

# Combining the quantitative faecal immunochemical test and full blood count reliably rules out colorectal cancer in a symptomatic patient referral pathway

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# Introduction

- ▶ Colorectal cancer is the 4th most common cancer in the UK
- ▶ approximately 42,000 new cases each year
- ▶ 16,500 deaths each year

# Introduction

- ▶ Symptoms suspicion of cancer referral
  - ▶ rectal bleeding
  - ▶ persistent change in bowel habit (>4 weeks, particularly diarrhoea)
  - ▶ Palpable abdominal or rectal masses
  - ▶ abdominal pain with weight loss
  - ▶ unexplained iron deficiency anaemia

# Introduction

Following referral guidance,

number of referrals increased significantly

the proportion of patients have a colorectal cancer decreased

there was no change in cancer staging at diagnosis

# HOW TO DO?

- ▶ **FIT** (fecal immunochemical test) be used to guide referral for suspected colorectal cancer in patients with lower risk lower GI symptoms (those without rectal bleeding but other unexplained symptoms that do not meet urgent suspected cancer pathway criteria)

# FIT TEST

- ▶ threshold of  $\geq 10 \mu\text{g Hb/g}$
- ▶ colorectal cancer detection
  - ▶ 85 to 100% sensitivity
  - ▶ 80 % specificity

# Our Aim

- ▶ associations between colorectal cancer & faecal haemoglobin concentration & anaemia



# Methods

- ▶ A retrospective, observational study
- ▶ all patients with a FIT submitted from primary care between August 2018 and January 2019 in NHS Greater Glasgow and Clyde
- ▶ Patients were categorised into 3 groups:
  - ▶ Not Referred
  - ▶ Referred but not Scoped (FIT sample submitted with accompanying referral but no colonoscopy)
  - ▶ Referred and Scoped

# Results

- ▶ Referral pathway
  - ▶ 4968 adult patients with a FIT sample submitted
  - ▶ Of the 4968 total, 2434 patients (49.0%) were subsequently referred to general surgery or gastroenterology
  - ▶ . Of the 2434 referred patients, 1330 (54.6%) went on to have a colonoscopy

All Patients  
N = 4968

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	3768	635	113	221	231
CRC, n (%)	5 (0.1)	11 (1.7)	8 (7.1)	34 (15.4)	3 (1.3)

Non-Referred Patients

N = 2534

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	2355	32	5	10	132
CRC, n (%)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)

Referred Patients

N = 2434

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	1413	603	108	211	99
CRC, n (%)	5 (0.4)	11 (1.8)	8 (7.4)	34 (16.1)	2 (22.2)

No Further Investigation

N = 951

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	757	121	15	21	37
CRC, n (%)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

CT / CT Colon

N = 153

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	84	49	4	9	7
CRC, n (%)	0 (0)	2 (4.1)	1 (25)	1 (11.1)	0 (0)

Colonoscopy

N = 1330

	f-Hb (µg/g)				
	<10	10-149	150-399	≥400	N/A
Total, n	572	433	89	181	55
CRC, n (%)	5 (0.9)	9 (2.1)	7 (7.9)	33 (18.2)	2 (3.6)

# Patients diagnosed with a cancer:

- ▶ significantly older (median age 69 vs 59)
- ▶ more likely to be male
- ▶ history of inflammatory bowel disease (IBD)
- ▶ have reported rectal bleeding
  
- ▶ \*\*\*
- ▶ significantly less likely to have reported abdominal pain

# Combination of FIT and anaemia to rule out colorectal cancer

- ▶ significant association between a raised FIT and anaemia
- ▶ A total of 4031 of 4968 (81.1%) patients in the study had both a valid FIT and hemoglobin.
  - ▶ 2601 patients had a negative FIT and were not anemic
  - ▶ 563 had a negative FIT but were anemic
  - ▶ 637 had a positive FIT but were not anemic
  - ▶ 230 had both a positive FIT and were anemic

Comparison by  
combined FIT and anaemia for  
all patients with both a valid  
FIT and full blood count


		f-Hb < 10 µg/g Not anaemic	f-Hb < 10 µg/g Anaemic	f-Hb ≥ 10 µg/g Not anaemic	f-Hb ≥ 10 µg/g Anaemic	<i>p</i>
<b>N</b>		2601	563	637	230	
<b>Age</b>	Median (range)	57 (16–93)	69 (23–94)	60 (17–97)	75 (19–97)	<0.001
	<50	847 (32.6%)	78 (13.9%)	176 (27.6%)	30 (13.0%)	
	50–74	1454 (55.9%)	297 (52.8%)	343 (53.8%)	85 (37.0%)	
	≥75	300 (11.5%)	188 (33.4%)	118 (18.5%)	115 (50.0%)	
<b>Sex</b>	Male	1072 (41.2%)	225 (40.0%)	291 (45.7%)	99 (43.0%)	0.155
	Female	1529 (58.8%)	338 (60.0%)	346 (54.3%)	131 (57.0%)	
<b>Colorectal cancer</b>		1 (0.04%)	4 (0.7%)	31 (4.9%)	22 (9.6%)	<0.001

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- ▶ Patients with a f-Hb < 10  $\mu\text{g/g}$  & without anemia represented 64.5% of patients. With appropriate safety netting in place, these patients can be reassured

# Conclusion

- ▶ In NHS GG&C, GP referral pattern and secondary care investigation patterns were influenced by FIT
- ▶ The addition of a normal haemoglobin concentration from a full blood count to a f-Hb < 10 was able to effectively exclude colorectal cancer in 99.96% of cases
- ▶ excellent reassurance to GP's and to specialist practitioners who must prioritise access to endoscopy services



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- ▶ Johnstone, M.S., Burton, P., Kourounis, G. *et al.* Combining the quantitative faecal immunochemical test and full blood count reliably rules out colorectal cancer in a symptomatic patient referral pathway. *Int J Colorectal Dis* **37**, 457–466 (2022). <https://doi.org/10.1007/s00384-021-04079-2>

ANY  
QUESTIONS?



**Thank you**