

CAN ONE SIZE FIT ALL? A COMPARISON OF FOUR POPULATION HEALTH SYSTEM APPROCHES TO INCREASE COLORECTAL CANCER SCREENING IN YOUNG ADULTS

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Character Count: 2,808/2,900

Category: AGA Clinical Practice - Colorectal Cancer Screening and Surveillance: Clinical Studies to Improve Uptake, Increase Adherence & Address Racial Disparities

Introduction

To identify effective population health approaches to increase colorectal cancer (CRC) screening participation in individuals age 45 to 49, our health system implemented and compared four screening outreach strategies. In this secondary analysis, we compared the effectiveness of each strategy by race/ethnicity to inform future screening outreach in our health system, address screening disparities, and improve the overall screening rate.

Methods

In 2022, we conducted a randomized controlled trial in a large, diverse, academic health center in which all unscreened average-risk patients age 45 to 49 with a primary care provider were randomized to one of four screening strategies: fecal immunochemical test (FIT)-only active choice (Arm 1), colonoscopy-only active choice (Arm 2), dual-modality (FIT and colonoscopy) active choice (Arm 3), or default mailed FIT outreach (usual care, Arm 4). Each participant received an initial screening invitation via the electronic patient portal and USPS mail at week 0, a text message at week 0, and a reminder text message at week 2. The primary outcome was completion of any CRC screening at week 26, which we analyzed overall, by race/ethnicity, and by study arm.

Results

Of the 20509 participants, 43.5% were Non-Hispanic White (NHW), 3.9% were Non-Hispanic Black (NHB), 12.7% were Non-Hispanic Asian (NHA), and 13.4% were Hispanic. Overall screening participation was 18.6%. Screening was lowest among NHB participants (16.7%) and highest among NHA participants (23.8%) ($p < 0.001$). Screening participation was highest for Arm 4 overall (26.2%, $p < 0.001$) and in each racial/ethnic group except NHB (28.7% NHW, 27.5% Hispanic, 31.0% NHA; all $p < 0.0001$). Participation was lowest in Arm 2 overall (14.5%) and for NHW (14.8%), Hispanic (16.0%), and NHA (19.3%) participants. Among NHB participants, participation was lowest in Arm 1 (12.8%). NHA participants had higher uptake than NHW participants in Arm 2 (19.3% v. 14.8%; $p = 0.049$) and Arm 3 (23.7% v. 18.8%, $p = 0.037$) (Table). In Arm 3, colonoscopy was preferred over FIT overall (12.1% v. 5.6%, $p < 0.0001$) and in each racial/ethnic group (13.2% v. 5.9% NHW; 13.4% v. 6.2% NHB; 14.6% v. 5.0% Hispanic; 16.5% v. 7.6% NHA; all $p \leq 0.01$) (Figure). In the FIT arms (arms 1, 4), there was notable crossover to colonoscopy, which differed significantly by racial/ethnic group ($p < 0.0001$).

Conclusion

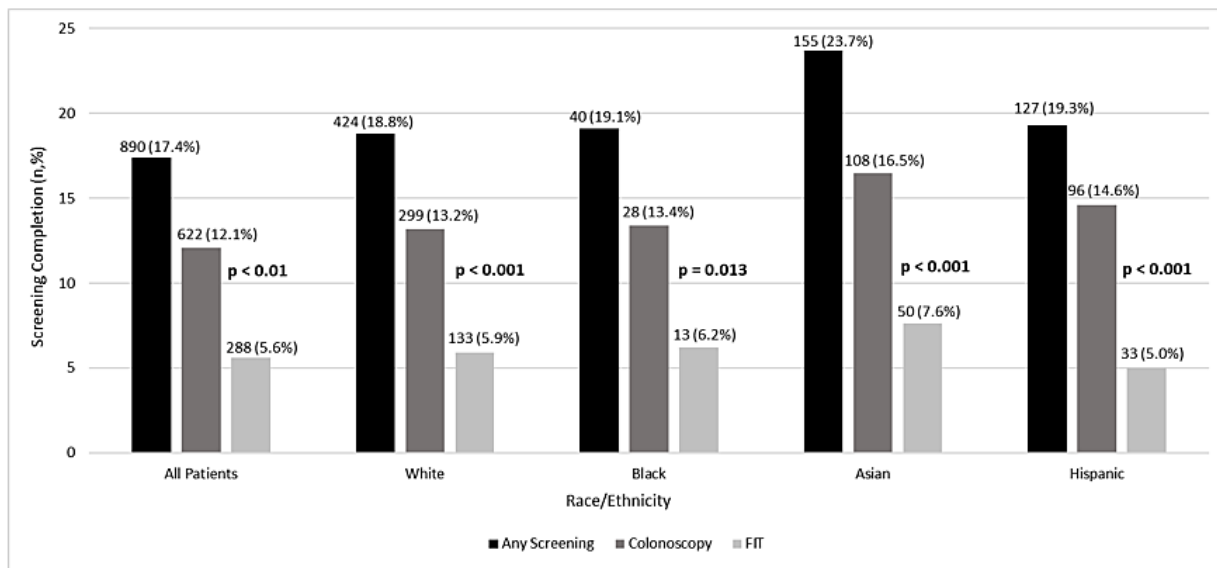
This large, randomized trial found that mailed FIT outreach was more effective than opt-in strategies to screen individuals age 45 to 49, regardless of race/ethnicity. In addition, when given a choice between colonoscopy and FIT, colonoscopy was preferred in all racial/ethnic groups. Mailed FIT outreach may be an equitable approach to screen demographically diverse populations of young adults in large health systems.

Table: Screening uptake by any screening modality overall and by race/ethnicity for each study arm.

	All Patients N=20,509 (n, %)	Non-Hispanic White n= 8918 (n, %)	Non-Hispanic Black n=797 (n, %)	Hispanic n=2757 (n, %)	Non-Hispanic Asian n=2613 (n, %)
FIT Invitation (Arm 1)	841 (16.4)	395 (17.8)	25 (12.8)	121 (17.1)	137 (21.1)
Colonoscopy Invitation (Arm 2)	743 (14.5)	326 (14.8)	28 (14.5)	114 (16.0)	125 (19.3)
Choice FIT v colonoscopy (Arm 3)	890 (17.4)	424 (18.8)	40 (19.1)	127 (19.3)	155 (23.7)
Mailed FIT outreach (Arm 4)	1342 (26.2)	638 (28.7)	40 (20.1)	187 (27.5)	205 (31.0)
All study arms	3816 (18.6)	1783 (20)	133 (16.7)	549 (20)	622 (23.8)

Bold values indicate a significant difference compared to White individuals at the p<0.05 level.

Figure: Screening modality preference in the dual-modality (FIT and colonoscopy) choice arm (arm 3), overall and by race/ethnicity.



P-values represent a comparison between FIT and colonoscopy for each racial/ethnic group.