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Practice change to increase colorectal cancer screening in primary care

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Abstract

Introduction

This practice improvement project evaluated the effect of implementing a new colorectal cancer screening process on primary care provider ordering and patient completion of screening.

Methods

A standardized colorectal cancer screening process was implemented and outcomes tracked for three months. Outcome measures included frequency of screening orders placed for eligible patients and patient completion of screening, time to complete screening, and the clinic's overall screening rate. A process evaluation was conducted using an anonymous online survey sent to all participants.

Results

Frequency of orders placed for eligible patients increased from 16.2% at baseline to 22.1% at three months post-implementation. The patient completion rate increased from 31.6% to 49.1%, and the clinic's overall screening rate increased from 36.1% to 38.9%. Average time from date of screening order to completion of screening decreased from 20 to 18 days. Primary care providers perceived the practice change more positively than support staff.

Conclusion

Small but meaningful improvements in the colorectal cancer screening process were noted with this practice change.

Keywords: colorectal cancer, screening, primary care, rural, fecal immunochemical test, fecal occult blood test, colonoscopy, practice change

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Introduction

Background knowledge

Colorectal cancer is the second leading cause of cancer-related death and the third most common type of cancer in the United States.¹ Routine screening for colorectal cancer reduces associated mortality² and is recommended for adults 50-75 years of age.³ This case study focuses on a primary care clinic in rural Oregon serving a primarily Hispanic patient population. Prior to the practice change, the clinic utilized the guaiac-based fecal occult blood test (g-FOBT) or colonoscopy for colorectal cancer screening (CCS). The clinic identified a need to increase its CCS rate when the proportion of eligible patients with up-to-date screening remained at 34% for seven months. Key barriers to CCS included a) lack of a standardized process for CCS, b) provider inconsistency in CCS orders for eligible patients, c) patient unwillingness to complete the CCS or not following through with recommended screening due to financial, transportation, language, educational or cultural barriers, and d) CCS data entry errors in the electronic health record (EHR).

Intervention

The practice change included a standardized screening process using colonoscopy or the fecal immunochemical test (FIT). The FIT was chosen to replace g-FOBT because it is more sensitive and specific than g-FOBT for colorectal cancer detection,⁴ and there is no significant difference in colorectal cancer detection between colonoscopy and FIT.^{5,6} The FIT also is more cost-effective for colorectal cancer screening than colonoscopy, flexible sigmoidoscopy or g-FOBT.^{2,7,8}

Patient adherence to screening was given special consideration in selecting the intervention. Multiple studies show that patients are more likely to participate in colorectal cancer screening with FIT as compared to other screening methods.^{5,6,9} Current evidence also suggests that offering patients a choice of screening methods may increase adherence to screening.¹⁰ In addition, provider recommendation and discussion of colorectal cancer screening is associated with higher screening rates.^{11,12} The intervention chosen for this clinic made available a more patient-friendly screening method (FIT) while still offering patients a choice of screening methods *and* included provider-patient discussion of screening.

Methods

Participants

Participants included 14 medical assistants (MAs), 13 primary care providers (PCPs, including nine physicians, two family nurse practitioners and two physician assistants), five registered nurses, four medical residents, and five team assistants (TAs) who function as clerical staff.

Procedure

Larrabee's Model for Evidence-Based Practice Change¹³ and Kotter and Cohen's Model of Change¹⁴ were used to guide the practice change. After an evidence review, clinic staff, designed a standardized colorectal cancer screening process. All staff received training on the new process which included identifying patient eligibility for CCS and discussing CCS with patients. Prior to scheduled patient visits, the MA reviewed the patients' charts. When a patient was due or overdue for screening, the MA alerted the PCP and placed a FIT order in the EMR. When the patient arrived for an office visit, the MA confirmed the patient's screening status and updated the EHR if necessary. Once the patient was eligible for CCS, the provider discussed options for screening and placed appropriate orders in the EHR. Patients who chose the FIT test were provided with instructions and supplies by the MA before leaving the clinic. Team assistants processed patients who were referred for a colonoscopy. Upon receipt of CCS results, the MA updated the EHRs and the provider reviewed results.

During the implementation process, a dashboard was placed in staff areas and emails were sent to all clinical staff to keep them apprised of the clinic's current CCS ordering rate compared to the rate in previous weeks

Data analysis

Baseline data was collected from eligible patient records one month prior to the intervention. Patient records eligible for analysis included patients 51-74 years of age with no documented colonoscopy in the last nine years, flexible sigmoidoscopy in the last four years, or FOBT or FIT within the last year and no history of colorectal cancer. Outcome measures included a) frequency of orders placed for FIT or colonoscopy for patients with an appointment during the practice change period, b) frequency of screenings completed within 8 weeks and c) for patients completing the screening within 8 weeks, the mean number of days from date of order to patient completing the screening. Additionally, the clinic monitored an annual screening rate which was determined by the percentage of patients who had an appointment within 12 months who were up to date on CCS.

To evaluate the practice change process, anonymous computerized surveys were used to collect data from all participants at three months post-intervention. Respondents were asked to answer 6 items, using a five-point Likert scale where 1 represented "not at all" and 5 represented "definitely" (see Table 2). Data were analyzed using descriptive statistics and ANOVA.

Results

Outcome evaluation

Prior to the practice change, providers placed CCS orders for 16.2% of eligible patients, of which 31.6% completed the screening. The average time for patients to complete the screening was 20 days. Eight weeks after the practice change, providers placed CCS orders for 28.8 % of eligible patients, of which 49.1% of the patients completed the screening. The average

time for patients to complete the screening was 11 days. Three months post-intervention, providers placed CCS orders for 22.1% of eligible patients, of which 41.1% completed the screening. The average time for patients to complete the screening was 18 days. Overall colorectal cancer screening rates for the clinic was 36.1% at baseline and 38.9% at three months post-intervention (see Table 1).

Practice Change Process Evaluation

A survey to determine the staff's perception about the CCS process was completed by 48.8% (n = 20) of the participants; including 35% of providers (n = 6), 20% of RNs (n = 1), 64% of MAs (n = 9), 60% of TAs (n = 3), no medical residents and one participant who declined to provide a job title. Results indicated that time constraints were a concern for participants and overall, they believed the practice change was "somewhat" successful (see Table 2). Participants representing all job categories commented that the new process was "easier" or "better" than the previous practice and patients were more receptive to screening with FIT as compared to other methods. Two PCPs noted that it was difficult to address screening at episodic visits.

To determine if process outcomes varied by job type, survey results were analysed using ANOVA. When asked "Was the screening process realistic for your daily work?", differences were found between job types, ($F_{(3, 15)} = 4.914$, $p = .014$). Post hoc analysis with a Bonferroni correction revealed that PCPs (mean 4.7, SD 0.5) rated the new process as significantly more realistic than TAs (mean 2.7, SD 0.6), $t_{(3, 15)} = 5.292$, $p = .007$. There also was a significant difference between job types regarding the difficulty of the practice change, $F_{(3, 15)} = 3.535$, $p = .041$. Post hoc analysis with a Bonferroni correction revealed that PCPs (mean 1.2, SD 0.4) rated the new process as significantly less difficult than TAs (mean 3.7, SD 1.5), $t_{(3, 15)} = 3.989$, $p = .032$.

Discussion

Outcomes

Provider ordering of colorectal cancer screening and patient completion of screening increased after the practice change was implemented. These measures reached a peak at two months post-implementation and the mean time to CCS completion was at its lowest. However, in the third month post-implementation, there was a decline in CCS orders and patients completing screening. Discussion with clinic leadership indicated that the clinic was short-staffed during this time, which may have contributed to the decrease in CCS orders. It is also possible that the winter holidays during month three contributed to a decrease in patients completing screening.

Although the overall CCS rate increased after the practice change was implemented, it remained below the organization's goal of 47%. Time constraints, staffing levels and staff buy-in likely limited the effectiveness of the practice change.

The most substantial difference in outcomes from pre- to post-implementation was an increase in patients completing CCS. This is consistent with previous research showing that patients are more likely to complete CCS when they are offered a choice of screening methods

and discuss screening with a provider, and are more likely to complete screening with FIT as compared to other methods.^{5,6,9-12}

Process

Most participants believed the practice change was realistic for their daily work, were motivated to participate, and felt they had received adequate training. The majority of participants stated they had “somewhat” adequate time to complete the screening process and the practice change was “somewhat” successful. Participant comments indicated a favorable view of FIT testing among patients and staff. The perceived acceptability of the practice change varied significantly between TAs and PCPs; further exploration is needed to understand the reasons for this. Working with TAs to improve their view of the practice change and make it less difficult for them would likely lead to improved outcomes.

Conclusions

Improvements were observed in multiple outcomes related to colorectal cancer screening after a practice change to utilize a standardized screening process with FIT or colonoscopy was implemented. The improvements were relatively small and were not adequate to reach desired benchmarks; this is likely due in large part to time constraints, low staffing and limited staff buy-in. The clinic plans to pilot an updated version of the screening process with one small team of staff, with the goal of fine-tuning the process and increasing staff buy-in. The clinic should also consider implementing CCS processes which are independent of office visits, such as mailing FIT cards to eligible patients and holding joint flu vaccination and FIT screening events. These interventions have been shown to significantly increase colorectal cancer screening rates in other organizations¹⁵⁻¹⁸.

Declaration of Conflicting Interests

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Tables

Table 1. Outcome evaluation

Months post-intervention	CCS orders placed for eligible patient visits (%)	Patient completion rate for ordered CCS (%)	Mean days from date of CCS order to patient completion	Patient CCS completion rate previous 12 months (%)
Baseline	16.2	31.6	20	36.1
1	27.1	44.3	16	36.8
2	28.8	49.1	11	37.4
3	22.1	41.2	18	38.9

CCS = colorectal cancer screening

Table 2. Process evaluation survey results

Question	Mean response	Significant difference between job types
Did you receive enough training about the new screening process?	4.1	None
Were you motivated to participate in the new screening process?	4.1	None
Was the screening process realistic for your daily work?	4.1	PCP > TA, p = .007
Did you have enough time in your day to implement the screening process?	3.8	None
Did you find it difficult to use the new screening process?	1.8	PCP < TA, p = .032
Do you think the transition to the new screening process was successful?	3.8	None

1 = not at all, 3 = somewhat, 5 = definitely

PCP = primary care provider, TA = team assistant (clerical staff)