# England Bowel Cancer Screening Programme FIT Pilot

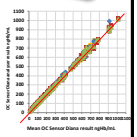
**Acknowledgements**
- Prof Sue Moss
- Chris Mathews
- BCSP Southern Hub
- BCSP Midlands & NW Hubs

University of Surrey
*Prof Stephen P. Halloran*

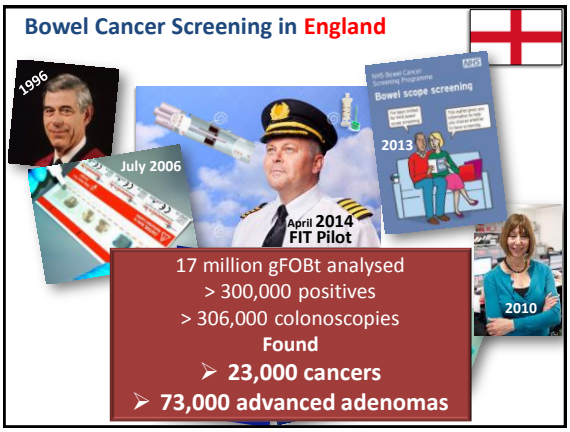
*Cancer Screening Programmes*

# Presentation messages - 15 min

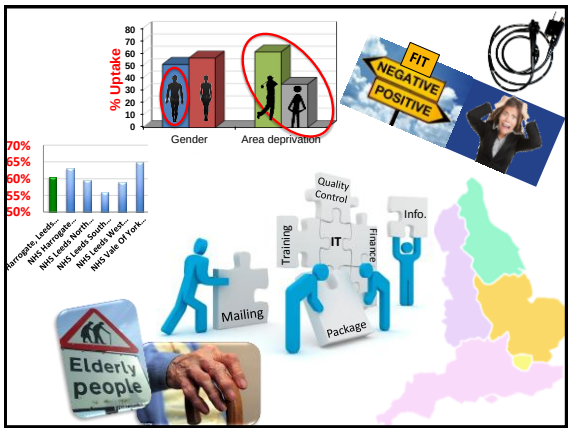
1. Model for future pilots 'within programme'
   - easy to replicate with minimise disruption
2. Monitoring analytical performance across sites
   4 instruments & 2 sites
1. FIT system designed to maximise uptake
   - Emphasis on 'hard to reach' groups
2. Exploiting Quantitative FIT
   - Implications & opportunities



# Bowel Cancer Screening in England



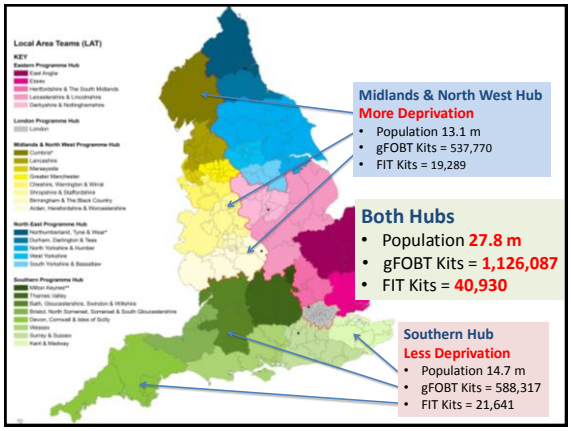

17 million gFOBt analysed
> 300,000 positives
> 306,000 colonoscopies
**Found**
- **23,000 cancers**
- **73,000 advanced adenomas**

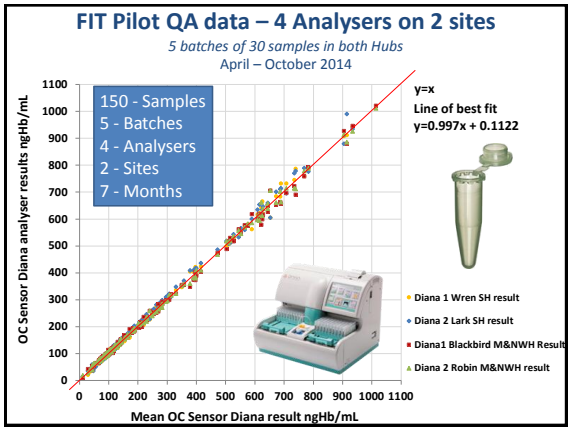


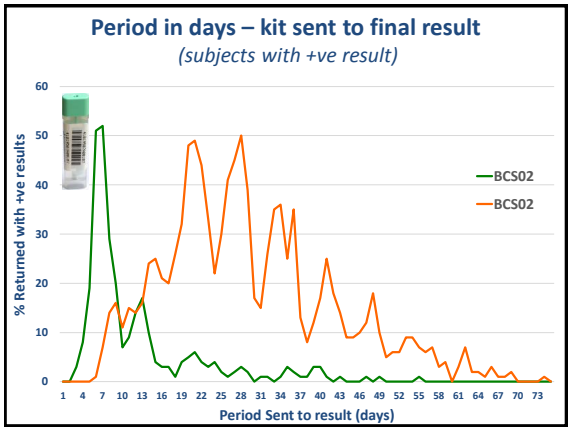

# FIT and NHS Bowel Cancer Screening in England

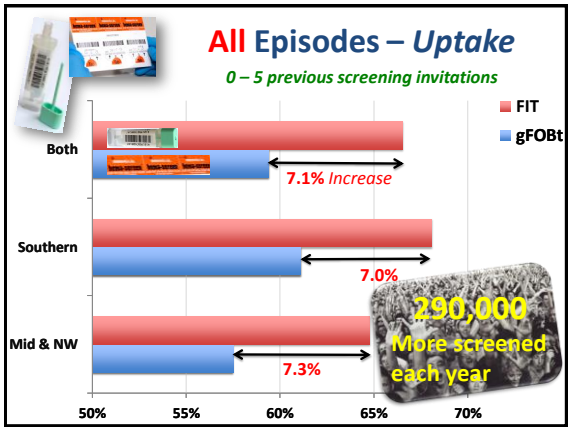
**2014 FIT Pilot**

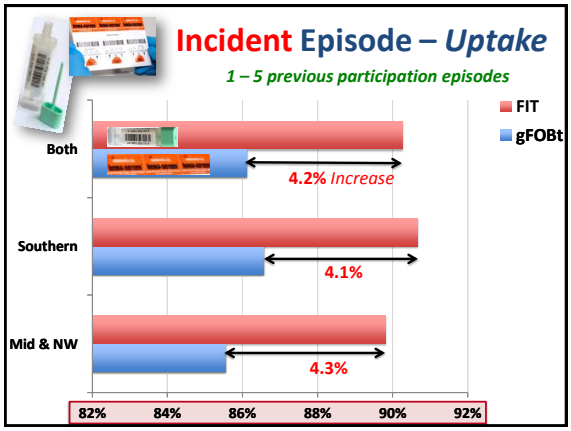

- Minimal impact upon BCSP
- Cut-off 20ug /g *(?positivity >6.5%)*
- FIT *in place* of guaiac FOBT
- 1 in 28 invitations will be FIT
- 40,000 FIT tests (single kit)
- Effectively randomised

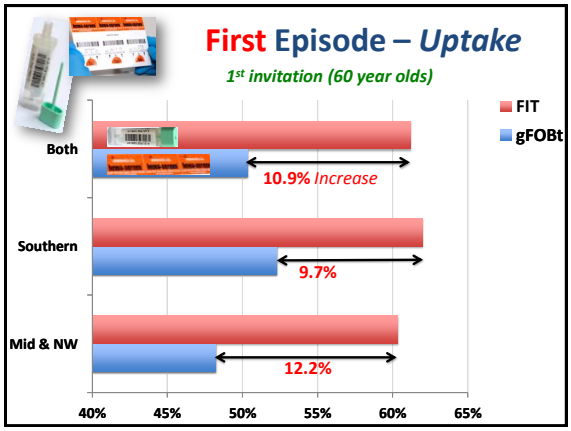


Midlands & North West Hub
More Deprivation
• Population 13.1 m
• gFOBT Kits = 537,770
• FIT Kits = 19,289
Both Hubs
• Population 27.8 m
• gFOBT Kits = 1,126,087
• FIT Kits = 40,930
Southern Hub
Less Deprivation
• Population 14.7 m
• gFOBT Kits = 588,317
• FIT Kits = 21,641

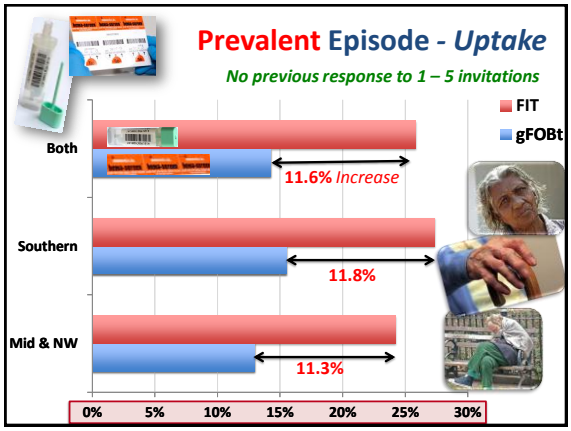

FIT Pilot QA data – 4 Analysers on 2 sites
5 batches of 30 samples in both Hubs
April – October 2014
150 - Samples
5 - Batches
4 - Analysers
2 - Sites
7 - Months
y=x
Line of best fit
y=0.997x + 0.1122
OC Sensor Diana analyser results ngHb/mL
Mean OC Sensor Diana result ngHb/mL
Diana 1 Wren SH result
Diana 2 Lark SH result
Diana1 Blackbird M&NWH Result
Diana 2 Robin M&NWH result

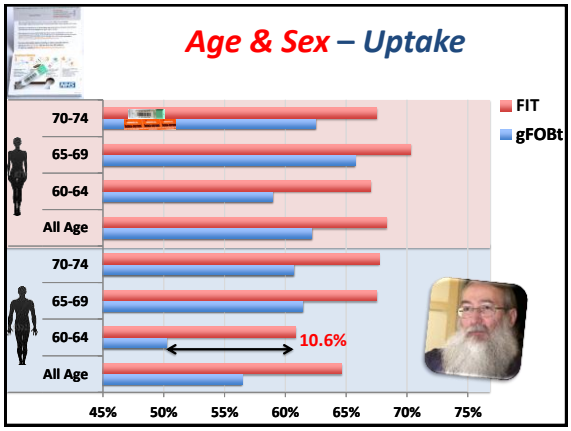

Period in days – kit sent to final result
(subjects with +ve result)
% Returned with +ve results
Period Sent to result (days)
BCS02
BCS02

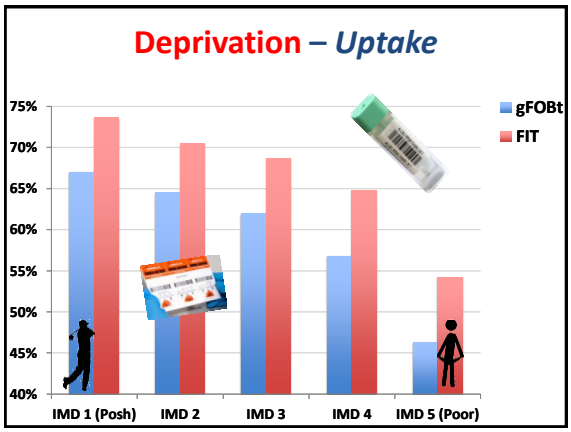

All Episodes – Uptake
0 – 5 previous screening invitations
FIT
gFOBt
Both
7.1% Increase
Southern
7.0%
Mid & NW
7.3%
290,000
More screened each year
50%
55%
60%
65%
70%

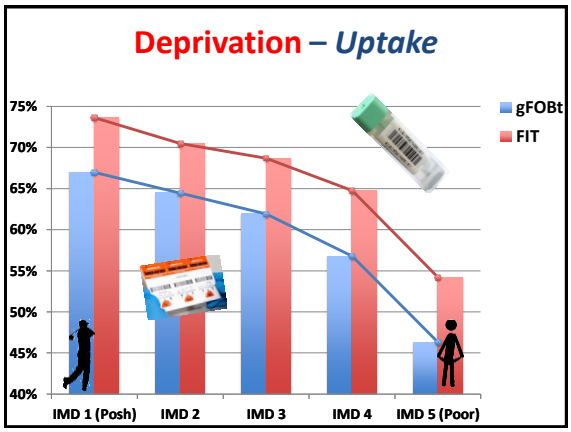

Incident Episode – Uptake
1 – 5 previous participation episodes
FIT
gFOBt
Both
4.2% Increase
Southern
4.1%
Mid & NW
4.3%
82%
84%
86%
88%
90%
92%

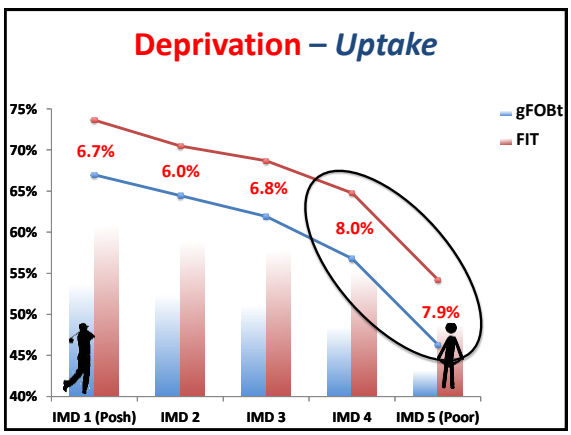

First Episode – Uptake
1st invitation (60 year olds)
FIT
gFOBt
Both
10.9% Increase
Southern
9.7%
Mid & NW
12.2%
40%
45%
50%
55%
60%
65%

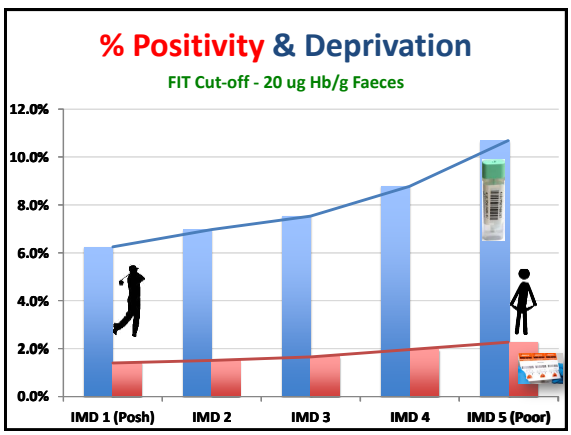

Prevalent Episode - Uptake
No previous response to 1 – 5 invitations
FIT
gFOBt
Both
11.6% Increase
Southern
11.8%
Mid & NW
11.3%
0%
5%
10%
15%
20%
25%
30%


Age & Sex – Uptake
FIT
gFOBt
70-74
65-69
60-64
All Age
70-74
65-69
60-64
10.6%
All Age
45%
50%
55%
60%
65%
70%
75%

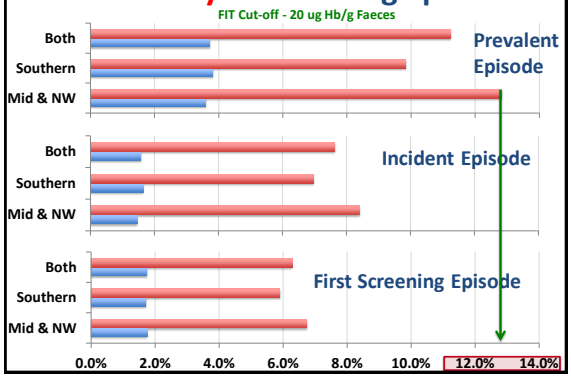

Deprivation – Uptake
75%
70%
65%
60%
55%
50%
45%
40%
gFOBt
FIT
IMD 1 (Posh)
IMD 2
IMD 3
IMD 4
IMD 5 (Poor)


Deprivation – Uptake
75%
70%
65%
60%
55%
50%
45%
40%
gFOBt
FIT
IMD 1 (Posh)
IMD 2
IMD 3
IMD 4
IMD 5 (Poor)

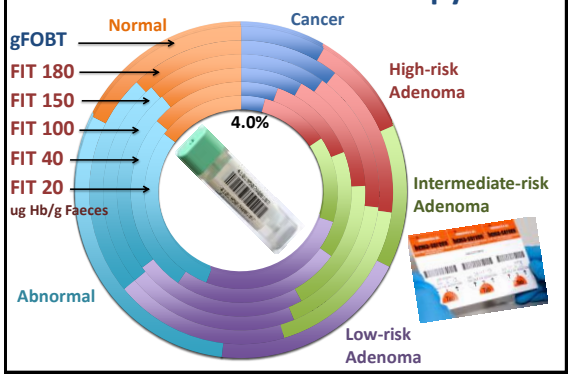

Deprivation – Uptake
75%
70%
65%
60%
55%
50%
45%
40%
gFOBt
FIT
6.7%
6.0%
6.8%
8.0%
7.9%
IMD 1 (Posh)
IMD 2
IMD 3
IMD 4
IMD 5 (Poor)


% Positivity & Deprivation
FIT Cut-off - 20 ug Hb/g Faeces
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
IMD 1 (Posh)
IMD 2
IMD 3
IMD 4
IMD 5 (Poor)

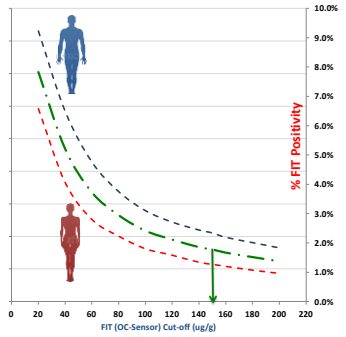
## % Positivity & Screening Episode




## Outcome at Colonoscopy




## Sex & FIT threshold – *% Positivity*




## Personal Characteristics Influence Screening Outcomes

**More positive tests in…**

- Male
- Elderly
- Deprived
- Screening non-compliant

**FIT cut-off at a high threshold disproportionally disadvantages…**

- Female
- Elderly
- Screening non-compliant

## FIT – An opportunity to personalise population-based screening?

**Better Screening by….**

…focusing on **populations**… **and** on **individuals?**

**'Personalising population-based screening' – PPS**

1. Intelligent use of FIT data
2. FIT & personal risk – *Multivariate risk scores*
3. …ready to join the *'Personalised Medicine'* band wagon?