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Impact of COVID-19 on Screening Rates for Colorectal, Breast, and Cervical Cancer: Practice Feedback From a Quality Improvement Project in Primary Care

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Purpose	Three New York State practice-based research networks provided quality improvement strategies to improve screening rates for breast, cervical, and colorectal (BCC) cancers in safety-net primary care, over 7 years. In the final year (Y7), the United States experienced the COVID-19 pandemic. The impact of the COVID-19 pandemic on BCC cancer screening rates was assessed qualitatively.
Methods	A total of 12 primary care practices participated in Y7 of the quality improvement project. BCC cancer screening rates at year beginning and end were assessed. Practice staff were asked about how COVID-19 impacted screening. Average pre/postintervention screening rates and qualitative thematic analysis regarding how COVID-19 impacted cancer screening were ascertained.
Results	In Y7, there was an increase in breast cancer and a decrease in colorectal and cervical cancer screening rates compared to the previous project year. Many practices were able to continue pre-COVID-19 cancer screening processes. Overall, practices reported loss of staff, changes in data entry, and a shift from preventive screening to care of sick patients. Telehealth was vital for practices to continue serving patients but had a less positive impact on patients with financial/technological disadvantages. BCC cancer screenings were impacted at various levels.
Conclusions	The COVID-19 pandemic negatively impacted primary care practice cancer screening; however, some practices were able to mitigate effects by shifting focus to processes supporting screening outside of in-person office visits. (<i>J Patient Cent Res Rev.</i> 2021;8:347-353.)
Keywords	cancer screening; primary care; COVID-19; breast cancer; colorectal cancer; cervical cancer; telehealth

In the United States, screening rates for colorectal, breast, and cervical cancer often fall below national targets despite the current evidence of preventive screening effectiveness.¹ Compounding the problem, screening rates in disadvantaged populations are generally worse than for more well-off segments of society. This is true in New York State, prompting the New York State

Department of Health to target primary care practices serving disadvantaged populations — known as safety-net practices — to engage them in improving screening rates within their patient panels.

Responding to this call, three practice-based research networks administered across central and western New York State partnered to provide quality improvement (QI) strategies on colorectal, breast, and cervical cancer screening through practice facilitation^{2,4} and academic detailing^{3,7} to increase screening rates in safety-net primary care practices over 7 years (2014–2020), ending in June 2020. Characteristics of the populations served and practice types are reported elsewhere, but briefly, our safety-net clinics represented a mix of practices that

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included Federally Qualified Health Centers and academic practices that saw patients who were underserved, either through uninsurance, poor insurance, or lack of access due to other reasons such as geographic or community features. Aggregate increases in screening rates were observed across participating practices for colorectal and breast cancer, with more uneven results for cervical cancer. Details of the overall project and outcomes are available elsewhere.^{1,8-15}

In the seventh and final year of this project (July 2019–June 2020), the United States was beset by the COVID-19 global pandemic. The delivery of health care was dramatically changed during this time. Preventive care services were curtailed, patients feared going to a health care facility, and social distancing required practices to completely change their practice workflows. Regions of New York State covered by our QI project spent the final months of participation (March–June) socially distancing and in mandated business closures, with travel and mobility restrictions in place throughout the state.^{16,17} These measures had dramatic impacts on primary care practice operations in the last 4 months of project year 7 (Y7), a time frame in previous years during which practices were well into their interventions and routines and winding down project-related activities.

As part of our regular close-out procedures at the end of each project year, practice personnel participated in key informant interviews to discuss operations from the prior year. Given the potential impact of COVID-19 responses on the provision of preventive services, we added discussion of COVID-19 to our end-of-year interviews in 2020. The purpose of this paper is to describe key informant impressions of the impact of the COVID-19 pandemic on preventive screenings within our participating safety-net practices, both to inform and contextualize the impact on screening rates as well as to elucidate any lessons that may be learned as the pandemic continues.

METHODS

Twelve safety-net primary care practices participated in the final year of the project, which was determined to be non-research quality improvement by the institutional review board of State University of New York Upstate Medical University. To assess the overall impact of the project, colorectal, breast, and cervical screening rates were collected from the 12 practices at two times during each project year — once at the start of each intervention year (pre) and once at the end of each intervention year (post). The time frame for pre and post data varied among practices and was based on when each practice entered the project. Data were collected as part of the annual program evaluation and include numerators representing

the total number of eligible patients screened within a given time frame and denominators representing the total number of patients eligible for screening in that same time frame. The number of patients screened was collected by method of screening for each cancer; however, many practices left these fields blank. Screening rates for each cancer were aggregated to descriptively evaluate trends in screening rates from August 2019 to June 2020.

In addition to quantitation of screening rate changes, key informants from all 12 practices participated in end-of-year open-ended interviews with a practice facilitator from the project, including discussion of the perceived impacts of the COVID-19 pandemic on colorectal, breast, and cervical cancer screening. The discussions were held naturalistically, with guide questions indicating the direction of discussion but not dictating the dialogue. Qualitative comments pertaining to COVID-19 were collated by the practice facilitators conducting the interviews and entered into a shared online form (Google Docs). Responses were organized by each cancer screening type or as overarching comments pertaining to the impact of the pandemic on general cancer screening priorities and issues across all types.

Once responses from all 12 practices were collated, they were assessed via brief content analysis, which involved grouping statements based on similar and reoccurring keywords and themes. This process was led by one team member who had not participated in the interviews and was cross-validated by a second team member who also had not participated in the interviews. Both of these individuals have formal training in qualitative data analysis. The identified themes were then discussed with the broader team of authors, including interviewer/practice facilitators, for a third interpretive and analytic step. All responses were coded without identifying information.

Results include the themes identified in the qualitative responses and quantitative description of rate changes for colorectal, breast, and cervical cancer screening. Other results and outcomes from the project are reported elsewhere in this issue of *Journal of Patient-Centered Research and Reviews*.^{14,15}

RESULTS

An overall increase in mean screening rates was seen from pre-Y1 to post-Y6 of this project for breast and colorectal cancers, while cervical cancer screening rates showed an overall decrease.¹⁵ In Y7, colorectal screening saw the most change (2 percentage point decrease) while cervical screening remained almost unchanged (0.10 percentage point decrease). Breast cancer screening increased by about 1 percentage point from the pre-Y7 to post-Y7 period.

All practices responded to the request for information regarding screenings and COVID-19. Two of the practices reported no changes in screening across all cancer types during the pandemic, 1 practice reported slight changes in screening across all cancer types, and 2 practices reported major changes in screening across all cancer types during this time. The remaining practices all reported varying degrees of change for colorectal, breast, and cervical cancer.

Cervical cancer was reported by the majority of practices as the least likely screening to experience a change of any magnitude due to the pandemic, followed closely by colorectal cancer. Breast cancer was the most likely screening to experience both slight and major changes due to COVID-19. A total of 13 themes were codified, with 5 overarching themes and 2 each pertinent to colorectal, breast, and cervical cancer.

Overarching Themes

Continued Pre-COVID-19 Processes. Several practices indicated they attempted to continue pre-COVID-19 screening and referral practices to the greatest extent possible while experiencing reduced patient volumes.

Changes in Data Entry During This Time. Some practices experienced delays in data entry due to staffing changes; however, others reported that the slowdown in in-office activity offered the opportunity to “clean up” existing data.

Telehealth Heavily Relied on During Pandemic, Its Use Likely to Continue. Many practices switched to telehealth for the delivery of all services. Those with established experience and infrastructure to deliver telehealth had more success than those who had to implement these processes as a reactive step to a COVID-19 shutdown.

Focus Shifted From Preventive Screening to Caring for Sick Patients. This was observed across all cancer types; preventive screening was de-emphasized during COVID-19 shutdowns.

Many Practices Experienced Decreased Staffing During This Time. A major impediment was the decrease in staffing levels during COVID-19 shutdowns.

Colorectal Cancer Screening Themes

Shifted Focus From Preventive Screening. Several practices indicated that focus had to be shifted away from all preventive care, such as screening, as demands for acute care and COVID-19 testing took precedence.

Change in Number of Mailed FIT Kits and Commercial FIT-DNA Tests. The availability of fecal testing (fecal immunochemical test [FIT] and commercial FIT-DNA)

allowed practices to shift some of the burden of screening from in-office, appointment-driven approaches (eg, colonoscopy) to home-based procedures.

Breast Cancer Screening Themes

Screenings Paused During Summer of 2020. Several practices paused breast cancer screening, especially since there was no in-home option (such as those available for colorectal screening).

Practices Relied on Then-Unavailable Mobile Mammography Units. Some practices indicated that mobile mammography units funded by New York State were the primary means of breast cancer screening referral; these units stopped operating at the height of COVID-19 shutdowns, with some units being operationalized as mobile COVID-19 testing facilities.

Cervical Cancer Screening Themes

Our safety-net primary care practices (family medicine and general internal medicine) primarily rely on gynecology referrals and separate providers to manage cervical cancer screening. During the COVID-19 shutdowns, many practices opted not to focus on cervical screening. This change in focus resulted, for some practices, in a stop in cervical screening and referrals for screening altogether.

Quotes supporting and illustrating identified themes are included in Tables 1–4.

DISCUSSION

Colorectal cancer screening seemed to be relatively unchanged by the pandemic; many practices were already mailing test kits to patients who were due for a screening, and this continued whether or not patients could be seen in the office. Practices also had time to follow up with patients who had had a positive FIT kit before the pandemic hit, with one practice utilizing the services of patient navigators to keep in contact with these individuals, ensuring they could be scheduled for follow-up as soon as the practice was ready. While most practices increased the number of FIT kits and commercial FIT-DNA tests mailed, one practice decreased them, citing concerns over potential exposure of the samples to COVID-19 through the laboratory they used. While the delay in the mailing of test kits or the inability to schedule in-person appointments may have impacted diagnostic ability, none of the practices reported this as a concern.

For breast cancer, several practice sites involved with the project utilized the services of mobile mammography vans or buses within the communities they serve. Historically, these mobile units increase the number of screenings that can be done by a practice and address issues of

Table 1. Overarching Themes^a

Theme	Quotes from practices
Continued pre-COVID-19 processes	<p><i>“The QI team did outreach and follow-up after mailing FIT kits, and GI continued to schedule colonoscopies.”</i></p> <p><i>“We still handed out FIT kits to patients who came in.”</i></p> <p><i>“We’re slightly backlogged from before the pandemic, but the mammography bus is still doing two times a month.”</i></p> <p><i>“We see the greatest success with getting patients to complete this screening [breast] because it is the least invasive and requires very limited interaction with a medical site.”</i></p> <p><i>“We continued to refer out for Pap smears.”</i></p>
Changes in data entry during this time	<p><i>“There was delay in entering screening data, which led to inaccurate rates.”</i></p> <p><i>“Our practice also had some time available to go in and ‘clean up’ patient records and data, which was valuable.”</i></p>
Telehealth was heavily relied on during this time, and practices will likely continue to use this technology	<p><i>“The practice plans to continue using telemed after the pandemic so long as it continues to be covered/reimbursed.”</i></p> <p><i>“The practice will continue telemed if they are able to and it is an option for patients, but many are underserved or don’t have the means to use.”</i></p> <p><i>“The ability to use telehealth was very helpful for our practice, allowing for better conversations with patients.”</i></p>
Focus shifted from preventive screening to caring for sick patients	<p><i>“Lots of testing for COVID-19. The immediate focus was to get people in if they were sick or needed testing, before focusing on additional screenings.”</i></p> <p><i>“The focus at the practice has been on sick or necessary visits, as little to no cancer screening was being done during more hectic times in pandemic.”</i></p>
Many practices experienced decreased staffing during this time	<p><i>“Over the summer, our practice had about half the nursing staff still in office and others working from home if possible.”</i></p> <p><i>“At this practice, there were far fewer people to support the work due to the loss of staff for several reasons. Some were exposed to or contracted COVID-19 and some had their time reallocated to hospitals to support the response.”</i></p> <p><i>“Three care coordinators were furloughed during the pandemic.”</i></p>

^aThemes were developed from practice responses to the question, “Each previous question was asked about screening for specific cancer types. Is there anything you would add as an overall comment, as additional information, or as a summary?” FIT, fecal immunochemical test; GI, gastroenterology; QI, quality improvement; telemed, telemedicine.

accessibility for patients who are due for screening.^{18,19} During the pandemic, many of these mobile screening units were repurposed for COVID-19 testing, which severely impacted the ability of practices who relied on these units to conduct breast cancer screening. Once rates of infection slowed in New York State and practices adjusted to a “new normal,” they were able to slowly ramp up breast cancer screenings. Some practices regained access to their mobile mammography units, but others did not.

According to anecdotal reports from our own participating practices, cervical cancer screening has historically been difficult for primary care practices to target and track because many patients seek this service at outside obstetrics/gynecology (OB/GYN) facilities. Sharing information across practice sites requires dedicated effort, and practices do not always have the bandwidth to track these screening records. Cervical cancer screening continued to be a problem for many sites during the onset

of COVID-19 restrictions, with many OB/GYN clinics closed for preventive care and fewer staff available to monitor patient data between sites.

Practices who historically serve high-risk populations, including homeless, refugee, and elderly patients, encouraged these individuals to stay home if they were healthy. Some practices closed entirely for periods of time, and many practices saw reduced staffing from sickness or reassignment to help hospitals with their overwhelming need. A few practices saw the decrease of patient visits as an opportunity to improve their preventive screenings, either by cleaning up patient records and data or by filming screening tutorial videos that can be used for all patients, including after the pandemic.

Telehealth was extremely useful for practices during this time. Many stated that they will continue to use telehealth as long as it remains reimbursable. However, telehealth

Table 2. “Did your approach to screening patients for **colorectal** cancer change at all as a result of the COVID-19 pandemic? If it did not – please say so. If it did change – how?”

Theme	Quotes from practices
Shifted focus from preventive screenings	<p>“We continued to offer FIT kits but focused mainly on sick or immediate appointments.”</p> <p>“Our focus was on outreach instead of in-office screening.”</p>
Change in the number of FIT kits and commercial FIT-DNA tests that were mailed	<p>“We focused solely on mailing FIT kits because patients could not come in for colonoscopies and tripled the amount of kits mailed during this time, with roughly an 80% return rate.”</p> <p>“We printed lists of everyone who was due and created ... [commercial FIT-DNA] orders for patients ... mailed letters to those who already had kits but hadn't completed them, and those with old FIT kits received a new ... [commercial FIT-DNA] order.”</p> <p>“We pulled back on mailing FIT kits because results are run by an internal lab and there were concerns about exposure [to COVID-19] with receiving returned sample.”</p>

FIT, fecal immunochemical test.

Table 3. “Did your approach to screening patients for **breast** cancer change at all as a result of the COVID-19 pandemic? If it did not – please say so. If it did change – how?”

Theme	Quotes from practices
Screenings were paused during the summer of 2020	<p>“As of September 2020, our practice has slowly begun rescheduling and making appointments.”</p> <p>“Patients were unable to come in for mammograms, so the focus was on mailing information to those who were due.”</p>
Practices relied on mobile mammography units that were unable to be used	<p>“The mammography bus was temporarily halted but began again in June 2020. Fewer people are getting screened, but still continuing.”</p> <p>“Mobile mammography is no longer available, as it was turned into a mobile COVID-19 testing site.”</p>

Table 4. “Did your approach to screening patients for **cervical** cancer change at all as a result of the COVID-19 pandemic? If it did not – please say so. If it did change – how?”

Theme	Quotes from practices
Cervical cancer screening was no longer a central focus	<p>“Cervical had been a focus but also a struggle to improve. At this point, it is not a key focus for the site.”</p> <p>“We focus on outreach instead of in-office screening.”</p>
No screening or referrals occurred	<p>“Our practice started offering Pap smears in-office this year but had to delay this during initial COVID-19 impacts.”</p> <p>“Little to no screening occurred during this time, as it wasn't a priority.”</p>

presented issues when patients did not have the means to access the technology necessary for appointments. Practices that had experience using telehealth tended to be more comfortable, and more successful, with its use during COVID-19 operational restrictions.

One practice noted that the greatest barriers to screenings are now patient financial concerns. In a time when income is potentially much more limited due to unemployment,

patients may be unable to pay for screening or for potential follow-up if a screening is positive.

Limitations

One limitation of this study is the inability to compare the months of the pandemic in Y7 (March–June) with those same months from previous project years. Our data were collected at two time points each year based on prescribed dates. Without screening rate data for each month, we

are unable to directly compare screening rates solely for March–June 2020. Our analysis focused on qualitative reports from practices that reported the changes they saw on the ground rather than quantitative screening data.

CONCLUSIONS

Despite dramatic changes in operations when COVID-19 restrictions took effect in the spring of 2020, primary care practices participating in our project were able to shift focus from traditional cancer screening support (usually involving direct patient communication during an office visit) to processes that support screening outside of in-person office visits. These include shifting colorectal cancer screening to home-based fecal testing methods, the use of telehealth to assess and communicate with patients, and the use of staff time for database and registry cleaning to identify more patients due for screening when the capacity to do so returned. Also, most practices were on improvement trajectories with their screening rates, and these trajectories flattened during the pandemic response. However, a dramatic decline in screening was not observed, rather, practices deployed creative problem-solving to maintain screening rates as COVID-19 restrictions took hold.

Patient-Friendly Recap

- The COVID-19 pandemic disrupted cancer screening workflows of safety-net primary care practices, many of which experienced loss of dedicated staff or relied on OB/GYN offices that halted preventive screenings.
- Telehealth, though available in primary care prior to COVID-19, became further integrated into practices and a vital aspect to the continuation of screenings. However, it was less impactful for patients with financial or technological disadvantages.
- Practices adapted to maintain prepandemic screening rates by increasing the accuracy of electronic medical records, reaching out to patients regarding their screening, referring patients for off-site mammography, and mailing lab tests for colorectal cancer.

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Author Contributions

Study design: Schad, Morley. Data acquisition or analysis: all authors. Manuscript drafting: Schad, Brady, Morley. Critical revision: Brady, Tumieli-Berhalter, Bentham, Vitale, Norton, Noronha, Swanger.

Conflicts of Interest

None.

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