

Colorectal Cancer Screening Based on Age and Gender: A Cost-effectiveness Analysis

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OBJECTIVE: To evaluate whether age- and gender-based colorectal cancer (CRC) screening is cost-effective, and explore whether flexible sigmoidoscopy (FS) could replace colonoscopy as the primary screening test in specific age and gender groups.

METHODS: A Markov model was constructed using data from a screening cohort in a primary care setting. The following strategies were compared according to the Incremental Cost Effectiveness Ratio (ICER) for one life-year saved: 1). FS 5 yearly; 2). Colonoscopy 10 yearly; 3). FS for each woman at 50 and 55 year-old followed by colonoscopy at 60 and 70 year-old; 4). FS for each woman at 50, 55, 60 and 65 year-old followed by colonoscopy at 70 year-old; 5). FS for each woman at 50, 55, 60, 65 and 70 year-old. All male subjects received colonoscopy at 50, 60 and 70 year-old under strategies 3-5. One-way sensitivity analyses were performed on the ICERs based on different diagnostic accuracy of FIT, rate of compliance, and the cost of FS and colonoscopy.

RESULTS: From a hypothetical population of 100,000 asymptomatic subjects, strategy 2 could save the largest number of life-years (4,226 vs. 2,268 to 3,841 by other strategies). When compared with no screening, strategy 5 had the lowest ICER (US\$42,515), followed by strategy 3 (US\$43,517), strategy 2 (US\$43,739), strategy 4 (US\$47,710) and strategy 1 (US\$56,510). These remain true when the level of compliance with FS is <96%; the specificity of FS is >73.2%, the cost of colonoscopy is >US\$902; and the cost of FS is <US\$275. Strategy 2 leads to the highest number of bleeding and perforations when compared with all other strategies, and required a prohibitive number of colonoscopy procedures (345,508 vs. 106,527 to 282,227 by other strategies).

CONCLUSION: FS for women and colonoscopy for men represent a cost-effective CRC screening strategy. In resource-deprived countries, this risk stratification could be considered for population-based CRC screening.

Diagnostic Accuracy of a Fecal Immunochemical Tests Vary With Neoplasia Location, but not Number of Specimens Analyzed

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BACKGROUND: We compared the accuracy of the fecal immunochemical test (FIT) in identifying patients with proximal vs distal advanced neoplasia, and evaluated whether analysis of 2 specimens performed better than 1. Distal advanced neoplasia was defined as colorectal

cancer (CRC), any colorectal adenoma ≥ 10 mm in diameter, high-grade dysplasia, or a lesion with villous or tubulovillous histologic characteristics.

METHODS: We collected data from 5,343 subjects (50–70 years old) who received 2 FITs (Hemosure; cutoff value, 10 μ g Hb/gram feces) before colonoscopy in an invitation CRC screening program in Hong Kong, from 2008 through 2012. We calculated the FIT's sensitivity, specificity, positive predictive value (PPV), and negative predictive values (NPV) in detecting colorectal neoplasia.

RESULTS: Of the participants, 13.6%, 12.2% and 6.0% had distal, proximal and synchronous distal, or proximal neoplasia, respectively. Distal advanced neoplasia was detected in 291 subjects (5.4%); 22 (0.4%) had CRC. FIT detected distal advanced adenoma with 40% sensitivity (95% confidence interval [CI], 0.32–0.48) vs proximal advanced adenoma with 25% sensitivity (95% CI, 0.17–0.35; $P = .014$); distal advanced neoplasia with 40% sensitivity (95% CI, 0.33–0.48) vs proximal advanced neoplasia with 28% sensitivity (95% CI, 0.20–0.37; $P = .039$); and any distal adenoma ≥ 10 cm, irrespective of other lesion characteristics, with 40% sensitivity (95% CI, 0.31–0.49) vs proximal adenoma with 25% sensitivity (95% CI, 0.16–0.37; $P = .038$). Levels of specificity were similar between detection of CRC in distal vs proximal colon. FIT detected distal lesions with a higher PPV than proximal lesions. One FIT detected lesions with 31.8% sensitivity (95% CI, 25.9%–38.4%) and 92.4% specificity (95% CI, 91.6%–93.2%), whereas 2 FITs detected lesions with 34.1% sensitivity (95% CI, 28.0%–40.8%; $P = .617$) and 91.9% specificity (95% CI, 91.0%–92.7%; $P = .327$). FIT detected distal advanced neoplasia with greater sensitivity and a higher PPV than proximal advanced neoplasia.

CONCLUSION: FIT detected distal advanced neoplasia with higher levels of sensitivity than proximal advanced neoplasia. Analysis of 1 vs 2 specimens by FIT identified CRC with similar levels of accuracy.

Bowel Preparation, Colonoscopy Withdrawal Time and Adenoma Detection Rate: A Prospective Study of Screening Colonoscopies

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BACKGROUND AND STUDY AIMS: There are few studies on the determinants of poor bowel preparation among colorectal cancer screening participants, and current evidence on the association between bowel preparation and adenoma detection was inconclusive. We evaluated the independent factors associated with poor bowel preparation and its impact on adenoma detection.

PATIENTS AND METHODS: We included asymptomatic subjects aged between 50-70 years who self-referred for