IMPACT OF A MULTICOMPONENT HEALTH SYSTEM INTERVENTION TO INCREASE COLORECTAL CANCER SCREENING PARTICIPATION IN PATIENTS WITH A FAMILY HISTORY OF COLORECTAL CANCER

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Introduction: Family history of colorectal cancer (CRC) is a risk factor for CRC and contributes to one-third of cases in the United States. Health system interventions to increase CRC screening often exclude these high-risk individuals, and few interventions that increase screening participation in this population have been published. We designed, implemented, and evaluated the impact of a multicomponent health system intervention designed to increase CRC screening uptake among individuals with a documented family history of CRC.

Methods: The study was conducted in a large academic health center that uses biannual mailed fecal immunochemical test (FIT) outreach for average-risk patients overdue for CRC screening. We included primary care patients who were excluded from FIT outreach due to a confirmed family history of CRC and who were overdue for CRC screening. Patients were randomized to one of two intervention groups. In group 1, there was (a) an electronic health record (EHR) reminder sent to the patient's primary care provider (PCP) with a pended colonoscopy order and (b) a reminder sent to the patient to schedule colonoscopy at 2 and 7 weeks later (via mail and patient portal). Group 2 received these components as well as an additional educational document about familial CRC risk and the colonoscopy procedure with the mailed and patient portal outreach. The primary study outcome was colonoscopy completion at week 26 (6 months). Secondary outcomes were colonoscopies ordered and scheduled at week 26. We used Chi-square, Fisher's exact, and Wilcoxon rank sum tests to compare patient characteristics and intervention outcomes.

Results: The study included 150 patients: 74 in group 1 and 76 in group 2 (**Table).** Baseline patient characteristics were similar in the two groups, except group 2 had more males (p=0.04). Colonoscopy completion rates were 9/74 (12.2%) and 11/76 (14.5%) in group 1 and 2, respectively (p=0.68; **Figure**). In group 1, 52/74 (70.3%) colonoscopies were ordered versus 57/74 (76.0%) in group 2 (p=0.61). There were 17/74 (23.0%) colonoscopies scheduled in group 1 versus 12/76 (15.8%) in group 2 (p=0.30).

Discussion: In both groups of high-risk patients overdue for CRC screening, the multicomponent intervention increased colonoscopies ordered, scheduled, and completed. Our study suggests that we can engage individuals with a family history of CRC who have been resistant to screening with a combination of provider and patient outreach. Addition of the educational resource did not appear necessary, however, suggesting against use of resources for this component in the future. Future iterations will allow us to refine the intervention and disseminate it to larger patient populations to increase CRC prevention and control in this high-risk and understudied patient population.

Table: Study population characteristics and study outcomes at 6 months by intervention group; n= 150

	All patients (n=150)	Group 1 (n=74)	Group 2 (n=76)	p-value
Patient Characteristics				
Age [years, mean (SD)]	61.3 (7.1)	60.6 (6.7)	61.9 (7.4)	0.26
Male sex [n (%)]	49 (32.7)	19 (24.3)	31 (40.8)	**0.04**
White race [n (%)]	71 (47.3)	32 (43.2)	39 (51.3)	0.59
Non-Hispanic ethnicity [n (%)]	114 (76.0)	54 (73.0)	60 (79.0)	0.11
Private insurance [n (%)]	147 (98.0)	72 (97.3)	75 (98.7)	0.75
Married [n (%)]	82 (54.7)	39 (52.7)	43 (56.6)	0.34
English language preference [n (%)]	145 (96.7)	72 (97.3)	73 (96.1)	0.62
SVI [median (IQR)]	25.4 (11.8- 6.9)	26.5 (11.8- 54.9)	24.4 (11.0- 46.0)	0.63
Current or former tobacco use disorder [n (%)]	38 (25.3)	20 (27.0)	18 (23.7)	0.89
Current or former alcohol use disorder [n (%)]	13 (8.7)	4 (5.4)	9 (11.9)	0.33
BMI ≥ 25 [n (%)]	98 (65.8)	52 (70.3)	46 (61.3)	0.25
HgbA1C ≥ 5.7 [n (%)]	74 (52.9)	35 (50.7)	39 (54.9)	0.62
Documented CRC family history in 1st degree family member [median (IQR)]	1 (1- 1)	1 (1- 1)	1 (1- 1)	0.87
Years since last PCP visit [median (IQR)]	1.0 (0.8- 1.7)	0.9 (0.7- 1.7)	1.1 (0.8- 1.6)	0.38
Years since last GI visit [median (IQR)]	5.3 (2.5- 9.2)	5.8 (3.3- 9.1)	4.9 (2.4- 9.3)	0.65
Breast cancer screening Up-To-Date [n (%)]	46 (46.5)	28 (51.9)	18 (40)	0.24
Cervical cancer screening Up-To-Date [n (%)]	61 (83.6)	35 (81.4)	26 (86.7)	0.75
Study Outcomes				
Colonoscopy ordered [n (%)]	109 (72.7)	52 (70.3)	57 (76.0)	0.61
Colonoscopy scheduled [n (%)]	29 (19.3)	17 (23.0)	12 (15.8)	0.30
Colonoscopy completed [n (%)]	20 (13.3)	9 (12.2)	11 (14.5)	0.68

Figure: Study outcomes of screening colonoscopies ordered, scheduled, and completed, by intervention group; n= 150