

## Mini Review

## Impact of Inequities on Delay in Breast Cancer Management: A Mini-Review

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### Abstract

**Background:** Disparities exist in both breast cancer outcomes and treatment delays. Breast cancer treatment delays are multifactorial and lead to decreased survival rates and lower quality of life. This mini-review aimed to examine the results of our previous study, which demonstrated factors contributing to breast cancer treatment delays at a single academic medical center.

**Materials and methods:** We performed a mini-review of the article, Impact of Inequities on Delay in Breast Cancer Management in Women Undergoing Second Opinions (Blazek, et al; 2021). A PubMed review of corresponding literature was also conducted, as well as development of next steps for future research related to this original article.

**Results:** Blazek et al., demonstrate that factors with significant impact on treatment delays in women seeking second opinions at a single academic medical center include low income and inadequate insurance coverage. Review of recent literature is supportive of these findings and suggests additional demographic and clinical factors that contribute to treatment delays. Identification of these factors prompts further exploration of the effects of these factors on all patients seeking breast cancer care at the same academic medical center.

**Conclusion:** Demographic and clinical factors contribute to treatment delays in breast cancer management. Given that such factors impact treatment delays in patients seeking second opinions at our institution, an understanding of how these factors impact treatment

delays in all patients at this institution is necessary to address these inequities and provide equitable care for all breast cancer patients at our institution.

**Keywords:** Breast cancer; Disparities; Mini review; Time to treatment

### Background

Disparities in breast cancer outcomes are a topic of significant interest as they highlight inequities in our healthcare system. Recent disparities research suggests that racial disparities persist in both breast cancer outcomes and treatment delays despite overall reduced mortality rates [1,2]. Not only does this disparity in breast cancer outcomes exist, but it is widening rather than improving [3].

Given the stark disparities that exist in breast cancer outcomes, many factors that may contribute to treatment delays and thus, these disparities, have been investigated. Recent disparities research demonstrates insurance status as a key factor in treatment delays [4,5]. Race and socioeconomic status have also been shown to contribute to treatment delays [6-9]. Additionally, younger patients experience longer delays [10]. Primary language has been investigated but has not shown to play a significant role in treatment delays [11].

In addition to demographic factors, clinical factors that contribute to breast cancer treatment delays have been investigated. Triple-negative breast cancer is associated with longer delays to adjuvant chemotherapy initiation [7]. Patients who undergo mastectomy, specifically mastectomy with reconstruction, also experience longer treatment delays [12,13]. Tumor stage plays an important role in treatment delay, with patients with stage II and III disease experiencing longer treatment delays [9].

While many factors contributing to breast cancer treatment delays have been explored, several, including comorbidities, education level, and cultural factors have been less thoroughly explored. Additionally, the necessity of repeat imaging studies likely contributes to treatment delays but has not been explicitly studied. When investigating factors contributing to disparities in breast cancer treatment delays, these factors may also be considered.

### Study

The impact of demographic and clinical characteristics on delays in breast cancer management in patients seeking second opinions for breast cancer treatment was recently studied by Audrey Blazek et al. [14]. The goal of this study was to identify and examine the impact of these characteristics on various time intervals throughout breast cancer management in second opinion patients.

The study was a retrospective chart review of patients requesting second opinions of breast imaging, diagnosis, or treatment of a breast-related complaint at a single academic center in Chicago, IL from January 2017 to July 2019. Demographic variables included age at diagnosis, insurance, zip code, race and ethnicity. Treatment time

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points of interest were dates of the following: breast cancer diagnosis, Interpretation of Outside Examination (IOE) ordered, IOE completed, initial encounter at the academic center, and first treatment.

Study variables were analyzed using univariable and multivariable analysis. While univariable analysis indicated that Black patients experience longer delays in time from diagnosis and initial encounter to surgery, multivariable analysis showed no significant disparity in time from diagnosis or initial encounter to surgery based on race or ethnicity. Hispanic patients did experience longer delays in time from initial encounter to chemotherapy. Patients with managed care insurance experienced shorter delays in time from diagnosis to surgery. Low-income patients experienced significantly longer delays from initial encounter to surgery than patients of low-middle, upper-middle, and high income.

In this study, we demonstrated that disparities exist in treatment delays for women seeking second opinions for breast cancer treatment. Patients of low income and inadequate insurance status were identified as higher risk of experiencing longer treatment delays for surgical management of breast cancer. Race was not as significant of a factor as it is elsewhere in the literature. This can be explained by multivariable analysis, which suggests that higher income and adequate insurance coverage may be confounding variables in assessing the impact of race on treatment delay. Additionally, a large portion of delays occurred before presentation at this institution. We propose that longer delays in time to surgery, compared chemotherapy, are due to logistics surrounding operating room scheduling and availability and the involvement of plastic surgery for reconstructive surgeries. Overall, patients of low income, Black race, and Hispanic ethnicity experience disproportionate delays in breast cancer treatment. This study identifies important areas for improvement in providing equitable care for all breast cancer patients.

### Next steps

Our findings in this study revealed important factors that impact treatment delays in breast cancer patients seeking second opinion treatment. These findings highlight the necessity of investigating the impact of these factors on treatment delays for breast cancer patients seeking first-opinion treatment as well. Given that much of the delay occurred before patients seeking second opinions presented to this medical center, we hypothesize that the disparities evident in this study are less prevalent in patients who initially seek breast cancer care and are treated at this medical center.

To investigate these factors and other factors that may contribute to breast cancer treatment delays, we will perform a retrospective chart review of all patients presenting to this same academic medical center for breast cancer treatment. Study variables will include age, income, race/ethnicity, cancer stage, insurance status, and type of surgery, as investigated in this prior study. Additionally, we will investigate the impact of education status and comorbidity on treatment delays. Given the impact that reviewing outside images had on delays for patients seeking second opinions, we will include dates of additional imaging in our investigation. Other clinical time points will include the following dates: diagnosis, all biopsies, initial encounter, first treatment, and treatment completion.

If similar findings are found, we plan to design a quality intervention to improve inequities. Considerations include: supporting patients considered high risk for delays in treatment with a navigator aimed at improving efficiency, particularly for outside referrals, to

expedite review and an initial encounter at our institution. Efforts will be made to expedite preoperative evaluation for patients requiring medical clearance prior to surgery. Additionally, we plan to work with our teams to improve efficiencies with reconstruction and surgeries involving multiple teams.

Given the association between treatment delays and poor outcomes, identification of factors that contribute to such delays is necessary for providing good quality and equitable treatment to all breast cancer patients. It is also important to understand the prevalence of inequities at this institution. Identifying these factors is an imperative first step in addressing them at the system level.

### Author's Contribution

All of the authors have contributed to the manuscript. All authors were involved in conception and design of the study. All authors were involved in critically revising the manuscript for content.

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