen W Duffy, Jack Cuzick, UK Flexible Sigmoidoscopy Trial Investigators

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DOI:10.1016/S0140-6736(10)60551-X

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gFOBT screening - Minnesota trial

- Minnesota trial, rehydrated gFOBT, 30% of study group had colonoscopy

**Diagram:**
- Cumulative incidence per 1000 over years, comparing annual, biennial screening, and control groups.

**Reference:**
THE EFFECT OF FECAL OCCULT BLOOD SCREENING ON THE INCIDENCE OF COLORECTAL CANCER

- Jack S. Mandel, Ph.D., M.P.H., Timothy R. Church, Ph.D., John H. Bond, M.D., Fred Ekker, M.A.,
  Mindy S. Geisser, M.S., Steven J. Mongin, M.S., Dale C. Snoey, M.D., and Leonard M. Schuman, M.D.
gFOBT Screening - Nottingham trial

• Benchmark for gFOBT screening in UK

• Used unrehydrated Haemoccult II

• Sustained reduction in CRC mortality after 20 years of follow-up

• No significant reduction in CRC incidence, despite high yield of adenomas

Nottingham trial of faecal occult blood testing for colorectal cancer: a 20-year follow-up

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Screening in Scotland

• Based on biennial gFOBT 2000-2017

• No flexible sigmoidoscopy

• Changed to FIT at 80µgHb/gF in November 2017
CRC Incidence in Scotland

- CRC incidence shown relative to 2002 value
- In absolute terms, over 50s group incidence much higher
- Over 50s Incidence increases initially with screening, then drops below previous levels

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Screening population incidence - crude

- Participant incidence rate higher, then drops to same level as non-participant
- Selection effect of age and sex
Why adjust for age and sex?

- Observational study – selection effect
- Participation rate is higher for females and older age groups
- CRC incidence rate is higher for males and older age groups
- Controlling for age and sex gives clearer picture of participation impact...
Participation and incidence - adjusted

- Initial increase in participant group from 2007 as time to diagnosis is shortened
- Clear and sustained reduction in participant group from 2010
- Standardised rate ratio in 2017 is 0.86 (95% CI 0.79-0.93)

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Conclusions

• Scottish incidence data consistent with that found in other high-income countries

• Participation in screening is associated with a reduction in incidence

• gFOBT and, by inference, FIT screening may have a role in prevention, as well as early detection, of colorectal cancer
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