

# The Role of Family Physicians in Increasing Annual Fecal Occult Blood Test Screening Coverage: A Prospective Intervention Study

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**Key words:** occult blood, colorectal carcinoma, compliance, screening, family physician

## Abstract

**Background:** Colorectal cancer is the second leading cause of cancer mortality in Israel. Unfortunately, compliance with annual fecal occult blood testing is very low.

**Objective:** To assess the effectiveness of interventions to increase FOBT screening in primary care clinics in Israel.

**Methods:** A prospective, randomized study included all 50–75 year old enrollees of six family physicians in two primary care clinics. The register of two physicians, one from each clinic, was allocated to one of three groups. Two FOBT reminder strategies were tested: a physician reminder (753 patients), and a patient reminder that was either a phone call (312 patients) or a letter (337 patients). The control group (913 patients) of physicians continued administering their regular level of care. The main outcome measure was the percentage of patients undergoing FOBT screening in each study arm at the conclusion of the one year study period.

**Results:** In the intervention groups 14.3% (201/1,402) were screened using the FOBT over the course of the study year. Using an intent-to-screen analysis, the screening rate in the physician and patient reminder groups was significantly higher than in the control group (16.5 and 11.9%, vs. 1.2% respectively,  $P < 0.0001$ ). Phone reminders were significantly more effective than letters (14.7 vs. 9.2%,  $P = 0.01$ ).

**Conclusions:** Various reminder systems for FOBT are beneficial, especially those centered around the family physician. Further research should focus on this area, in conjunction with other novel approaches.

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Colorectal cancer is the second leading cause of cancer mortality in Israel. The Israel Medical Association's preventive medical guidelines recommend yearly fecal occult blood testing between the ages of 50 and 74 years. However, FOBT screening for early detection of colorectal cancer faces substantial problems of patient compliance. Large intervention studies in the United States, Sweden, and Britain [1] have demonstrated 53–77% compliance for the first examination. Unfortunately, compliance with the national screening program in the major health maintenance organization in Israel (Klalit Health Services) has been very low and stands at less than 5% [2].

Several factors influence patient willingness to participate in FOBT screening. These include population perception of cancer risk and awareness of screening utility, ease of testing, test availability,

and cost [3]. Leading factors in family physician compliance include awareness of screening modalities and effectiveness, time constraints, and remuneration issues [3].

In light of the severe FOBT compliance problem among patients and family physicians, we decided to assess the effectiveness of FOBT screening-enhancing interventions in primary care clinics.

## Methods

### Subjects

Study participants included all 50–75 year old enrollees with six family physicians in two primary care clinics. In each clinic, physicians were randomized to participate in one of the study arms.

### The intervention

In the physician intervention arm (group I, 753 patients), a reminder note to the physician was placed in the patient file. It advised physicians to direct patients to perform a FOBT according to accepted practice. In the patient intervention arm (group II, 649 patients), two reminder strategies were employed. Patients were randomized to receive either a reminder letter or a phone call. The letter and phone call recipients were designated groups IIa and IIb, respectively. One month later, patients who did not perform the FOBT received a follow-up reminder using the same method. In the control group (group III, 913 patients), physicians continued administering their usual level of care.

### Main outcome measure

The main outcome measure was the percentage of patients performing screening FOBT at the conclusion of the one year study period. The reason for ordering FOBT was ascertained by reviewing patients' medical files.

### Statistical analysis

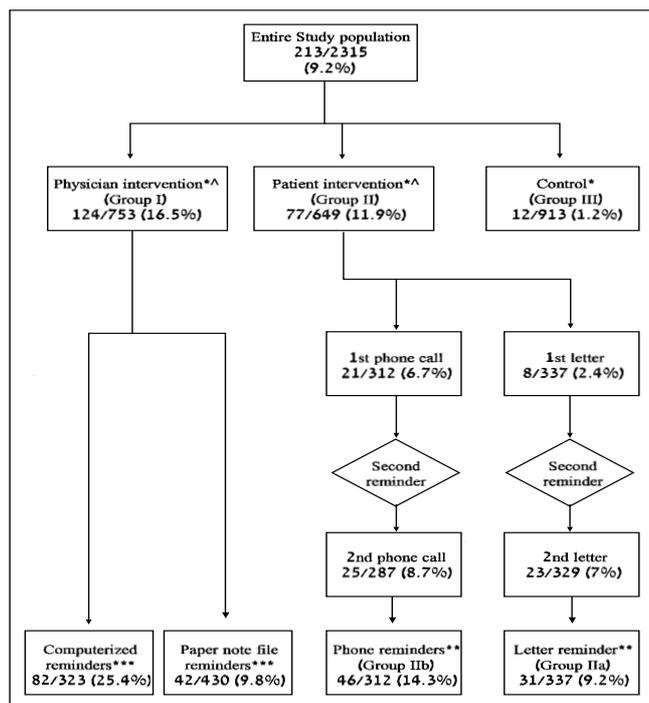
Analysis was done on an intention-to-screen basis. Significant associations between categorical variables were explored using the chi-square test. Student's *t*-test served to explore significant associations between continuous variables.

## Results

The study group comprised 2,315 patients aged  $61.3 \pm 7.4$  years; 52.2% were women. During the year prior to the intervention, the FOBT performance rate for either screening or diagnostic purposes was 2.2%. This rate was similar in all study groups. In the

FOBT = fecal occult blood testing

Figure 1. FOBT coverage: within-group analysis



\*  $P < 0.0001$  (intervention vs. control groups)

^  $P = 0.014$  (physician reminder vs. patient reminder groups)

\*\*  $P = 0.01$  (letter reminder vs. phone reminder groups)

\*\*\*  $P < 0.0001$  (paper note vs. computerized reminder groups)

intervention groups 201 of 1,402 patients (14.3%) were screened using the FOBT over the course of the study year, compared to 1.2% in the control group ( $P < 0.0001$ ). Figure 1 presents the group-specific screening rates using an intent-to-screen analysis.

Age proved to be a significant factor in determining compliance with FOBT screening. In both intervention groups, the screening rate was highest for those aged 60–75 (group I, 21 vs. 10.1%,  $P < 0.001$ ; group II 15.6 vs. 8%,  $P < 0.003\%$ ). Gender was not significantly related to screening rates.

## Discussion

The clinical epidemiologic literature underscores the benefits of performing an annual FOBT for 50–75 year olds [1]. These benefits translate into increased longevity and improved quality of life. The challenge has been to implement these recommendations. This study explores the effectiveness of several physician and patient-centered interventions, which increased the rate of FOBT screening by 8–24.2%. The rates of compliance in the control group, as well as the rates noted in the year prior to the intervention, indicate that the general Israeli population exhibits very low compliance with recommendations for annual FOBTs.

The most effective intervention strategy in the current study involved placing reminder notes for the physician in patients' files. Phone contact achieved higher patient compliance rates than did mailed reminders, but was more labor-intensive. These additional costs may not be justified in light of the only modest improvement

afforded by this strategy. In this study, research assistants were responsible for contacting FOBT-eligible patients. Rosser et al. [4] achieved a higher patient FOBT compliance (14% in the control group and an additional 19–28% in the intervention groups). That study employed a more resource-intensive approach to contact potential patients: namely, clinic staff (nurses and receptionists) were responsible for patient recruitment. Increased familiarity with patients and, possibly, with related clinic schedules and procedures may have been responsible for the relative success of this approach.

Patient age was associated with FOBT compliance. Thus, a higher percentage of 60–75 year olds participated in FOBT screening than did their younger counterparts. This trend was also reflected previously. Studies in various western countries have shown baseline (i.e., control group) compliance rates ranging from 10 to 15%. During this study, the rate of FOBT screening among the non-intervention control group only reached 1.2%. Possible explanations include the following: inadequate knowledge among patients about prevention, poor overall preventive behavioral patterns in the Israeli population, unpleasantness of the FOBT, insufficient awareness of the issue by physicians, and/or a lack of medical provider incentivization by the medical system. Improved patient and provider FOBT "marketing strategies" would likely increase compliance.

Since at least 70% of the target population in Israel visit their family physician yearly, the primary care clinic holds much promise for improved FOBT screening coverage. Utilization of more sophisticated physician reminders and computerized file-based systems, together with provision of continuous performance feedback to physicians regarding the level of FOBT coverage among their patients, should be explored.

This study has shown the benefit of various FOBT reminder systems, especially those centered around the family physician. Computerized records were effective in substantially improving current coverage rates. Further research should focus on this area, in conjunction with other novel approaches.

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## References

1. Towler BP, Irving L, Glasziou P, Weller D, Kewenter J. Screening for colorectal cancer using the faecal occult blood test, Hemoccult. The Cochrane Database of systematic reviews. The Cochrane Library, 1999;2:1–11.
2. Rennert G, Miron E, Rennert HS. Population screening with fecal occult blood test. The annual Conference of Israel Family Physicians Association, Haifa, 1999:61.
3. Snell JL, Buck EL. Increasing cancer screening: a meta-analysis. *Prev Med* 1996;25:702–7.
4. Rosser WW, McDowell I, Newell C. Use of reminders for preventive procedures in family medicine. *Can Med Assoc J* 1991;145:807–13.

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