

Closing the Gap: A Resident-Led Quality Improvement Project to Improve Colorectal Cancer Screening in Primary Care Community Clinics

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ABSTRACT

Background Despite the prevalence and mortality associated with colorectal cancer (CRC), 67.4% of US adults aged 50 to 75 years received recommended screening tests in 2016.

Objective We created a quality improvement project in resident-run outpatient clinics to increase CRC screening rates to $\geq 50\%$ from 2016 to 2018, with emphasis on vulnerable patient populations.

Methods We applied a comprehensive, multidisciplinary approach involving internal medicine and family medicine residents and staff from various hospital network departments, selecting 4 clinics to participate whose screening rates were below our network's average of 41%. Our intervention consisted of a needs assessment, resident-led educational sessions for clinicians, staff, and patients, use of fecal immunochemical tests as a first screening option, and application of care gap analysts at each clinic to answer patients' screening questions and to follow up regarding their screening status.

Results We obtained approximately 100 patient surveys from each clinic, a 100% staff completion rate (68 of 68), and a 90% clinician completion rate (85 of 94). Staff and clinician surveys revealed concerns about reducing patient screening fears, inconsistent documentation of screening outcomes, and need for education about CRC prevention, early detection, and screening recommendations. Patient surveys revealed educational deficits and concerns about perceived screening obstacles (eg, transportation and insurance). While CRC screening rates increased across all participating clinics, one clinic experienced an increase from 23% to 48%.

Conclusions Our multitargeted approach in primary care residency practices yielded increased CRC screening rates in vulnerable patient populations.

Introduction

Only 67.4% of US adults aged 50 to 75 years were up-to-date on colorectal cancer (CRC) screening in 2016, with persistent disparities based on income, education, race/ethnicity, language, and insurance coverage.¹ The heavy reliance on colonoscopy for screening in populations facing these obstacles may contribute to the existing disparities,² which may be remediated by expanded use of simpler and more cost-effective screening tools, such as fecal immunochemical tests (FITs), as a "first step" toward increasing CRC screening in underserved patient populations.

Several barriers have been identified that significantly contribute to low CRC screening rates when using colonoscopy as the primary screening tool. Previous studies³ suggested that failure to complete CRC screening is more common among foreign-born Hispanic patients compared with US-born Hispanic patients. Among Hispanic patients, a multivariate regression analysis showed that being employed predicted lack of compliance with completing a

colonoscopy.⁴ Furthermore, Hispanic patients appear less likely to undergo CRC screening tests in general compared with non-Hispanic white patients. There is little research describing interventions to increase CRC screening, especially in Hispanic populations.

We designed a comprehensive, multidisciplinary quality improvement project (QI) to increase CRC screening rates to at least 50% from 2016 to 2018 in resident-run outpatient clinics.

Methods

Community Health Needs Assessment

Our hospital network conducted a community health needs assessment in 2016 that identified health priority areas in order to develop strategic plans for addressing these needs. Our network's cancer center conducted a triennial community health needs assessment as a required component of receiving accreditation through the American College of Surgeons Commission on Cancer. After examining CRC screening rates by insurance type, we determined that patients without insurance or with Medicaid insurance were being screened at much lower rates than

DOI: <http://dx.doi.org/10.4300/JGME-D-19-00144.1>

Medicare and privately insured patients, and we recognized the need to improve CRC screening rates in these vulnerable patient populations.

Selection of Participating Clinics

We convened a multidisciplinary group comprising community health and preventive medicine physicians and staff, practice administrators, internal and family medicine physicians, internal and family medicine residents, medical students, quality analysts, gastroenterology physicians and staff, and research department staff to discuss project implementation. We invited 4 clinics with CRC screening rates below our network's average of 41% to participate in our project. Among these clinics, CRC screening rates ranged from 23% to 32% (in contrast, the highest private practice screening rate in our network was 83%). These 4 clinics serve an urban patient population with significant Hispanic representation (19% to 53% of patients), and patients are often uninsured or underinsured. Within these clinics, medical assistance rates ranged from 29% to 53% of patients, with an additional 20% to 27% of uninsured patients.

Involvement of Medical Students and Residents

In the internal medicine residency program on the Bethlehem Campus of St. Luke's University Health Network, all incoming residents must complete QI modules through the Institute for Healthcare Improvement Open School. Following this training, concepts were reviewed at monthly resident QI meetings, and a residency-wide project to improve CRC screening was selected in conjunction with family medicine and community health clinics.

In the family medicine clinics, residents were selected by faculty members and program directors to lead screening efforts for the residency program. Family medicine residents attended CRC screening meetings, after which they helped to develop and analyze surveys for clinicians and patients, gathered standardized patient education materials to be distributed at appointments, and communicated the project's progress to their individual residency programs. Interdisciplinary CRC screening meetings were conducted with all partners collaborating on this initiative. They were scheduled monthly at first, then bimonthly, and finally quarterly to ensure progress. All successes were shared and barriers were discussed.

Development and Administration of Surveys

The resident survey development team designed surveys using SurveyMonkey to assess clinician, staff, and patient knowledge and perceptions of CRC

screening. Surveys were administered anonymously via e-mail for employees and during visits for patients for a 2-week period. They consisted of multiple-choice questions and some open-ended responses. Clinicians were defined as attending physicians, residents, interns, and advanced practitioners. Staff were defined as nurses, medical assistants, and administrative staff. To obtain sufficient representation at each clinic, we first identified the total population of patients ≥ 50 years of age. Based on this number, we determined that a minimum of 100 surveys per location would provide sufficient data for exploratory analysis.

Survey results were analyzed by residents and community health department staff, who are all hospital employees. The department is chaired by a board-certified preventive medicine physician. Data analysis was conducted by a doctoral-level public health practitioner and a professional with a master's in public health. Findings were shared with leaders at the participating clinics, after which residents at each clinic identified gaps in knowledge and attitudes toward screening. In response, the project team decided to focus its efforts on targeted clinician, patient, and staff education.

Interventions

Resident-Led Education: Each participating clinic was responsible for developing the targeted educational sessions for their assigned group (clinicians, staff, or patients). For patient education, developers used bilingual education materials from the Centers for Disease Control and Prevention, which were distributed to all clinic patients aged 50 to 75 years. Clinician and staff education was delivered using PowerPoint presentations at small group meetings.

Use of FIT: Due to its lower cost and noninvasiveness, FIT was offered to patients at average risk. Clinics developed standardized FIT workflows, and kits were offered at no cost to select patients. Free FIT testing kits with instructions in Spanish and English were supported through the hospital lab and with assistance from the community health department of St. Luke's.

Care Gap Analysts: Each clinic used care gap analysts to follow up with patients who were given orders for either FIT or colonoscopy to ensure timely test completion, provide regular reports to the primary care teams, and work with practices, insurance companies, and patients to obtain documentation of completed quality health measures. They are licensed practical nurses, medical assistants, charge entry specialists, office managers, and billers/

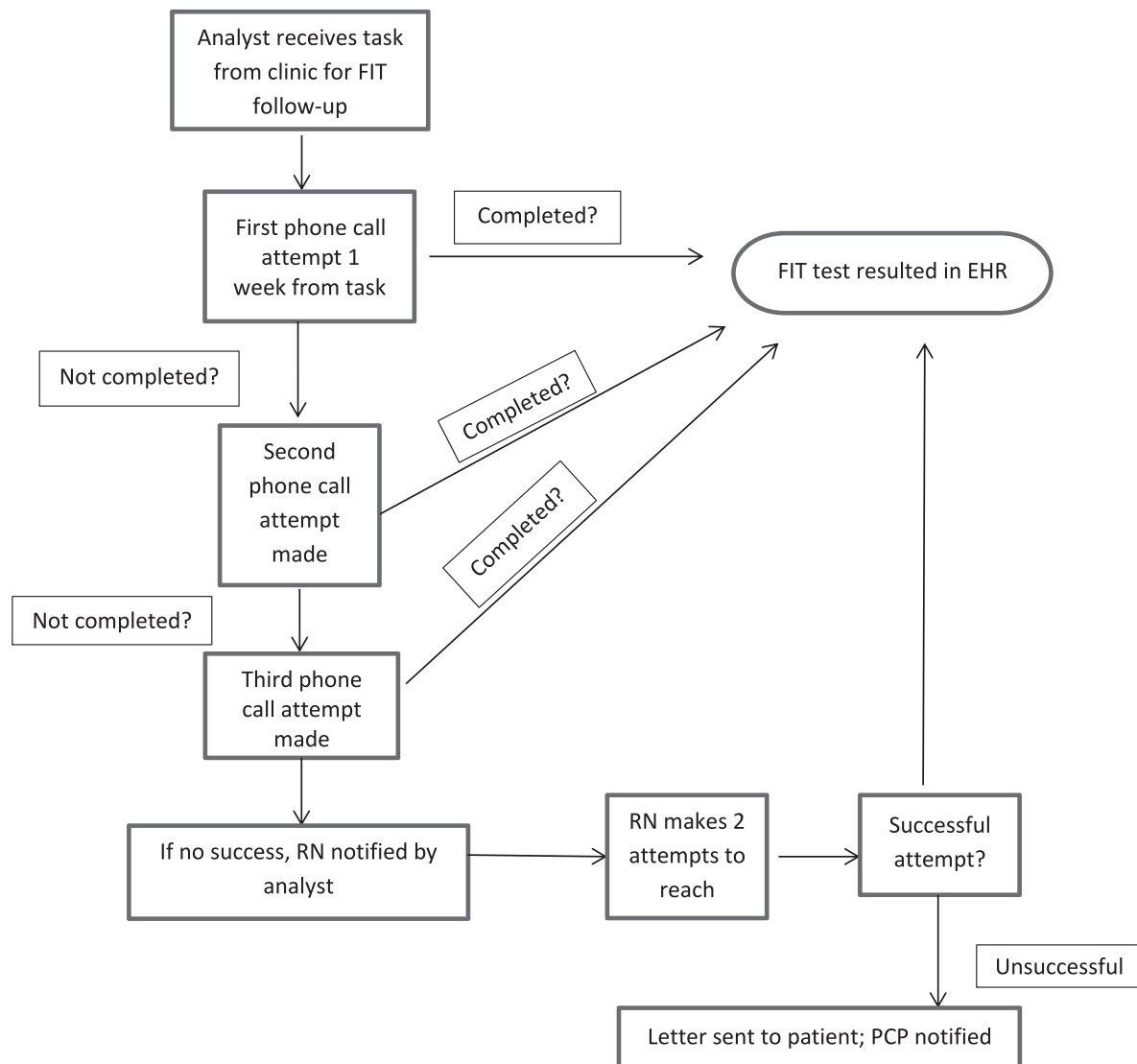


FIGURE 1
Care Gap Analyst Workflow for FIT Testing Follow-Up

Abbreviations: FIT, fecal immunochemical tests; EHR, electronic health record; RN, registered nurse; PCP, primary care provider.

coders who are employed by the hospital and work collaboratively with practices and outreach to external facilities and patients to close gaps in care. They enter the data into the electronic health record (EHR) and submit to the patient's insurance. FIGURE 1 depicts the workflow used by the team and care gap analysts to follow up with patients.

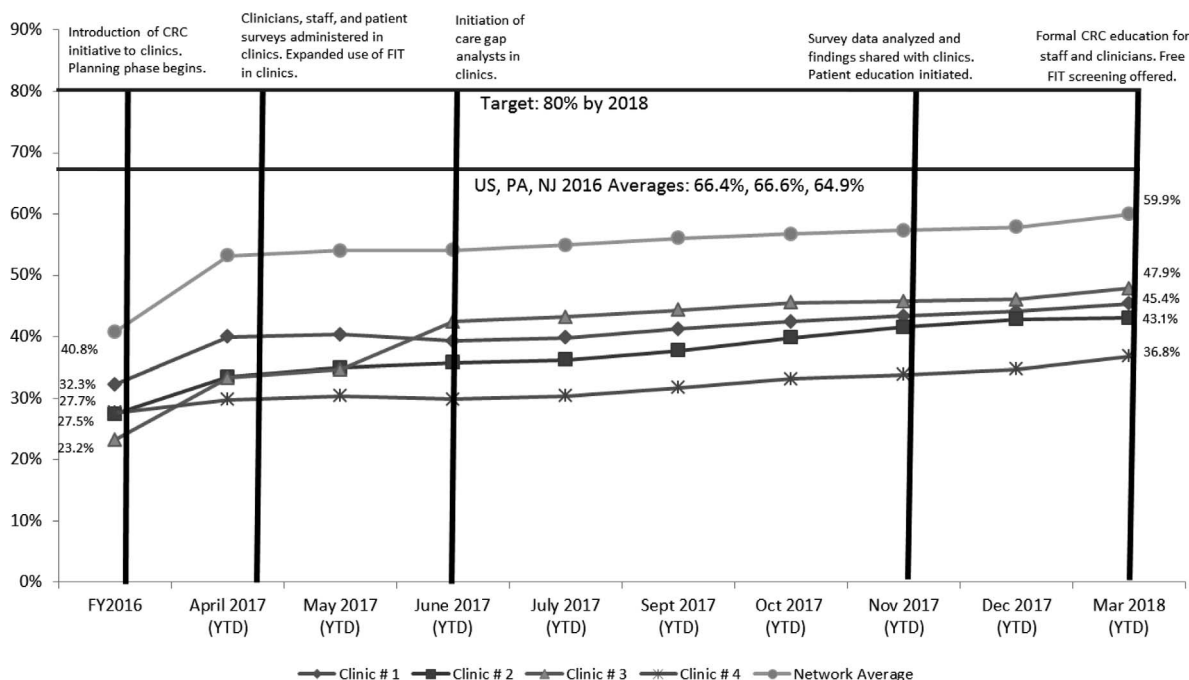
Our study received institutional review board exemption from St. Luke's University Health Network.

Results

We obtained approximately 100 patient surveys from each clinic, with a staff completion rate of 68 surveys (100%) and a clinician completion rate of 85 of 94 surveys (90%).

Staff and clinician surveys revealed a strong need to reduce patient concerns about CRC screening, increase counseling for patients who refuse CRC screening, and document both CRC screening completion and refusal in the EHR system. Additionally, surveys suggested a need for education about CRC prevention, early detection, and screening recommendations.

Along with educational deficits, patient surveys indicated a need to remove barriers that prevented patients from accessing CRC screening services, which included streamlining the process for scheduling CRC screening, assisting patients in navigating screening, and removing transportation and insurance obstacles.

**FIGURE 2****Colorectal Cancer Screening Rates at St. Luke's Network and Clinics**

Abbreviations: CRC, colorectal cancer; FIT, fecal immunochemical tests; FY, fiscal year; YTD, year to date.

Overall findings indicated that 63% of patients (284 of 452) were aware of CRC screening recommendations, with 83% (375 of 452) reporting familiarity with colonoscopies. However, only 21% (95 of 452) were familiar with FIT testing. Additionally, surveys indicated that clinician perceptions of barriers for patients included concerns about pain/discomfort or aspects of the testing procedure along with cost and lack of insurance. The primary barrier reported by patients was fear of receiving worrisome test results.

As shown in FIGURE 2, CRC screening rates improved at all 4 clinics. The clinic with the most success had rates increase to 48% from 23% at the beginning of the project.

Discussion

A combination of patient, clinician, and staff education, targeted use of FIT, and focused patient follow-up in a resident-led, comprehensive QI approach improved CRC screening rates across several primary care clinics that had lower screening rates at baseline and a high proportion of uninsured patients. Although our aim of 50% screening rates at all clinics was not reached, improvements were sustained over the 1-year study period by each practice.

The expanded use of FIT was one intervention used in this project. To date, no randomized, controlled trial has been published comparing FIT testing to colonoscopy, and currently there is no consensus on the

preferred strategy. However, due to its low cost and convenience, it has become a reasonable and acceptable alternative for screening in some average-risk patients.⁵ In addition, efforts at using follow-up screening methods such as care gap analysts have been studied.⁶ In this project, we utilized personal telephone calls to follow up for screening, but automated calls may be less expensive and just as effective.⁶

Despite diligent efforts to standardize office procedures for screening and follow-up, screening percentages naturally varied across clinics. In addition, it is unclear which of the 3 interventions had the most impact on increased screening. During the project's final quarter, our hospital network implemented a new EHR, and data extracted from the previous system were dissimilar. Therefore, the percentage of patients screened in the last few months may underestimate actual results. We did not determine the outcome of patients whose screenings required additional evaluation and who may or may not have been able to access resources for these follow-up evaluations. Finally, without parallel examination of balancing measures, other important health promotion activities may have declined during the CRC screening project.

Future work will be done to ensure patients have reliable transportation and access to affordable screening. Appropriate follow-up after positive screening results and screening for high-risk patients who are uninsured will remain a focus.

Conclusions

Our multitargeted QI approach to primary care residency practices yielded increased and sustained CRC screening rates, with an emphasis on vulnerable patient populations.

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Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

The authors would like to thank Rodrigo Duarte Chavez, MD, Vaishali Rathee, MD, Kathleen Katchur, MPH, and Elspeth Black, MD, as well as the 2016–2018 internal medicine, family medicine, and transitional year residency programs. In addition, we would like to thank the staff of the Department of Community Health and Preventive Medicine as well as the staff from the Southside Internal Medical Center and Family Medicine Residency offices.

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Received February 21, 2019; revisions received July 19, 2019, and October 28, 2019; accepted October 28, 2019.