

## Introduction

The value of repeat Faecal Immunochemical Testing (FIT) in patients presenting with symptoms of colorectal cancer is poorly understood. The COLO-COHORT study is a multi-centre observational study aiming to produce a risk prediction model for colorectal neoplasia. Patients referred for colonoscopy are recruited, and health assessments are completed, including a FIT. FIT results from routine care are also provided. We investigated the number and range of double FITs within this dataset.

## Methods

We examined a subset of COLO-COHORT participants where two FIT measurements were available: a symptomatic (first) and a research (second) FIT. For each participant, each test was classified as positive or negative. Positive was defined as  $\geq 10\mu\text{g Hb/g}$ . McNemar's test was used to assess agreement between paired FITs overall. Patients were categorised by difference in FIT values between the two tests. Particularly high and low results were capped at  $<7\mu\text{g Hb/g}$  and  $>200\mu\text{g Hb/g}$  due to variation in laboratory reporting thresholds. Research FITs were performed on the same analyser with a range used for others. Time between tests was analysed. We also report colonoscopy outcomes (cancer, polyps without cancer, no neoplasia) and FIT positivity.

## Results

Of 6479 COLO-COHORT participants recruited since 2019, 821 had a FIT pre-recruitment and a second within the study. Both test dates were available in 673 patients among whom median time between tests was 22 days (interquartile range 15-38).

		Research FIT	
		Positive	Negative
Symptomatic FIT	Positive	186 (28%)	259 (38%)
	Negative	32 (5%)	196 (29%)

Table 1: Distribution of positive and negative results between FIT

There was significant discordance between paired FIT results (Table 1:  $p=0.0001$ ). 23 patients had cancer: 21 (91%) had two positive tests and 2 (9%) had discordant results. 261 patients had polyps alone: 63 (24%) had two positive tests, 91 (35%) two negative and 107 (41%) were discordant. No neoplasia was found in 389 patients: 133 (34%) both negative, 75 (19%) both positive and 181 (47%) were discordant. Differences in FIT values ( $\mu\text{g Hb/g}$ ) were in the ranges 0-9 for 326 patients (49%), 10-19 for 65 (10%), 20-49 for 110 (16%), 50-99 for 48 patients (7%) and  $>100$  for 124 patients (18%).

## Conclusions

FIT is a valuable test in the assessment of symptomatic patients, however, there remains many questions around the value of repeat testing. These results reveal significant discordance between repeat FIT. Concordance appeared higher in those with cancer but number of cases was low. We recommend further prospective study in this area of multiple FIT.