LABUPDATE no. 60

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March 2025

COLORECTAL CANCER SCREENING: FOCUS ON FIT

Colorectal cancer ranks among the most common cancers worldwide. Colorectal cancer, precancerous polyps and other gastrointestinal disorders can be associated with occult bleeding from the lower gastrointestinal tract, often without clinical symptoms.

What is FIT?

- The faecal immunochemical test (FIT) is a sensitive, non-invasive screening test for faecal occult blood (FOB) that is useful for colorectal cancer screening.
- FIT assays detect the globin component of haemoglobin (Hb), unlike older guaiac assays that detect haem and require dietary restrictions prior to testing
- FIT assays are more specific than guaiac-based tests because they do not cross-react with dietary haem.
- Self-collection devices containing a stabilizing buffer make sample collection easy and hygienic.

Sample handling and interpretation

- Hb is prone to degradation and delayed testing, humidity and heat can reduce test sensitivity.
- Although the stabilising buffer slows Hb degradation, samples should reach the laboratory as soon as possible and refrigeration is advised if delayed.

FIT in colorectal cancer screening programmes

- Annual FIT is indicated in patients 45 years of age and older.
- The goal of FIT is early colorectal cancer detection and improved patient outcomes.
- FIT helps to identify asymptomatic individuals with occult bleeding and guides further investigation in symptomatic patients.
- Symptoms of colorectal cancer include unexplained weight loss, abdominal pain, changes in bowel habits, rectal bleeding and iron deficiency anaemia.
- In symptomatic patients, faecal Hb levels correlate with disease progression, thereby supporting risk stratification.
- Increasing faecal Hb levels are directly proportional to the likelihood of colorectal cancer and advance adenomas.

FIT thresholds

- The quantitative FIT threshold can be tailored to the clinical situation and the prevalence of colorectal cancer in specific populations.
- The National Institute for Health and Care Excellence (NICE) set out a guidance document for quantitative FIT testing to guide colorectal cancer referral in primary care.
- A FIT threshold of 10µg Hb/g faeces have high sensitivity for detecting colorectal cancer in symptomatic primary care patients.
    - <10µgHb/g faeces: expectant management or specialist referral based on clinical judgement.
    - ≥10µgHb/g faeces: referral for further investigation e.g. colonoscopy.
    - ≥100µgHb/g faeces: high risk of significant bowel disease, requires urgent colonoscopy.

Negative FIT results

- Negative results do not rule out colorectal cancer, as faecal samples are non-homogenous, and cancers/polyps may bleed intermittently.
- Clinical judgement should guide referrals and patients with a negative FIT but ongoing symptoms should be considered for further investigation.

Key messages

- FIT is a clinically useful test for colorectal cancer screening.
- A positive FIT does not confirm colorectal cancer and further evaluation is needed.
- A negative FIT does not exclude colorectal cancer and the result should be interpreted within the clinical context to determine the need for specialist investigations.

References

1. Toth III JF, Trivedi M, Gupta S. Screening for colorectal cancer: the role of clinical laboratories. Clinical Chemistry. 2024 Jan;70(1):150-64.
2. Levi Z, Rozen P, Hazazi R, Vilkin A, Waked A, Maoz E, Birkenfeld S, Leshno M, Niv Y. A quantitative immunochemical fecal occult blood test for colorectal neoplasia. Annals of internal medicine. 2007 Feb 20;146(4):244-55.
3. Pin-Vieito N, Garcia Nimo L, Bujanda L, Roman Alonso B, Gutierrez-Stampa MÁ, Aguilar-Gama V, Portillo I, Cubiella J. Optimal diagnostic accuracy of quantitative faecal immunochemical test positivity thresholds for colorectal cancer detection in primary health care: a community-based cohort study. United European Gastroenterology Journal. 2021 Mar;9(2):256-67.
4. National Institute for Health and Care Excellence, Quantitative Faecal Immunochemical Tests to Guide Referral for Colorectal Cancer in Primary Care. DG56, 2023, NICE, London, https://www.nice.org.uk/guidance/dg56
5. Strachan JA, Mowat C. The use of faecal haemoglobin in deciding which patients presenting to primary care require further investigation (and how quickly)–the FIT approach. EJIFCC. 2021 Feb 28;32(1):52.
6. Cubiella J, Salve M, Díaz-Ondina M, Vega P, Alves MT, Iglesias F, Sánchez E, Macía P, Blanco I, Bujanda L, Fernández-Seara J. Diagnostic accuracy of the faecal immunochemical test for colorectal cancer in symptomatic patients: comparison with NICE and SIGN referral criteria. Colorectal Disease. 2014 Aug;16(8):O273-82.
7. Chapman C, Thomas C, Morling J, Tangri A, Oliver S, Simpson JA, Humes DJ, Banerjea A. Early clinical outcomes of a rapid colorectal cancer diagnosis pathway using faecal immunochemical testing in Nottingham. Colorectal Disease. 2020 Jun;22(6):679-88.
8. Benton SC, Symonds E, Djedovic N, Jones S, Deprez L, Kocna P, Auge JM. Faecal immunochemical tests for haemoglobin: analytical challenges and potential solutions. Clinica Chimica Acta. 2021 Jun 1;517:60-5.
9. Monahan KJ, Davies MM, Abulafi M, Banerjea A, Nicholson BD, Arasaradnam R, Barker N, Benton S, Booth R, Burling D, Carten RV. Faecal immunochemical testing (FIT) in patients with signs or symptoms of suspected colorectal cancer (CRC): a joint guideline from the Association of Coloproctology of Great Britain and Ireland (ACPGBI) and the British Society of Gastroenterology (BSG). Gut. 2022 Oct 1;71(10):1939-62.