

## **Introduction:**

Colorectal cancer(CRC) stands as the fourth leading cause of cancer-related fatalities in the United Kingdom. Early identification and timely intervention rely heavily on the FIT test. However, FIT diagnostic accuracy exhibit variations, with sensitivity ranging between 85% and 94%, accompanied by a noteworthy negative predictive value(NPV) of 99%.

## **Aim**

The study aims to evaluate the diagnostic accuracy of FIT in detecting CRC and advanced adenomas in patients referred through the 2WW referral pathway following National Institute for Health and Care Excellence(NICE NG12 criteria).

## **Methods:**

Conducting a retrospective analysis of data from patients referred to the endoscopy department through the 2WW referral pathway, the study extracted patient clinical characteristics, FIT test positivity (faecal haemoglobin  $\geq 10 \mu\text{g/g}$ ), and subsequent investigations, including colonoscopies and further imaging. Sensitivity, specificity, positive predictive value (PPV), and NPV were calculated based on a positive outcome defined by the presence of adenomas ( $\geq 10 \text{ mm}$ ) or malignancies in the colon or rectum.

## **Results:**

A total of 1841 patients referred between January 2023 and August 2023 were analysed. Positive FIT tests were observed in 73.4% (1352), negative FIT in 25.9% (477), and 0.65% (12) lacked FIT availability. Males constituted 48.7%, females 51.3%, with a mean age of 65.3 years. Colonoscopy was performed in 1472(79.9%), flexible sigmoidoscopy in 148(8%), CT colonography 178(9.6%), CT thorax abdomen pelvis 479(26%), and other imaging 121(6.5%). Among the patients with advanced adenomas (n=201), 16 had negative FIT tests. Among the diagnosed CRC(n=120), 4 had negative FIT tests and 6 had no FIT test. Sensitivity, specificity, PPV, and NPV for CRC detection vs advanced adenoma or CRC were 96.49% vs 93.6%, 26.56% vs 30.2%, 7.31% vs 21.8%, and 99.18% vs 95.8%, respectively.

## **Conclusions:**

In this retrospective review, FIT exhibited expected performance for CRC with an NPV of 99.18%. However, in "real numbers" terms this means 4 patients would have had to wait for routine colonoscopy, and so we would assert that a negative FIT should not exclude investigation with colonoscopy. FIT's performance was less optimal for detecting advanced adenomas, suggesting a 4.2% likelihood of missing such lesions. Consequently, the screening reliability of a negative FIT to exclude significant colonic pathology still falls short, necessitating colonoscopies in this symptomatic population.