NICE NG12 Guidelines – A FIT Solution!

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...no examinations or investigations other than those referred to earlier (abdominal and rectal examination, full blood count) are recommended....

Guideline 67

...... faecal occult blood testing is too insensitive to be used in guiding investigation of symptomatic patients.

Faecal occult blood testing is of no benefit in the investigation of IDA.
Colorectal Cancer

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

- aged 40 and over with unexplained weight loss and abdominal pain, or
- aged 50 and over with unexplained rectal bleeding, or
- aged 60 and over with iron-deficiency anaemia or changes in their bowel habit, or
- tests show occult blood in their faeces (see 1.3.4 for who should be offered a test for occult blood in faeces) [new 2015].
1.3.2 Consider a suspected cancer pathway referral in people with a rectal or abdominal mass [new 2015].

1.3.3 Consider a suspected cancer pathway referral in 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].
1.3.4 Offer testing for occult blood in faeces 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].
Tests for Occult Blood in Faeces

- Tests for occult blood in faeces = tests for presence of haemoglobin in faeces.

- Traditional guaiac-based gFOBT

- “Sensitive” guaiac-based sFOBT

- Faecal immunochemical tests for haemoglobin = FIT
  - qualitative – negative/positive
  - quantitative – measure f-Hb
Consequences of NG12

- Considerable negativity about gFOBT use - but ever-growing realisation that very good evidence exists that Faecal Immunochemical Tests for haemoglobin (FIT) are excellent for assessment of patients presenting in primary care with lower abdominal symptoms, particularly to rule-out significant bowel disease (CRC +HRA + IBD).

- NICE – Diagnostic Advisory Committee - Faecal immunochemical tests to triage low risk populations for suspected colorectal cancer referrals in primary care.

- [https://www.nice.org.uk/guidance/indevelopment/gid-dg10005](https://www.nice.org.uk/guidance/indevelopment/gid-dg10005)

- Much discussion and debate how to Get Fit

- However, questions do remain for - primary care, secondary care, laboratories, endoscopy, funders, etc.
FIT Testing in the Symptomatic

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Question?

Should Faecal Immunochemical Tests for Haemoglobin be used to help decide which patients with lower abdominal symptoms need colonoscopy?
Work within NHS Lanarkshire

- Measure FIT on patients referred for lower GI endoscopy from Primary Care in NHS Lanarkshire.
- Can patients at High Risk of Cancer be triaged quickly.
- Methodology = HM-JACKarc – Kyowa Medex - Japan
Sample Picker
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

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Abstract

Background: This study aimed to determine whether patients with lower abdominal symptoms can be investigated quickly using results of faecal haemoglobin concentration (f-Hb) measurements, and whether this test could form part of a diagnostic pathway for significant colorectal disease.

Methods: Nine hundred and nine consecutive patients referred from primary care for colonoscopy were invited: 507 submitted samples for f-Hb measurement with a quantitative faecal immunochemical test for haemoglobin

Of the 243 patients with normal colonoscopy, 81.2% had f-Hb<10 μg Hb/g faeces.

Conclusions: The high NPV for significant colorectal diseases suggests that f-Hb could be used as a rule-out test in this context. Potential exists for using f-Hb measurements to investigate symptomatic patients and guide the use of colonoscopy resources: detailed algorithms for the introduction of f-Hb measurements requires further exploration.

Keywords: colorectal cancer; colorectal disease; diagnostic accuracy; faecal haemoglobin; faecal immunochemical test; negative predictive value; positive predictive value; sensitivity; specificity.
Results

- 909 patients with a variety of gastrointestinal symptoms, referred for LGI endoscopy within Lanarkshire were sent sampling pickers for f-Hb with their bowel preparation and instructions.
- f-Hb were measured on single samples from 507 patients and of the 484 also underwent a LGI endoscopy within NHS Lanarkshire during this period in 2013-14
### Results

**Table 2: Median faecal haemoglobin concentration (μg Hb/g faeces) with 95% CI in different colonoscopy findings groups.**

<table>
<thead>
<tr>
<th>Colonoscopy findings</th>
<th>n, %</th>
<th>Median faecal haemoglobin – μg Hb/g faeces, 95% CI</th>
<th>Interquartile range faecal haemoglobin – μg Hb/g faeces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer (CRC)</td>
<td>11 (2.2)</td>
<td>612 (352–807)</td>
<td>432–804</td>
</tr>
<tr>
<td>Higher risk adenoma (HRA)</td>
<td>19 (3.8)</td>
<td>10 (1–50)</td>
<td>1–67</td>
</tr>
<tr>
<td>IBD (3)+colitis (12)</td>
<td>15 (3.0)</td>
<td>628 (67–696)</td>
<td>65–697</td>
</tr>
<tr>
<td>Low-risk adenoma (LRA)</td>
<td>31 (6.1)</td>
<td>3 (1–7)</td>
<td>1–8</td>
</tr>
<tr>
<td>Hyperplastic polyps (HP)</td>
<td>31 (6.1)</td>
<td>3 (2–5)</td>
<td>2–7</td>
</tr>
<tr>
<td>Diverticular disease (DD)</td>
<td>96 (18.9)</td>
<td>3 (2–4)</td>
<td>1–7</td>
</tr>
<tr>
<td>Haemorrhoids (H)</td>
<td>30 (5.9)</td>
<td>3 (1–8)</td>
<td>1–25</td>
</tr>
<tr>
<td>Other (O)</td>
<td>8 (1.6)</td>
<td>2 (1–45)</td>
<td>1–23</td>
</tr>
<tr>
<td>Normal (N)</td>
<td>243 (47.9)</td>
<td>2 (1–3)</td>
<td>1–5</td>
</tr>
<tr>
<td>Failed (F)</td>
<td>23 (4.5)</td>
<td>2 (1–14)</td>
<td>1–37</td>
</tr>
<tr>
<td>DG: CRC+HRA+IBD+colitis</td>
<td>45</td>
<td>113 (30–534)</td>
<td>8–641</td>
</tr>
<tr>
<td>NDG: LRA+HP+DD+H+O+N</td>
<td>439</td>
<td>2 (2–3)</td>
<td>1–6</td>
</tr>
<tr>
<td>Total with colonoscopy data: DG+NDG</td>
<td>484</td>
<td>3 (2–3)</td>
<td>1–9</td>
</tr>
</tbody>
</table>
Definitions

- We defined CRC, HRA, IBD or colitis as the group with those colorectal conditions for which colonoscopy was of particular benefit – the diseased group (DG).
- Hyperplastic polyps (HPP), diverticular disease (DD), haemorrhoids (H), and other less clinically important findings were considered as the non-diseased group.
f-Hb is Related to Severity of Colorectal Neoplastic Disease

- All Cancers >150 μg Hb/g faeces
- Median f-Hb was significantly higher in the DG than in the NDG (p < 0.0001).
- CRC cases having results between 192 and 888 μg Hb/g faeces, and were all graded between Dukes’ stages A to C1, with no Dukes’ D (stage 4) with metastatic lesions present. Thus be used to prioritise patients for colonoscopy.
f-Hb is Related to Severity of Colorectal Neoplastic Disease

- NPV = 96% = true negative results/(true + false negatives).
- In this setting, with high NPV, a negative test result provides considerable reassurance that the patient is unlikely to have important colorectal disease.
- FIT provide a good rule-out test and could contribute to reducing unnecessary endoscopy, either alone, or perhaps fast track
Conclusions

- Firm evidence that f-Hb concentration is related to disease severity and future risk and growing evidence that FIT is a good test to rule out significant colorectal disease in patients with lower abdominal symptoms

- The measurement of f-Hb concentration on patients referred from primary care could save considerable endoscopy resources as well as fast tracking those with a high suspicion of neoplastic disease
FIT Flowchart

All Colorectal Referrals

FIT test

Vetting

FIT result

Surgical Out Patient clinic

Audit flags up not vetted at 1 week

Vetting Nurse Phones

1st failsafe at 7 days

NO RESULT

POSITIVE

NEGATIVE

Audit flags up not vetted at 1 week

Vetting Nurse Phones

? FIT result available

Treatment

Discharge

Further Ix

>75YRS or UNFIT

Outcome

Colonoscopy

Treatment

Discharge

Further Ix

NEGATIVE
Conclusions

- Colonoscopy is extremely useful - but with huge demand

- gFOBT has many disadvantages

- FIT or quantitation of faecal haemoglobin concentration eliminate some of these disadvantages and is related to colorectal disease severity and risk

- There are recent publications on FIT in assessment of the symptomatic patient and a NICE Diagnostics Assessment Programme Review
NICE NG12 guide lines – a FIT solution

Paul Skaife

ACB Focus – Warwick 21\textsuperscript{st} April 2016
Secondary Care objectives ....

- Meet the “2 week rule”
- Diagnosis by 31 days
- Management by 62 days
Current situation

The 2 week rule......

• % of colorectal cancers found 9.4 and 16%

• Significant demand on any Trust to meet National Targets

• 209,265 CRC fast track referrals were made in 2013/14
  Yield of 5.4-9.3% colorectal cancers
Kaul A, Hawkins S, Skaife P

Consecutive patients referred for urgent colonic investigation, were prospectively studied. A faecal sample was obtained and subjected to FIT which tested either negative or positive. All patients then underwent complete colonic imaging. The correlation between the FIT results and data from colonic imaging was studied.
Pathology identified in each group

<table>
<thead>
<tr>
<th>Condition</th>
<th>FOBT negative</th>
<th>FOBT positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenocarcinoma</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Squamous carcinoma</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Adenomatous polyp</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Diverticulosis</td>
<td>45</td>
<td>6</td>
</tr>
<tr>
<td>Crohns</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Rectal ulcer</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Normal</td>
<td>31</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>82</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>
Sensitivity and Specificity

Sensitivity = 100%
NPV = 100%
All colorectal cancers identified

Specificity = 86.3%
Low rate of false positive results
Clinical impact

• Immunological FOBT is a discriminatory test for CRC in secondary care.
  – Applicable to all patients with symptoms regardless of referral method

• A negative test
  – The patient DOES NOT have colorectal cancer

• Allows us to detect who DOES NOT have cancer and influence investigation and follow up

• A positive test
  – More timely referral and investigations

• If extended to Primary care .........?
  – Patient reassured if negative
  – Reduce pressure on service
NICE introduction of FIT

- Science ✓
- Applicability in primary care ?

BUT..... Qualitative analysis?

Inherent delay

Impact on cancer pathway ??