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Diagnostic yield for advanced colorectal neoplasia using one or two FIT samples.

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Introduction: Currently, the faecal immunochemical test (FIT) is the non-invasive strategy of choice for colorectal cancer (CRC) screening. The quantitative test allows setting the appropriate cut-off concentration, but it is known that the characteristics of samples and the bleeding profiles of lesions are not homogeneous and the FIT could test negative in the presence of a pre-malignant or malignant lesion. The use of two or more FIT samples could improve the detection of bleeding lesions that would test negative with one.

Aim: The aim of the study was to asses the diagnostic yield for advanced colorectal neoplasia (ACRN), using one (FIT1) or the highest faecal haemoglobin concentration of two samples (FITmax).

Patients and methods: We evaluated 418 samples corresponding to 209 individuals (117 women mean age 60.7 years) who required colonoscopy for the investigation of gastrointestinal symptoms or colonic polyp surveillance. The samples were from two different bowel movements and collected using a special collection device and analyzed using the corresponding fully automated analyzer HM JACKarc (Kyowa Medex Co.,Ltd., Tokyo, Japan).

Results: As expected, the faecal haemoglobin concentration was significantly higher in individuals with ACRN when compared to those with the other colonoscopy findings. The highest concentrations were found in individuals with CRC. The receiver operating characteristic (ROC) curve for the diagnostic of ACRN of all samples, the FIT1 and the FITmax, were not significantly different and the areas under the curve (AUC) ranged from 0.695 - 0.706. It is important to note that, at the same specificity value when ithis ranged from 50 – 80%; the sensitivity was higher using FIT1 than with FITmax. The diagnostic yield for ACRN and other indicators such as positivity rate, detection rate, number of participants needed to screen and number of participants needed to scope using the FITmax was similar than using the FIT1 with a lower cut-off concentration.

Conclusion: The results of this study are consistent with the previous findings and reinforce the concept that one FIT sample testing is the strategy of choice in CRC screening programmes. At the same cut-off concentration, the use of FITmax increases the sensitivity, the detection rate and reduces the number of participants needed to screen for detecting ACRN, but increases the positivity rate, the number of individuals needed to scope and reduces the specificity for ACRN. The diagnostic yield is similar using the FITmax with a high cut-off concentration as using the FIT1 with a lower cut-off concentration. This and previous studies support the use of one only FIT sample for each individual in CRC screening programmes.