Approaches to Colonoscopy quality in CRC screening

Roland Valori
Gastroenterologist
Gloucestershire Hospitals
Improving outcomes of CRC - 1995

• Multidisciplinary meeting in Gloucester UK exploring different service options for improving CRC outcomes
• Conclusion:
  – screen the population of Gloucestershire from age 50 with FOBT
A national CRC screening programme - 2005

- Following a national colonoscopy audit there were predictions of 12 colonoscopy-related deaths/year resulting from screening
- Considered critical to ensure colonoscopy quality was optimised before screening started
Creating and maintaining a high colonoscopy service for screening

• Quality assure before you start (= accreditation):
  – units
  – colonoscopists

• Measure and review as you go:
  – units
  – colonoscopists

• Act on poor performance:
  – units
  – colonoscopists
National gFOBT programme launched in 2006

60-69 initially
extended to 60-74 in 2008
What is most important to the patient?

- Patient experience
- Complications
- Missed polyps
- Incomplete resection
- Inappropriate surgery
- Missed cancer

Outcomes which adversely affect patients
- Unexpected hospital stay
- Additional procedures
- Protracted procedures
- Death
Missed cancer in proximal transverse colon
Impact of adenoma detection on interval cancer

**B. Risk of Advanced-Stage CRC**

- **Worst**
  - Quintile 1: HR = 1.00 (95% CI: 0.55–1.16)
  - Quintile 2: HR = 0.80 (95% CI: 0.45–1.00)
  - Quintile 3: HR = 0.68 (95% CI: 0.33–0.71)
  - Quintile 4: HR = 0.48 (95% CI: 0.29–0.64)

- **Best**
  - Quintile 5: HR = 0.43 (95% CI: 0.29–0.64)

**C. Risk of Fatal CRC**

- **Worse**
  - Quintile 1: HR = 1.00 (95% CI: 0.65–1.61)
  - Quintile 2: HR = 1.02 (95% CI: 0.55–1.17)
  - Quintile 3: HR = 0.80 (95% CI: 0.33–0.81)
  - Quintile 4: HR = 0.51 (95% CI: 0.22–0.65)
  - Quintile 5: HR = 0.38 (95% CI: 0.22–0.65)

**No. of CRCs**
- Quintile 1: 79
- Quintile 2: 53
- Quintile 3: 47
- Quintile 4: 49
- Quintile 5: 27

**No. of Deaths**
- Quintile 1: 45
- Quintile 2: 35
- Quintile 3: 29
- Quintile 4: 28
- Quintile 5: 12
## Relationship of ADR to subsequent cancer

<table>
<thead>
<tr>
<th>Quintiles: ADR range</th>
<th>Interval cancers</th>
<th>Hazard ratio for interval cancer</th>
<th>Unadjusted risk of cancer</th>
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</thead>
<tbody>
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<td>186</td>
<td>1.00 (reference)</td>
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1% increase in ADR is associated with a 3% decreased risk of cancer.

# Relationship of ADR to death from cancer

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2015 - How were we doing with ADR?

- We had an experiment underway
- Scotland was screening in the same way as England but did not make the same effort to ensure colonoscopy quality
Trend in adenoma detection rates in Scottish and English screening programmes

Quyn et al, Colorectal Diseases, 2018
George Alagiah;
Rectal cancer diagnosed in 2014 age 58

Sunday Times
March 2018
“...cancer could have been caught earlier...had England screened from the age of 50 like Scotland”
Denmark - 2014

- Started FIT-based CRC screening in 2014
- Colonoscopy service: no preparation for increased demand or quality
Danish CRC screening programme

- 50-74
- FIT @ 100ug/L
- 61% participation
- 7% +ve
- 90% of these have colonoscopy or CTC

Data courtesy of Lasse Pedersen; Nord Region Denmark
What effect would the Danish approach have in England?

• >6,000 more colorectal cancers would be screen detected each year
• This means:
  – younger (50-59) people benefiting from screening
  – improved survival
  – lower costs of treatment
  – 1200 fewer emergency admissions for cancer each year
• And many, many more cancers prevented
BUT if you adopt the Danish approach

• Be prepared for short and long term problems:
  – deaths of people who do not have cancer
  – post-colonoscopy colorectal cancers
• And loss of trust in the population leading to:
  – reduced uptake and fewer screen-detected cancers
Expert witness - colonoscopy

- Fit 67 year old female
- Standard 3-year surveillance
- Two diminutive polyps removed with cold snare
- Uncomplicated procedure
- Well on discharge
- Sudden on onset of severe pain two hours later
- Dead 11 hours after procedure

February 2019
Doctor wrongly gave 13 patients who had bowel cancer the all clear

One patient died before they were recalled and a second patient died last year

Safety Incident Management Team
Report for NIMLT Case 50796

Final Report
17th January 2017

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

https://www.lenus.ie/handle/10147/622760
Waterford - Ireland

- Surgical colonoscopist had done 384 FIT +ve colonoscopies
- 2 missed cancers prompted
  - review of practice and
  - 118 of the procedures repeated
- Eventually it emerged 13 cancers had been missed in the 384 FIT+ve patients
- This has led to a major review of colonoscopy quality in Ireland
Origins of post colonoscopy CRC (PCCRC)

Years post-colonoscopy:
- Missed cancers
- Incompletely resected polyps
- Missed polyps
- New cancers

%
We recommend that post-colonoscopy colorectal cancer (PCCRC) be the preferred term for cancers appearing after a colonoscopy in which no cancer is diagnosed.
Post colonoscopy CRC (PCCRC)

false negatives
true positives + false negatives

True positive - cancer diagnosed within 6 months
Falsely negative - cancer diagnosed 6 – 36 months
Adjusted PCCRC-3 year rates in English NHS Hospitals, 2011 to 2013

Denmark PCCRC rate in 2012 = 7.9%
Pedersen et al. Endoscopy. 2019;51:733–41

Burr et al, accepted for publication. BMJ 2019
Have I moved full circle?

Yes and no
Slovenian approach to colonoscopy quality

- Have selection criteria for screening colonoscopists
- Monitor performance
- Expel low performers from the programme