



2021 Return-to-Screening ACS quality improvement project: Increasing mammography screenings post-COVID at UMass Memorial Medical Center



Carisa A. Lozoraitis, BSN, RN, MSN^{a,*}, Gopal Vijayaraghavan, MD, MPH^b,
Paul Lofrumento, BS, RTR^c

^a Center for Quality and Safety, UMass Memorial Medical Center, Worcester, MA

^b Department of Radiology, UMass Memorial Medical Center, Worcester, MA

^c Radiology Services, UMass Memorial Medical Center, Worcester, MA

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ABSTRACT

Background: The COVID-19 pandemic significantly disrupted routine cancer screenings across the United States, including mammography services. UMass Memorial Medical Center experienced a 15.5% decline in screening volumes, prompting participation in the American College of Surgeons 2021 Return-to-Screening initiative to restore and enhance breast cancer-screening rates. The primary objective was to increase monthly mammography screening rates by at least 10% over pandemic-era levels, returning to or exceeding prepandemic volumes. The secondary objective was to provide earlier detection of breast cancer, and subsequent interventions.

Methods: A multidisciplinary team implemented a series of structural, operational, and outreach strategies between April and November 2021. Interventions included redesigning waiting areas for infection control, deploying bilingual digital communications, enhancing scheduling systems, engaging a Nurse Navigator, and launching the *Simply Women* marketing campaign. Clinics demonstrating lower performance were identified and provided with targeted education and data-driven support. The primary outcome measure was the monthly mammogram completion rate, compared pre- and post-intervention using data from UMass Memorial Medical Center's internal database.

Results: During the implementation phase (June–November 2021), mammography rates increased by an average of 16.5% compared with pandemic-era levels. A 5-month period (April–August 2021) saw an 80% increase in screenings, with an additional 100 screenings per month achieved at peak. In the month of August 2021, our screening numbers reached 1751, which when compared to the month of April (974), represented an 80% increase. Secondary benefits included improved cross-departmental collaboration, increased provider engagement, and enhanced patient trust and compliance.

Conclusions: UMass Memorial Medical Center's initiative successfully restored and exceeded prepandemic screening volumes through a coordinated, data-informed, operations-driven strategy that emphasized accurate identification of high-risk patients using Breast Imaging-Reporting and Data System codes and a patient-centered approach. The model is scalable and may inform similar efforts in other institutions. Sustained collaboration with public health partners will support ongoing progress and equity in preventive care delivery.

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Introduction

The COVID-19 pandemic disrupted preventative health services globally, resulting in marked decline in breast cancer screening. Many screening facilities suspended operations, and those that remained open functioned with reduced staffing and limited appointment availability.^{1,2} Public uncertainty about the safety of

* Corresponding author: Carisa A. Lozoraitis, BSN, RN, MSN, UMass Memorial Medical Center, 55 Lake Avenue North, Worcester, MA 01655.

E-mail address: carisa.lozoraitis@umassmemorial.org (C.A. Lozoraitis).

screening services further contributed to decreased participation.³ Screening backlogs expanded, prolonging appointment wait times, whereas restricted access to primary care services contributed to the declining breast cancer–screening rates.

The American College of Surgeons (ACS) Commission on Cancer and the National Accreditation Program for Breast Centers, in partnership with the American Cancer Society, set up the Return-to-Screening Quality Improvement Collaborative. This national quality improvement initiative provided a Plan-Do-Study-Act framework, a portfolio of evidence-based interventions, and comprehensive implementation support. The UMass Memorial Medical Center (UMMMC) joined the collaborative and launched a quality improvement initiative to increase breast cancer–screening rates. In total, 786 accredited programs implemented 859 screening improvement initiatives as part of the collaborative, with the majority, including UMMMC, achieving their established performance targets.⁴

Problem description

From March to July 2020, mammography screening volumes at UMass Memorial Medical Center declined in response to national COVID-19 healthcare mandates. Mean monthly screening volume decreased from 1,572 screenings prepandemic (September 2019 and January 2020 data) to 1,328 screenings during the pandemic period (September 2020 and January 2021), standing for a 15.5% reduction. The project goal was to achieve a 10% increase in mammography screening volume. Data were extracted from the institutional database and prospectively checked throughout the intervention period.

Context

Under the direction of the president of UMass Memorial Medical Center, a leadership team forming senior cancer executives, division chiefs, and directors guided the ACS 2021 Return to Screening project. Broad multidisciplinary engagement and community outreach was secured across the departments, being a diverse array of disciplines, including radiology, pathology, primary care, nursing, scheduling, marketing, information, and interpreter services. This collaboration represented comprehensive oversight and operational coordination throughout the project.

Structural and operational strategies

To address declines in preventative screening, UMass Memorial Medical Center implemented a multifaceted approach combining structural, operational, and communication interventions. Waiting areas were redesigned to enhance infection control and reduce patient anxiety. Text and email campaigns reinforced safety protocols and encouraged patients to resume mammography screening. Referral workflows were customized to improve scheduling, including self-scheduling, and educational materials were provided in preferred languages.

Telemedicine supported primary care discussions about screening. The multidisciplinary marketing initiative, Simply Women, targeted women aged 21–74 years through digital advertisements and provided a centralized web platform. Outreach materials were translated into Spanish to improve accessibility for individuals with limited English proficiency.

Patient navigation was strengthened by integrating a resolute nurse navigator within obstetrics-gynecology services. The navigator assessed screening readiness, provided individualized education, addressed patient-specific barriers and concerns related to

screening, and eased prompt access to care, particularly for underserved and high-risk populations.⁵ Additional measures included refining scheduling systems, addressing transportation challenges, including complimentary parking, and proactive outreach to reschedule missed appointments.

Study of the interventions

Outcomes were evaluated using a pre- and postintervention comparison of monthly screening, diagnostics, and procedural mammography volumes. Internal data were obtained from the UMMMC electronic health records system. Trends were analyzed based on screening uptake as well as patient and provider feedback to assess changes over time.

Measures

The primary outcome measures included the total number of mammography screenings completed per month and timely access to diagnostic and procedural appointments. Appointment access was tracked using first and third available appointments as well as actual lag time. Univariable analyses were performed to compare screening volume and access metrics before and after intervention implementation.

Analysis

Descriptive statistics were conducted to evaluate quantitative changes in screening rates, and month-by-month trend analyses were performed to account for temporal variation. Informal qualitative data (eg, staff feedback and performance metrics) were also incorporated to guide iterative improvements. Added process enhancements further strengthened the intervention. High-risk patients were more precisely found through implementation of Breast Imaging-Reporting and Data System (BI-RADS) subcategorization, rather than reliance on the broader, nonspecific BI-RADS category 4 classification. Scheduling guidelines were set up based on the likelihood of positive findings, with expedited appointments supported by updated unit protocols. Work queue management shifted from alphabetical sorting to prioritization using BI-RADS codes and subcodes.

Manual appointment lookups were eliminated and replaced with automated scheduling workflows, including implementation of a combination scheduling code that enabled direct booking into the next available appointment. Analysis proved that patient preference contributed more substantially to delays in breast-related access than appointment availability itself. To reduce system-related delays, incomplete or inaccurate provider orders were addressed through implementation of a standardized diagnostic ordering guide and office-based reference tools. Additionally, the mammography division centralized biopsy scheduling and eased provider co-signatures, streamlining workflow and reducing processing delays.

Collectively, these operational modifications, combined with continuous monitoring of callback rates, appointment availability, and pandemic-related disruptions, improved screening access and operational efficiency. Overall, these interventions were associated with an 80% reduction in baseline wait times.

Ethical considerations

Ethical principles were upheld through the promotion of fair access to care, transparent communication, and culturally responsive outreach efforts.⁶ The project entailed a retrospective review of changes in screening rates following the application of

evidence-based screening interventions aligned with screening guidelines.

Results

Mean monthly screening volume declined by 15.5% during the pandemic baseline period (1,572 vs 1,328 examinations). Following implementation of the interventions, screening volume increased 16.5% compared with baseline and improved by 80% compared with the nadir month, corresponding to approximately 100 added screenings per month ($P < .05$).

Access metrics also improved during the implementation period (March–September 2021) (Figure). Mean actual lag time for diagnostic and biopsy appointments decreased from 24.4 days in March to 16.6 days in July (32% reduction). First available appointment improved from 6.3 to 1.9 days, and third available appointment improved from 13.4 to 5.2 days over the same interval.

In April 2021, the actual lag for diagnostic and biopsy appointments averaged 23.9 days, which improved to 16.6 days by August. The first available appointment decreased from 13.4 days in March to 4.2 days in August, with a notable drop to 1.9 days in July following the extension of weekday hours and the addition of Saturday screening appointments. The third available appointments also improved from 10.6 days in April to 6.3 days in August (Figure).

Interpretation

This multidisciplinary quality improvement initiative was associated with restoration of breast cancer screening access following pandemic-related disruption. Operational redesign, cross-department collaboration, and leadership engagement supported improved scheduling efficiency and reduced diagnostic

delays. Real-time performance monitoring eased identification of workflow barriers and enabled rapid process adjustments.

Equity-focused outreach strategies, including telemedicine-enabled navigation and targeted patient engagement, were incorporated to address transportation, employment, and socioeconomic barriers.⁷ These findings suggest that a coordinated, data-driven framework may support recovery of preventive cancer screening services following system-level disruption and may serve as a scalable model for other surgical and oncology programs.

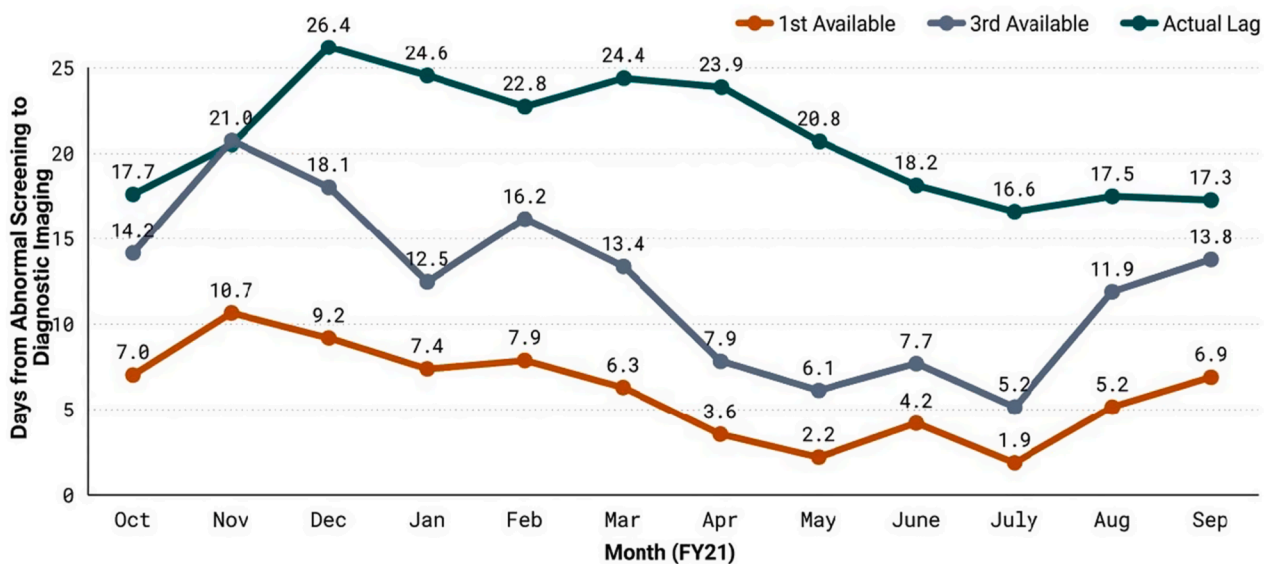
Limitations

Findings may not generalize to institutions lacking robust internal data systems or marketing infrastructure. The team acknowledges that this is a brief snapshot and sustaining progress over the long term will require sufficient staffing and ongoing organizational support. Additionally, consistent definitions and data measurement were critical to outcome evaluation; these may vary in other contexts, potentially affecting comparability.

This single-institution initiative may not be generalizable to centers without an established data infrastructure or operational resources. Sustainability will require continued staffing support and organizational commitment. Additionally, institutional definitions and measurement methods may limit comparability across settings.

In conclusion, participation in the American College of Surgeons Return-to-Screening Quality Improvement Collaborative was associated with a substantial increase in monthly mammography screening volume compared with the pandemic nadir, as well as improved diagnostic access. A coordinated, system-level strategy incorporating operational redesign, targeted patient outreach, provider engagement, culturally and linguistically proper materials, strengthened community partnerships, and structured performance monitoring was associated with these improvements. Sustained progress will require continued

Screening to Diagnostic Timeline (Medical Center Only)



NotebookLM

Figure. Screening-to-diagnostic lag time demonstrated by dot plot during access intervention: dot plot illustrating monthly screening-to-diagnostic access metrics from March through September 2021. Each dot is the mean value for the first available appointment, third available appointment, and actual lag time for diagnostic and biopsy procedures.

interdisciplinary collaboration, organizational support, and ongoing data-driven oversight to keep access gains and promote fair delivery of preventive cancer screening services.

UMMMC stays committed to sustaining these improvements through inclusive communication, interdisciplinary collaboration, and data-driven strategies aimed at ensuring fair access to preventive care for all populations.

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Conflict of Interest/Disclosure statement

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Supervision, Methodology, Conceptualization. **Paul Lofrumento:** Writing – review & editing, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

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