Assessing the COVID-19 Pandemic's Impact on Breast Cancer Appointment Scheduling

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Background

- Female breast cancer was the most common newly diagnosed cancer in women in 2019 and had the second lowest survival rate in the United States[1]
- Regular screening mammography has been associated with a decrease in breast cancer mortality rates[2]
- Patient surveys taken during the early stages of the COVID-19 pandemic revealed significant disruptions in cancer treatment which potentially increased the risk of poor outcomes[3]
- Delays in screening mammography due to the COVID-19 pandemic have been shown to increase the proportion of patients diagnosed with more advanced stages of breast cancer[4]

Methods

A retrospective review was conducted using medical history and appointment data collected from patient charts that conformed to the study criteria. Two groups were established: patients diagnosed pre-pandemic (3/1/19 - 12/31/19, n = 46) and patients diagnosed during the pandemic (3/1/20 - 12/31/20, n = 58).

Inclusion Criteria

- Female patients aged 18+
- Newly diagnosed breast cancer
- Diagnosed between March 1, 2019 to December 31, 2019 OR from March 1, 2020 to December 31 2020

Exclusion Criteria

- Prior personal and/or family history of cancer
- Diagnosis made outside of the Lehigh Valley Health Network
- Pregnancy during the timeframe of the study

Results

Table 1. Appointment cancellation rates of breast cancer patients diagnosed pre-pandemic and during the pandemic

Appointment Type	Pre-pandemic Group Size	Pandemic Group Size	Pre-pandemic Cancellation Rate	Pandemic Cancellation Rate
Screening Mammogram	27	22	14.81%	27.27%
Diagnostic Mammogram	37	51	13.51%	15.69%
First Recommended Treatment	46	58	4.35%	10.34%
Overall	110	130	10%	15.38%

Table 2. Stage distribution of breast cancer at time of diagnosis

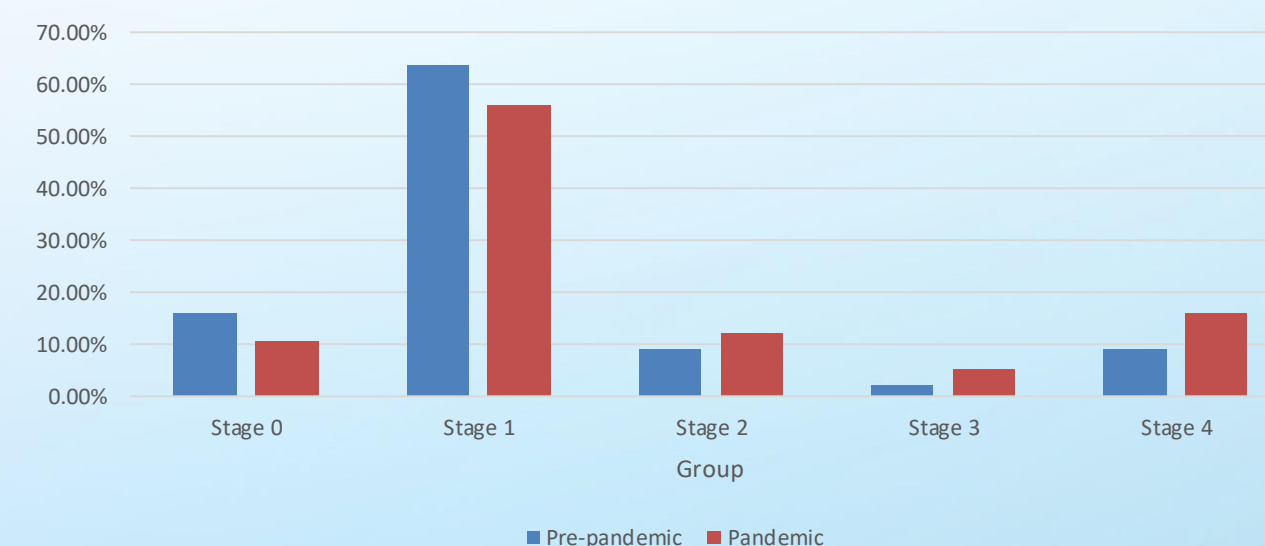| Group	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4
Pre-pandemic	15.91%	63.64%	9.09%	2.27%	9.09%
Pandemic	10.52%	56.14%	12.28%	5.26%	15.79%

Figure 1: Visual comparison of stage distribution between patient groups

Conclusions

- Screening and diagnostic mammography, as well as initial treatment appointments for newly diagnosed breast cancer patients were cancelled at a higher rate during the pandemic
- Patients diagnosed during the pandemic were more likely to have a higher (2+) stage cancer than patients diagnosed prior to the pandemic
- The disruptions in screening mammography due to the COVID-19 pandemic within the Lehigh Valley Health Network likely contributed to the increase in advanced stages of cancer at diagnosis
- Preparations to preserve screening appointments from being disrupted in the future would be beneficial in mitigating the risk of negative patient outcomes

Limitations and Future Research

- Due to the small number of patients (n = 104) used in this study the data is not representative of all newly diagnosed breast cancer patients in the studied time intervals
- Excluding patients with a family history of all cancers significantly decreased the number of eligible patients to include in the study
- Further study using an expanded data set is ongoing and may provide statistics that better represent the general breast cancer patient population within the network

References

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