



Understanding breast cancer patient pathways and their impact on survival in Mexico

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ABSTRACT

Background: Understanding patient pathways from discovery of breast symptoms to treatment start can aid in identifying ways to improve access to timely cancer care. This study aimed to describe the patient pathways experienced by uninsured women from detection to treatment initiation for breast cancer in Mexico City and estimate the potential impact of earlier treatment on patient survival.

Methods: We used process mining, a data analytics technique, to create maps of the patient pathways. We then compared the waiting times and pathways between patients who initially consulted a private service versus those who sought care at a public health service. Finally, we conducted scenario modelling to estimate the impact of early diagnosis and treatment on patient survival.

Results: Our study revealed a common pathway followed by breast cancer patients treated at the two largest public cancer centres in Mexico City. However, patients who initially sought care in private clinics experienced shorter mean wait times for their first medical consultation (66 vs 88 days), and diagnostic confirmation of cancer (57 vs 71 days) compared to those who initially utilized public clinics. Our scenario modelling indicated that improving early diagnosis to achieve at least 60% of patients starting treatment at early stages could increase mean patient survival by up to two years.

Conclusion: Our study highlights the potential of process mining to inform healthcare policy for improvement of breast cancer care in Mexico. Also, our findings indicate that reducing diagnostic and treatment intervals for breast cancer patients could result in substantially better patient outcomes.

Policy summary: This study revealed significant differences in time intervals along the pathways of women with breast cancer according to the type of health service first consulted by the patients: whether public primary care clinics or private doctors. Policies directed to reduce these inequities in access to timely cancer care are desperately needed to reduce socioeconomic disparities in breast cancer survival.

1. Introduction

Breast cancer is the most common cancer affecting women worldwide and is the most common cause of cancer death among women in Mexico [1]. While mortality rates have decreased in the last thirty years in most high-income countries due to the capacity of health systems to detect and treat more than 60% of breast cancer patients early (stage I and II) [1],[2] these improvements have not been observed in most low- and middle-income countries (LMICs) [3]. Overall five-year survival for breast cancer patients in Mexico is 72% [4], in comparison with high-income countries with survival rates above 90% [5].

The lower breast cancer survival rates in Mexico are likely due to the fact that more than 60% of patients are first diagnosed and start treatment with advanced disease (stages IIB to IV) [4]. Treatment of breast cancer at advanced stages is a consequence of very low screening rates and delayed diagnoses and referrals [6]. In previous studies, which collected data on the dates of symptom discovery, medical consultations, diagnosis and treatment of breast cancer patients treated at the main public cancer centres in Mexico City, we found a median interval of 7 months between detection and treatment start, with the longest delays occurring within the first medical consultation and diagnostic confirmation (4 months) [6],[7].

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