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Breast Imaging

Does prioritizing patient safety during the COVID-19 pandemic come at the expense of patient satisfaction?

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Patient experience has increasingly become an important pillar in the practice of medicine.¹ Routine radiology operations were forced to drastically change in the face of the COVID-19 pandemic in compliance with the guidelines from the Center for Disease Control and Prevention² and the American College of Radiology.³ These adjustments have greatly altered patient experiences. To safely continue imaging services, radiology departments have implemented various policies to mitigate the risk of COVID-19 transmission while accommodating the backlog from the deferred routine imaging studies.⁴ While the implementation of the COVID-19-related safety measures is necessary, the associated inconveniences from the policy changes should not be underestimated. We, therefore, conducted a brief study to quantify such an impact on patient experience in breast imaging.

Our institution is a major metropolitan medical system affiliated with a major academic medical center and multiple outpatient clinics and imaging centers spread across New York City, one of the earliest and hardest hit epicenters in the United States.⁵ This brief study was conducted at our largest breast imaging center, where patient scheduling frequency was reduced in order to maintain adequate social distancing for patients in the waiting area. We evaluated patient satisfaction as it related to wait time and patient experience.

The data of this study was retrospectively collected for June 2020, February 2020, and June 2019. June 2020 was chosen because this was when screening mammography services were resumed. February 2020 was a pre-COVID-19 comparison since routine outpatient services were suspended by Mid-March of 2020. June 2019 was evaluated as a pre-COVID-19 internal control at the same time of year as June 2020. All screening and diagnostic examinations in the selected months were included in the wait time calculation. Breast MRI, breast MRI biopsies, and image-guided localization procedures were excluded from the study since they were performed at a different facility from that of screening and diagnostic examinations. Stereotactic and ultrasound-guided biopsies were also excluded from the study because the procedures were performed at a designated room separates from screening and diagnostic examinations. Patient wait time was measured from the check-in to the

start of image acquisition. Patients' perspectives regarding the care they receive were measured using the standardized survey provided by the Press Ganey's Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).⁶ The survey is composed of three main categories: "registration", "your care", and "overall assessment". Each category includes several items that encompass various aspects of the outpatient visit experience. Every patient received the survey in the mail and responded voluntarily. The HCAHPS compiled and reported the score for each question from 0 to 100, and ranked the scores among other facilities that also utilized the same survey. We performed a z-test analysis for the survey scores and a t-test analysis for the calculated wait time.

There were 1464 visits and 155 surveys returned for June 2020, 3291 visits and 291 survey returned for February 2020, and 3356 visits and 391 surveys returned for June 2019. The improved overall survey score of June 2020 (96.5) was not statistically significant compared to February 2020 (94.5, $p = 0.078$) or June 2019 (94.3, $p = 0.066$). The non-statistically significant improvement was probably due to a small incremental change. However, the corresponding percentile ranking was significantly better for June 2020 (97th percentile) than February 2020 (62nd percentile) or June 2019 (61st percentile) (Table 1). One of the survey questions under the "registration" category was "wait time in registration," which reflects the patient's subjective perception of the wait time. The score for that question was statistically higher in June 2020 (97.1) compared to February 2020 (90.9, $p = 0.012$) or June 2019 (91.8, $p = 0.019$). The corresponding percentile ranking improved significantly as well (Table 1). The calculated average wait time (in hours) in June in 2020 ($M = 0.30$, $SD = 0.18$) compared to February 2020 ($M = 0.73$, $SD = 0.317$) and June 2019 ($M = 0.69$, $SD = 0.29$) indeed demonstrated a statistically significant decrease ($p < 0.05$), in concordance to the survey response (Table 2). Shorter schedule time interval and same-day-read screening examination were two of the reasons contributing to the relative increased wait time in pre-COVID February 2020 and June 2019. If a screening examination was converted to a diagnostic evaluation, a longer time would then be required

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Table 1

Press Ganey score (0–100) with the corresponding ranked percentile for overall survey and wait time in registration in June 2020, February 2020, and June 2019.

Month/year collected	Overall survey score (ranked percentile)	z-test	Wait time in registration score (ranked percentile)	z-test
June 2020	96.5 (97th)	Reference	97.1 (99th)	Reference
February 2020	94.5 (62nd)	$p = 0.078$	90.9 (40th)	$p = 0.012$
June 2019	94.3 (61st)	$p = 0.066$	91.8 (56th)	$p = 0.019$

Table 2

Calculated average wait time for June 2020, February 2020, and June 2019.

Month/year collected	Wait time in hours	t-test
June 2020	0.30	Reference
February 2020	0.73	$p = 0.009$
June 2019	0.69	$p = 0.008$
Combined February + June 2019	0.71	$p = 0.008$

to complete the entire examination and cause significant schedule delay. The decreased wait time in June 2020 was likely the direct result of scheduling modification to maintain social distancing among patients in the waiting room. Some of the changes made at our breast imaging center included the requirement that each individual patient visit be scheduled at a separate time slot without overlapping with any other patient in a dedicated exam room. The time allotted for an examination was increased from 15 to 30 to 30–45 min to ensure sufficient time to complete an exam and to accommodate cleaning of the equipment. Online check-in was also implemented to facilitate the registration process. These scheduling adjustments helped decrease the number of patients and the amount of the time each patient spent in the waiting room, resulting in decreased wait time. It is conceivable that the modified schedule with a focus on patient safety correlated with improved patient experience.

This brief study has several limitations. The response rates of the patients who completed the survey were 10.6%, 8.9%, and 11.7% for June 2020, February 2020, and June 2019, respectively. The low response rates could introduce biases, such as patients with favorable experiences being more likely to respond to the survey. However, given the comparable survey response rates over the different time periods, a comparison-based conclusion can be drawn. We also did not evaluate specific wait time for each type of examinations in our analysis. Because we offered same-day-read screening mammography service, which was mixed with the schedule of the diagnostic examinations, any impacts on the wait time should presumably affect both types of examinations similarly. The main finding was to demonstrate a statistically significant difference in overall wait time in June 2020 compared to pre-COVID February 2020 and June 2019. Balancing measures were not analyzed in this study. For instance, whether the modified schedule cause increased difficulty for a patient to make an appointment was not accounted for. In addition, the Press Ganey survey by the HCAHPS was not tailored or limited to breast centers only but instead to all healthcare centers or outpatient clinics utilizing the survey. Therefore, the percentile score was ranked among a rather heterogeneous group of healthcare centers. This study was also limited to a single academic hospital-based outpatient facility. The scheduling modifications herein implemented may not be applicable to another institution. The method of data collection and survey analysis however should be transferrable to a multitude of settings.

Patient experience is particularly important for breast imaging since a breast cancer diagnosis is intensely personal and potentially devastating for the patient.⁷ Even before imaging starts, patients may suffer

anxiety and stress.⁸ As breast imagers, our job involves not only identifying cancers but also supporting patients through diagnosis, biopsy, and follow-up. The safety issues derived from the COVID-19 pandemic may further compound patients' pre-existing fears. As such, we are now tasked with the complicated balance of assuring adherence to timely screening and completion of recommended follow-up examinations, which have been shown to improve with better patient satisfaction^{9,10} within the constraints of the new social-distancing measures. This is further complicated by the backlog of un-screened patients across the country, which may contribute to significant delays in treatment and increase breast cancer-related mortality.¹¹ As our department began ramping up its services, this brief study demonstrated that patient safety measures did not come at the expense of patient satisfaction. Rather, they may have improved patient satisfaction. The benefits of reducing wait time in the waiting area come as twofold; one is for better patient experience and another is to minimize patient-to-patient exposure.

The patient volume in June 2020 was less than half of what it was compared to pre-COVID-19 pandemic. Therefore, extrapolating this promising result of reduced wait time and improved patient satisfaction when our breast center is at full capacity would be a formidable undertaking but with great potential clinical benefit. Creative solutions will be required to continue this effort. Borrowing from airline and hospitality industry models, text messaging to alert patients that they are ready to be seen or to alert them to potential delays could be employed to avoid waiting room crowding and to decrease "no-shows" when every appointment slot is essential. Extending facility hours with radiologists and staff working in shifts could also be considered to add flexibility to patient appointments without compromising wait time. Virtual check-in should be offered to minimize staff and patient interaction and to streamline the registration process.

The COVID-19 pandemic has caused seismic change to how we practice medicine. Rather than succumb to this challenge, we should consider it an opportunity to improve on the old practice model to maximize patient satisfaction while protecting our patients and staff.

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