# Faecal Occult Blood testing

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# Learning objectives

- Background

- Guidelines for colorectal cancer detection

- Tests available to detect occult blood in faeces

- Evidence for qFIT in symptomatic patients

- How to provide a service locally?

# Colorectal cancer - Background

- 4th most common cancer

- 2$^{nd}$ most common cause of cancer death in UK

- 1$^{st}$ cause of cancer death in non-smoking males

# Prognosis

- Bowel cancer is treatable & curable *if* detected early

- UK Screening detects 9 % cases
  8% stage 4

- Symptomatic pathway – 22 % stage 4

- 25 % detected through 2WW

# NHS Bowel Cancer Screening

- 5 UK hubs since April 2006

- Biennial basis for 60-74 y olds

- On request > 75 y olds

- Moving to qFIT from April 2018

NHS Bowel Cancer Screening Programme

# CRC detection: NG12, 2015

- **1.3 Lower gastrointestinal tract cancers - Colorectal cancer**

- 1.3.1 Refer people using a <u>suspected cancer pathway referral</u> (for an appointment within 2 weeks) for colorectal cancer if:

- they are aged 40 and over with <u>unexplained</u> weight loss and abdominal pain **or**

- they are aged 50 and over with unexplained rectal bleeding **or**

- they are aged 60 and over with:
- iron-deficiency anaemia **or**
- changes in their bowel habit, **or**
- <u>tests show occult blood in their faeces </u>(see recommendation 1.3.4 for who should be offered a test for occult blood in faeces). **[new 2015]**

# CRC detection: NG12, 2015

Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer in

1.3.2 people with a rectal or abdominal mass. **[new 2015]**

1.3.3 adults aged under 50 with rectal bleeding **and** any of the following unexplained symptoms or findings:

- abdominal pain
- change in bowel habit
- weight loss
- iron-deficiency anaemia. **[new 2015]**

# CRC detection: NG12, 2015

1.3.4 <u>Offer testing for occult blood in faeces</u> to assess for colorectal cancer in adults without rectal bleeding who:

- are aged 50 and over with unexplained:
  - abdominal pain **or**
  - weight loss, **or**

- are aged under 60 with:
  - changes in their bowel habit **or**
  - iron-deficiency anaemia, **or**

- are aged 60 and over and have anaemia even in the absence of iron deficiency.
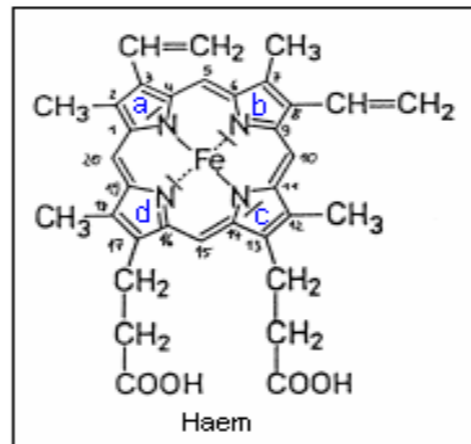
- **[new 2015]**

# Faecal occult blood

- Blood in faeces invisible to naked eye

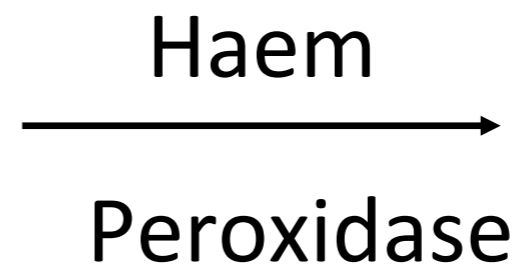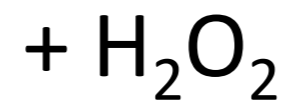- Surrogate marker for bowel cancer

- Detects Hb



**Haem**

**Globin**
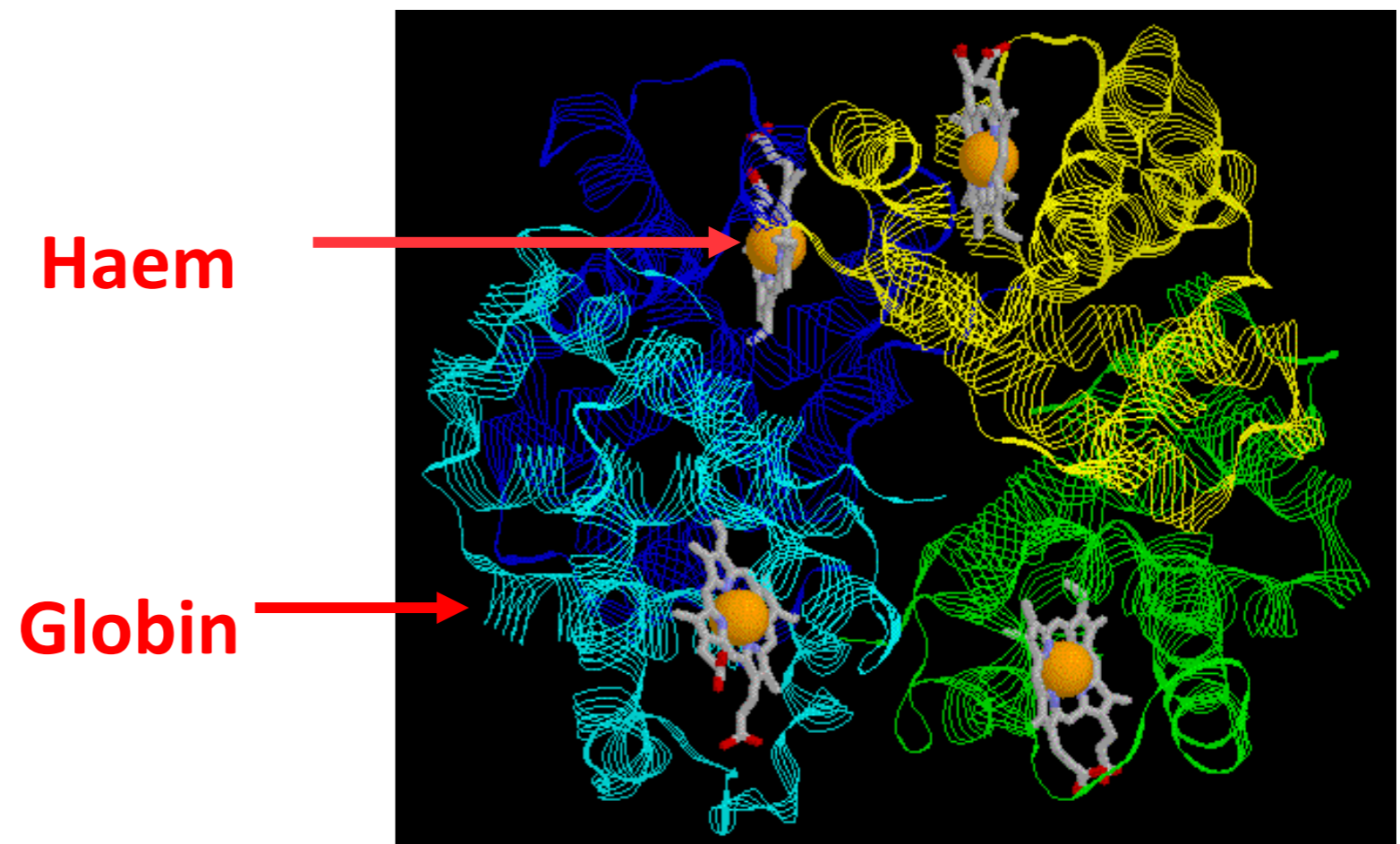
# Guaiac Faecal Occult Blood Test



Guaiacum officinale
- Lignum Vitae



Haem



$$\text{Guaiac Acid (Colourless)} + H_2O_2 \xrightarrow[\text{Peroxidase}]{\text{Haem}} \text{Oxidised Guaiac}$$
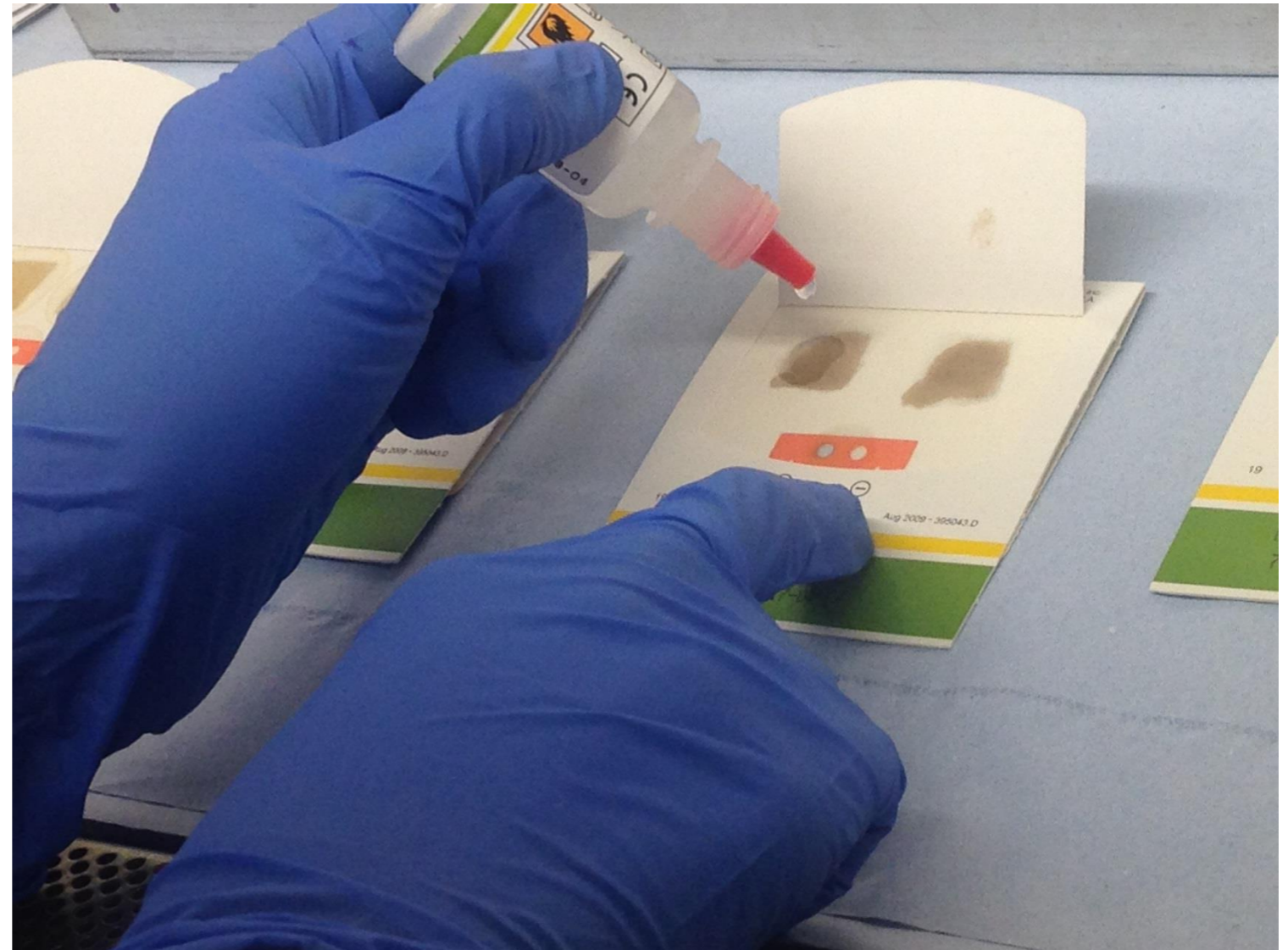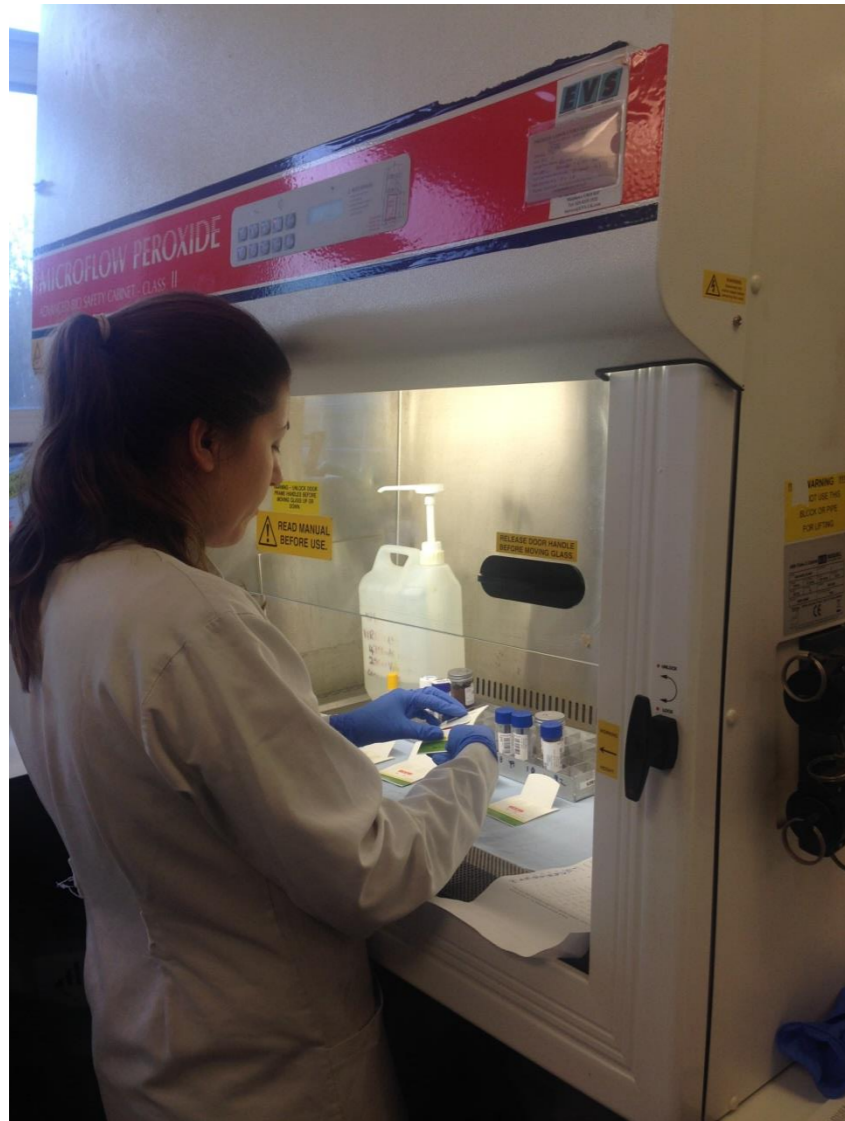
# gFOB at Charing Cross

# Issues with guaiac FOBt

- Subjective detection of a blue colour

- False + : red meat, certain fruit/veg, NSAID, iron Rx

- False - : vitamin C

- Poor diagnostic sensitivity and specificity for CRC

- False negatives  - not all cancers and pre-cancers will bleed

- FN rate as high as 50%

# Faecal Immunochemical Testing

- Immunoassay for globin

- Quantitative

- 2 of 4 systems shown

# Benefits of qFIT

- Globin is degraded by upper GI enzymes

- Highly specific for occult lower GI bleeding

- No diet or drug restrictions

- Higher sensitivity and specificity for CRC than gFOB

- Used for asymptomatic screening from April 2018

# Issues with qFIT

- No EQA

- No independent IQC

- Stability?

- Hb variants - $\alpha$ chain variants?

- Where does it fit in the pathway?

ORIGINAL ARTICLE

# Faecal haemoglobin and faecal calprotectin as indicators of bowel disease in patients presenting to primary care with bowel symptoms

Craig Mowat,[1] Jayne Digby,[2] Judith A Strachan,[3] Robyn Wilson,[3] Francis A Carey,[4] Callum G Fraser,[2] Robert J C Steele[2]
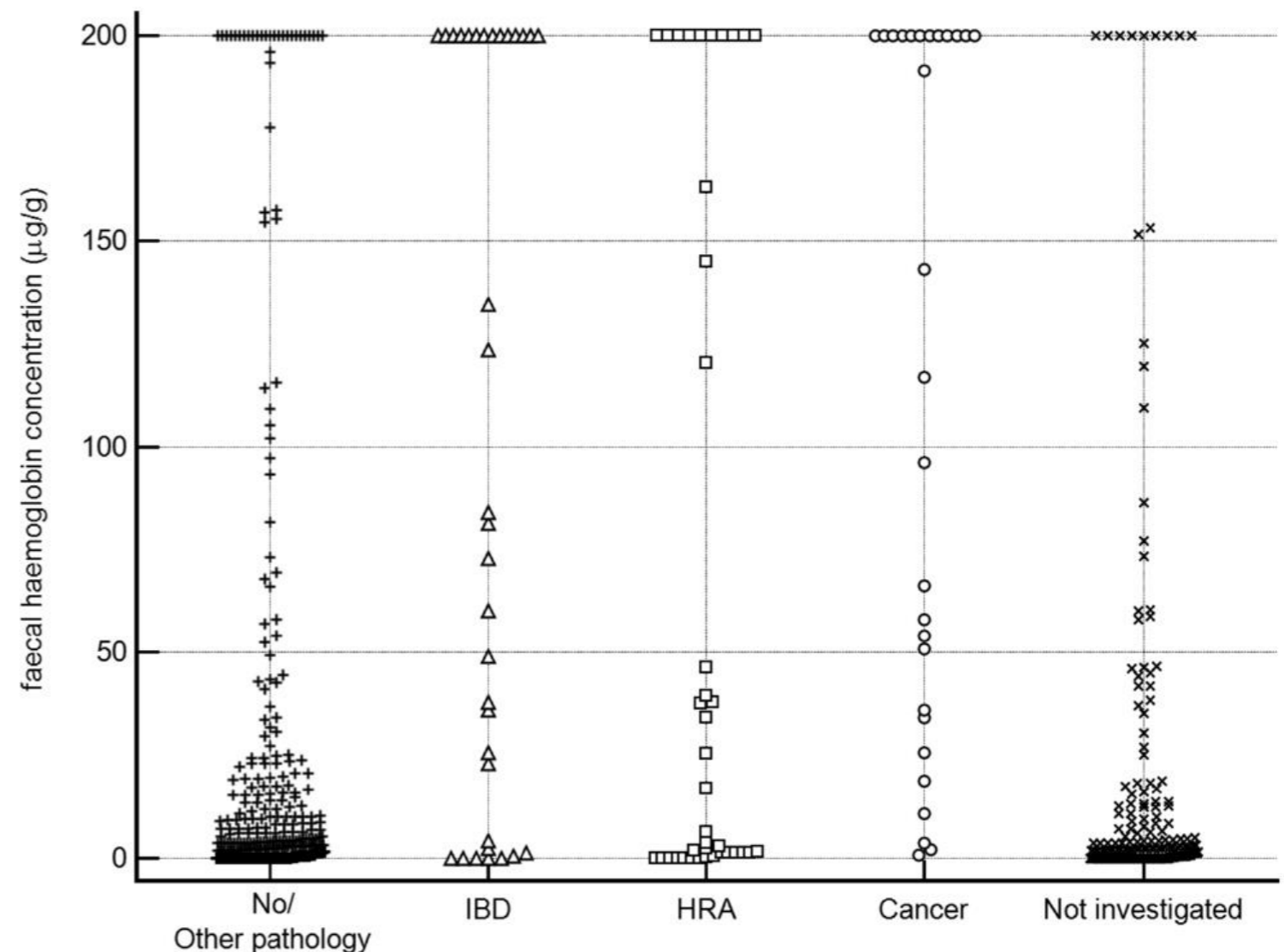
OPEN ACCESS

- GPs prompted to request at referral

- OC-Sensor, 1043 qFIT

- If triaged to endoscopy < 6 weeks

- 755 paired qFIT and colonic investigations

# Mowat Results – CRC detection

Taken from
Mowat C, et al.
Gut 2016;
65:1463–1469



- FHb > 10 ug/g
  NPV 99.5 %

- FHb detected
  NPV 100 %

Ian M. Godber*, Louise M. Todd, Callum G. Fraser, Linda R. MacDonald and
Hakim Ben Younes

# Use of a faecal immunochemical test for haemoglobin can aid in the investigation of patients with lower abdominal symptoms

- 999 consecutive patients referred from primary care for colonoscopy

- 507 qFIT by HM-JACKarc

- 484 diagnostic colonoscopy

# Godber Results

- For CRC, HRA, IBD or colitis
  FHb > 10 ug/g
  NPV 96.2 %

- For CRC
  FHb > 10 ug/g
  NPV 100 %

# Diagnostic accuracy of faecal biomarkers in detecting colorectal cancer and adenoma in symptomatic patients

M. M. Widlak[*,†], C. L. Thomas[‡], M. G. Thomas[§], C. Tomkins[‡], S. Smith[¶], N. O'Connell[*], S. Wurie[*], L. Burns[*], C. Harmston[**], C. Evans[**], C. U. Nwokolo[*], B. Singh[††] & R. P. Arasaradnam[*,†,‡‡]

- 2822 referred through 2WW pathway

- Approached 1364

- Recruited 799

- 430 paired qFIT and colonic investigations

- > 7μg Hb / g faeces positive (HM-JACKarc)

# Widlak Results



- For CRC & high grade dysplasia FHb > 7 ug/g NPV 99 %

-  No benefit gained by adding calprotectin

Taken from Widlak M, et al.
Aliment Pharmacol Ther 2017; 45:354–363
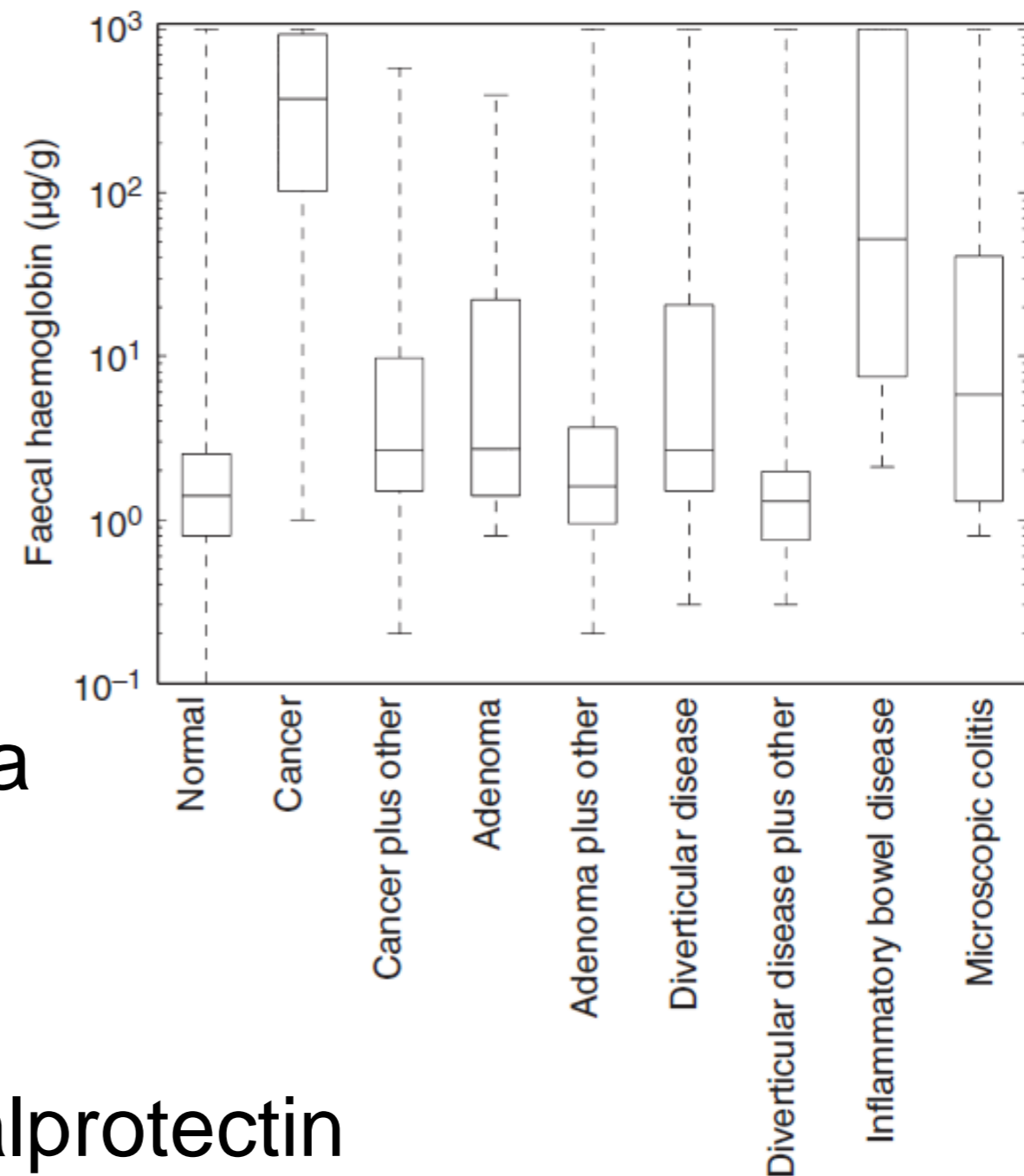
# Cancer Vanguards

- TWW referrals to complete qFIT

- Compare colonoscopy and FIT results with presenting symptoms, ethnicity and socioeconomic background etc

- Identify appropriate reference values and cut off points

# NWLP

- Offer qFIT

- What is the appropriate cut-off? Rule out?

- What is the appropriate pathway for symptomatic patients? CCGs? Secondary care?

- Can it be used for surveillance?

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