Journal of Student-Run Clinics
Original Study

A Model for Colon Cancer Screening at a Free Community Clinic

Zein Kattih[1]; Courtney Uhlar[1]; Yohan Perera[1]; Brian Atkinson[1]; Erin Angell[1]; Felicia Ourn, MS[2]; Tom Travis[2]; Frederick Slone, MD[3]; Richard Roetzheim, MD[3]; Lucy Guerra, MD[3]; Eduardo Gonzalez, MD[3]

[1]University of South Florida Morsani College of Medicine, Tampa, Florida, USA
[2]University of South Florida, Tampa, Florida, USA
[3]Department of Family Medicine, University of South Florida Morsani College of Medicine, Tampa, Florida, USA

Corresponding Author: Zein Kattih; email: zkattih@health.usf.edu

Published: July 22, 2018

Abstract

Background: The BRIDGE Clinic began a Colon Cancer Screening Program in 2012 that has continued to provide the local underserved community with free colon cancer screening. This program allows BRIDGE Clinic to provide preventative care in accordance with the United States Preventative Services Task Force guidelines for colorectal cancer screening. The purpose of this study was to investigate the demographics of participants and the outcomes of the colorectal cancer screening program at BRIDGE Clinic and compare this information to 2015 National Health Interview Survey data.
Methods: This study was a retrospective analysis of the medical records of patients eligible for routine colorectal cancer screening. Patients aged 50-75 years and who had at least one clinic visit at BRIDGE between January 2012 and December 2015 were included. Demographics, screening method, and outcome information were extracted by chart review.
Results: A total of 133 uninsured patients were eligible. Of those patients who qualified for colorectal cancer screening, 64% were screened (34% with fecal immunochemical testing, 66% with colonoscopy). Among those screened with colonoscopy, one (2%) patient had rectal carcinoma in situ, 10 (18%) patients had pre-cancerous polyps, 19 (34%) patients had benign hyperplastic polyps (34%), and 26 (46%) had normal colonoscopies.
Conclusions: The Colon Cancer Screening Program at the BRIDGE Clinic has facilitated a screening rate of 64%, a rate that is close to three times the national average for uninsured patients (22%) and almost at the national average for insured patients (65%). This suggests it is feasible for free clinics to achieve high colorectal cancer screening rates if strong community partnerships and a clear process are in place.

Background

The United States Preventative Service Task Force (USPSTF) recommends screening for colorectal cancer (CRC) for adults between the ages of 50 and 75 years.[1] Patients with normal results of screening tests may be rescreened at various intervals depending on the screening tool used. The disease burden of CRC is significant, with a 5-year relative survival rate of 66% in 2006-2012 (National Cancer Institute).[2] The American Cancer Society predicts there will be approximately 134,490 new cases of colorectal cancer diagnosed in 2016, with 49,190 resulting in death.[3] Fortunately, according to the National Center for Health Statistics at the Centers for Disease Control and Prevention, death rates due to CRC have been on the decline for both men and women.[2] Between 1975 and 2000 there has been a 35% decrease in colorectal cancer death rates attributable to screening.[2] This rate improved by 2.5% annually between 2005-2014.

Nationally, screening per USPSTF guidelines has improved from 34% compliance in 2000 to 63% compliance in 2015 for insured patients.[1] Screening prevalence was higher in whites (65%) and blacks (62%) compared with American Indi-

ans (54%), Hispanics (50%), and Asians (49%). Among uninsured patients, only 25% were screened, and immigrants who have been in the United States for fewer than 10 years had a 34% screening rate.[2] In student-run free clinics, the screening rates remain lower. A 2013 retrospective study of 119 patients at a New Jersey free clinic found that only 39% of their patients were compliant with USPSTF guidelines.[4] Another study in a Nebraska clinic found that their initial screening rate was 58.3%.[5] The most obvious barrier to screening is cost. In the uninsured patients who frequent student-run clinics, alternative means of covering the physician and procedure cost must be found. In addition, lack of easy patient transport in rural areas, lack of physician continuity, and lack of patient education all create further obstacles in student-run clinics.

The BRIDGE Student-Run Clinic

The BRIDGE (Building Relationships and Initiatives Dedicated to Gaining Equality) Clinic is a student-run free clinic dedicated to providing care to uninsured patients below the 200% poverty line in Hillsborough County, an area that includes Tampa, Florida. The clinic operates on the generous donations of sponsors, as well the gracious volunteers who dedicate hours of their time weekly to help the patients. These volunteers are comprised of physicians, pharmacists, physical therapists, social workers, medical students, pharmacy students, physical therapy students, social work students, public health students, and others. Because of the limitation in resources available and the number of patients treated, BRIDGE and other free clinics face a challenge in expanding to meet screening guideline recommendations.

The BRIDGE Colon Cancer Screening Program

BRIDGE has collaborated with national and community partners and has implemented colon cancer screening tools at no cost to patients. Maintaining cancer screenings, especially CRC screening, in uninsured populations is a struggle. In some resource-poor areas, some providers mail fecal immunochemical testing (FIT) to unscreened eligible patients. Others attempt to identify eligible patients and refer them to outside clinics or hospitals with programs for screenings in indigent populations. In 2012, BRIDGE began a partnership with the Colon Cancer Alliance, a 501(c)(3) non-profit organization that aims to reduce deaths from colon cancer through "championing prevention, funding research, and providing patient services."[6] This partnership allows partial funding of our colonoscopies through the Community Health Partnership Grant Program. The clinic refers patients to endoscopy and a gastroenterologist performs colonoscopies at no charge to the patient. The partnership with the university and the outpatient endoscopy center (University of South Florida [USF] Morsani Endoscopy Center) allows for use of the endoscopy suite and anesthesia resources at limited cost to the clinic. The Colon Cancer Alliance grant then covers any overhead costs that are not otherwise absorbed. Through this coordination of donations, physician volunteering, and university collaboration, the clinic can provide free screening colonoscopies to any patient eligible.

For those patients screened with colonoscopy, normal findings warrant a rescreen in 10 years, per guidelines. Abnormal findings are followed up with further workup and surgery as needed, and BRIDGE's community partners and partnership with the USF and Florida Hospital has facilitated these further workups. Further workups or screenings are also provided to patients free of charge.

In addition to colonoscopy, FIT is also offered for CRC screening. FIT is used rather than fecal occult blood test (FOBT) because its cost is covered by the clinic; samples are processed through a third-party laboratory. Patients screened with FIT testing must be rescreened annually if no abnormalities are found. For those with equivocal or abnormal screens, colonoscopy is recommended.

Patient eligibility for colonoscopy at BRIDGE is assessed with a screening form during clinical visits. Patients are considered not eligible for screening at BRIDGE if they had family history of CRC or cervical cancer (these patients were referred for diagnostic testing at a local cancer center rather than screening), if they had ongoing gastrointestinal symptoms such as bleeding, or if they had prior polyps. Otherwise, those aged 50-75 years, including those who were previously screened at outside locations but were unable to provide documentation of prior screening are considered eligible. After this initial screening tool, patients are counseled on the need for colonoscopy or FIT, and patients who decline colonoscopy are recom-

mended FIT. Interpreters are used when necessary at all meetings. A scheduling phone call follows each visit, and patients return to clinic to receive colonoscopy prep a few days prior to their scheduled colonoscopies. Patients who do not respond to the initial phone call are called again to encourage completion of screening.

Study Objectives

The purpose of this study was to investigate the rate and outcomes of CRC screening at BRIDGE Clinic and compare the information to national rates for insured and uninsured patients. No specific data on CRC screening rates at the clinic were available prior to this study. A screening rate lower than the national rate for insured and patients for CRC screening was hypothesized given the setting of screening in a student-run free clinic.

Methods

This study was a retrospective analysis of the medical records of patients eligible for routine CRC screening between January 2012 and December 2015. This review was completed by the Colon Cancer Screening Program Coordinator and a Student Clinic Director, with oversight from one of the performing gastroenterologists. Both Program Coordinator and Director were students at the clinic. Institutional Review Board approval was obtained prior to the beginning of data collection.

Patients were included in the chart review if they were age 50-75 years and had at least one clinic visit occurring during the studied interval. Demographic data, screening method used, and result of screening was recorded. Patient demographics included ethnicity, race, age, and gender. Screening method was either FIT, colonoscopy, or both.

Screening rates and results were described as simple proportions and compared with national averages.

Results

A total of 133 uninsured patients between the ages of 50 and 75 years were included in this study. The mean age of patients was 58.4 years, with 84% of patients being between 50 and 64 years old. Sixty-nine percent were female, 59% were Hispanic, and 14% were non-Hispanic (Table 1). Race was not reliably recorded at the clinic and was therefore not reported.

In all, 64% of patients included in this study underwent CRC screening. Of the 133 age-eligible patients, 81% were assessed for CRC screening with the screening eligibility form by clinic staff. The remaining 19% were not screened for various reasons, including clinic flow or staff oversight, and were subsequently unable to be contacted. Among those assessed, all were offered further screening and 10% declined. Of the patients referred, 88% completed screening tests, 2% were referred to colonoscopy but were lost to follow up and did not complete endoscopy, and 10% received FIT but did not mail back a specimen. Of patients screened, 66% were screened with colonoscopy. Of the 56 colonoscopies performed, 2% yielded malignancy (rectal carcinoma in situ), 18% yielded pre-cancerous polyps (including tubulous adenomas, tubulovilous adenomas, and high-grade dysplasia) that were removed, 34% yielded benign polyps, and 46% yielded normal colonoscopies not concerning for CRC. Of the 29 FIT performed, 93% were negative (Figure 1). Twelve patients received both FIT and colonoscopy.

Discussion

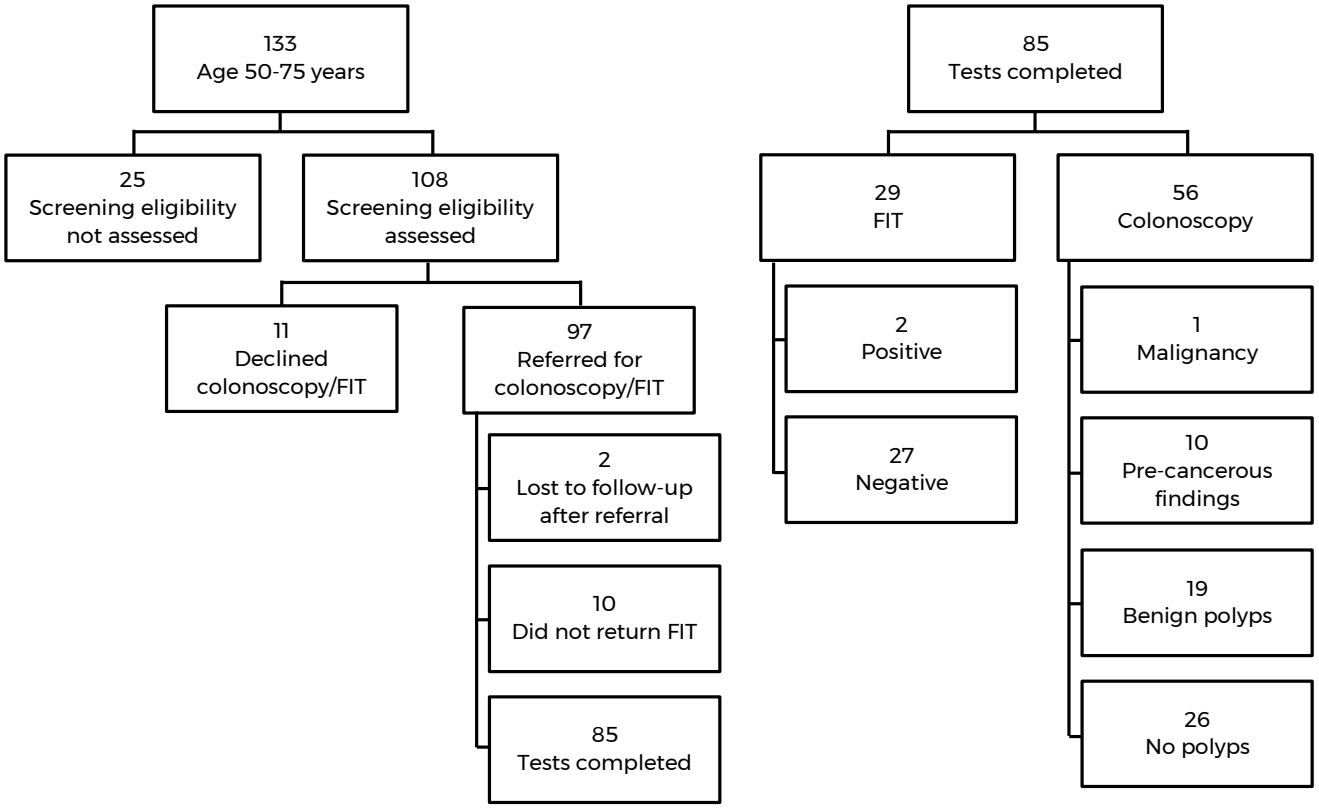
The 2015 National Health Interview Survey (NHIS) reports that the CRC screening rate using either endoscopy or FOBT for uninsured patients was 22%.[7] The overall national average was 63% in 2015.[7] BRIDGE Clinic's screening rate was 64%, almost three times the national average for uninsured patients and almost at the national average for insured patients. These outcomes demonstrate the clinic's success in providing colorectal cancer preventative care at the level of national standards of care. According to the NHIS, screening was more prevalent among white (65%) and black (62%) patients compared with in minority populations, including Hispanics (50%).[7] The patient population screened at BRIDGE Clinic is primarily Hispanic, and the clinic screening rates for Hispanic and non-Hispanic patients was similar to national averages.

In the self-reported 2012 Behavioral Risk Factor Surveillance System survey from the Centers for Disease Control and Prevention, 61.7% of respond-

Table 1. Demographic Characteristic of Included Patients

	N (%)	Total patients screened for CRC, N (%)	Patients screened with colonoscopy, N (%)	Patients screened with FIT, N (%)
Age				
50-64	112 (84.2)	71 (63.4)	47 (66.2)	24 (33.8)
65-75	21 (15.8)	14 (66.7)	9 (64.3)	5 (35.7)
Gender				
Male	41 (20.8)	21 (51.2)	14 (66.7)	7 (33.3)
Female	92 (69.2)	64 (69.6)	42 (65.6)	22 (34.4)
Ethnicity				
Hispanic	79 (59.4)	47 (59.5)	33 (70.2)	14 (29.8)
Non-Hispanic	18 (13.5)	14 (77.8)	9 (64.3)	5 (35.7)
Preferred not to specify	36 (27.1)	24 (66.7)	14 (58.3)	10 (41.7)
Total	133 (100)	85 (63.9)	56 (65.9)	29 (34.1)

Figure 1. Patient Inclusion and Colorectal Cancer Screening Outcomes



ents reported having a colonoscopy within the past 10 years, 10.4% reported FIT/FOBT within the past year, and 27.7% reported they did not undergo screening.[8] Similarly, patients receiving care at BRIDGE clinic had a greater likelihood of screening with colonoscopy relative to FIT (66% colonoscopy versus 34% FIT). This ability to follow national trends is likely secondary to the availabilities of free colonoscopies without copays and availability of clinic support for the colonoscopies.

To our knowledge, this high adherence to standard colorectal screening criteria is one of few reported from a student-run free clinic. One quality improvement study in Arizona at 3 satellite free clinics demonstrated screening rates of 52% for colon cancer. This study intervened by mailing screening information to patients, setting up a phone line for easier scheduling, and prompting physicians on days of patient visits, and found that post-intervention screening rates rose to 59%.[9] A prospective study in a Nevada clinic found that implementation of a multifaceted intervention (that included patient education, physician education, provider checklists, pre-clinic chart reviews, and a partnership with a local Colon Cancer Screening Program) led to an improvement of their screening rates by 16.1% to a rate of 74.4%, though results were non-significant.[5]

Through a novel model of a partnership with the Colon Cancer Alliance, a dedicated volunteer gastroenterologist, and collaboration with the university and endoscopy center, all patients received free screenings. This method provides a model for other similar clinics in reaching out to community resources — though it may not be feasible to reproduce the same partnerships in other communities, similar partnerships can be established to provide either free or reduced-cost colonoscopies.

The adenoma detection rate found on our colonoscopies is consistent with reported statistics for screening colonoscopies. The adenoma detection rate was 19.6% for malignant adenomas, and it was 53.5% when including benign adenomas. A 2014 evaluation of 314,872 colonoscopies found that detection rate of "at least one histologically confirmed colorectal adenoma or adenocarcinoma" ranged from 7.4% to 52.5% largely associated with physician experience.[10] Adenoma detection rate is being used as a quality measure for colonoscopies, and the results described here are consistent with adequate procedures.

Limitations of this study include it being a retrospective analysis, allowing increased opportunity for some outcomes to remain uncaptured in the medical record. In addition, the BRIDGE Clinic population may not be representative of other clinics. The relatively small sample size also limits ability to accurately examine specific subgroups. Finally, the eligibility assessment method was based on ages 50-75, no history of gastrointestinal symptoms, and no family history of cervical or colorectal cancer. This eligibility assessment was completed by clinic staff and medical treatment teams in various levels of training, which increases the chance of collection errors. The national CRC screening rates have as their inclusion criteria all patients between the ages of 51 and 74 who have had at least one medical visit during the reporting year. Our exclusion of patients with family history or prior personal history of CRC assumes that these patients have already undergone non-screening colonoscopies, and our exclusion may underestimate our true screening rate.

The National Colorectal Cancer Roundtable has as its goal a screening rate of 80% for adults 50 years of age and older by the year 2018.[11] The BRIDGE Clinic is already above the current screening national average for uninsured patients. Utilizing a consistent protocol and offering appropriate resources allows successful CRC screening. Investigation of loss to follow-up and improvement in the initial assessment for eligibility are areas of optimization. Nevertheless, BRIDGE has been able to serve as a hub for underprivileged preventative care in the Tampa Bay area. This study suggests it is possible for free clinics to achieve similarly high CRC screening rates if strong community partnerships and a streamlined process are available.

Acknowledgements

We would like to thank the sponsors of BRIDGE Clinic and the Colon Cancer Alliance for their generous donations that allow us to provide colonoscopies to our patients.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. United States Preventive Services Task Force. Final Update Summary: Colorectal Cancer: Screening [Internet]. Rockville (MD): United States Preventive Services Task Force; 2016 Jun [cited 2018 Mar 1]. Available from: https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/colorectal-cancer-screening2. LINK
2. American Cancer Society. Colorectal Cancer Facts and Figures 2017-2019 [Internet]. Atlanta (GA): American Cancer Society; 2017 [cited 2018 Mar 1]. 40p. Available from: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/colorectal-cancer-facts-and-figures/colorectal-cancer-facts-and-figures-2017-2019.pdf. LINK
3. Smith, RA, Andrews K, Brooks D, DeSantis CE, Fedewa SA, Lortet-Tieulent J, et al. Cancer screening in the United States, 2016: a review of current American Cancer Society guidelines and current issues in cancer screening. CA Cancer J Clin. 2016 Mar-Apr; 66(2):95-114. LINK
4. Zucker J, Lee J, Khokhar M, Schroeder R, Keller S. Measuring and assessing preventive medicine services in a student-run free clinic. J Healthcare Poor Underserved. 2013 Feb; 24(1):334-358. LINK
5. Menning, M, Nabower A, Medder J, Geske J, Margalit R. The impact of a multifaceted intervention on the rate of preventive services offered in a student-run clinic. J Stud Run Clin. 2016 Sept 30; 2(2):1-9. LINK
6. Colon Cancer Alliance. Our Mission [Internet]. Washington D.C. (DC): Colon Cancer Alliance; [cited 2017 Aug 1]. Available from: https://www.ccalliance.org/about. LINK
7. National Center for Health Statistics. Health, United States, 2015: with special feature on racial and ethnic disparities. Hyattsville (MD): National Center for Health Statistics; 2016 May. 461p. Report No.: 2016-1232. LINK
8. Center for Disease Control and Prevention. Vital signs: colorectal cancer screening test use — United States, 2012. MMWR Morb Mortal Wkly Rep. 2013 Nov 8;62(44): 881-8. LINK
9. Florea KS, Novosel LM, Schlenk EA. Improvement in colon cancer screening through use of multilevel intervention: a QI initiative. J Am Assoc Nurse Pract. 2016 Jul;28(7):362-9. LINK
10. Corley, DA, Levin TR, Doubeni CA. Adenoma detection rate and risk of colorectal cancer and death. N Engl J Med. 2014 Jun 26;370(14):1298-1306. LINK
11. National Colorectal Cancer Roundtable. Working toward the shared goal of 80% screened for colorectal cancer by 2018 [Internet]. Atlanta (GA): American Cancer Society; [cited 2017 Aug 27]. Available from: http://nccrt.org/tools/80-percent-by-2018/. LINK