

FROM NORTH TO SOUTH: EPIDEMIOLOGICAL ANALYSIS OF REGIONAL INEQUALITIES IN EARLY BREAST CANCER DIAGNOSIS IN BRAZIL FROM 2014 TO 2024

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Introduction: Breast cancer is the leading cause of death from malignant neoplasms among Brazilian women, and one of the most effective strategies to combat it is early diagnosis. However, regional disparities in healthcare services can impact diagnosis, initial screening, access to treatment, and overall disease outcome. In this context, this study aims to quantify and analyze these disparities between the North and South regions of Brazil, evaluating their impact on the population. **Objectives:** To collect epidemiological data on early diagnosis, screening, treatment, and outcomes of breast cancer cases in Brazil's North and South regions and to analyze and identify regional patterns and correlate them with inequalities in access to healthcare services between these regions. **Methods:** This is a cross-sectional, quantitative, and retrospective study. Data were obtained from the Cancer Information System (SISCAN), the SUS Hospital Information System (SIH/SUS), the Mortality Information System (SIM), collected via TabNet from the Health Informatics Department of the Unified Health System (DATASUS), and the Brazilian Institute of Geography and Statistics (IBGE). Data on mammography, histopathological, and cytopathological tests were collected for the period from 2014 to 2024. For breast cancer-related deaths, data from 2013 to 2023 were analyzed, as data for 2024 were not yet available. **Results:** Based on the collected data, the following indicators were calculated: Mammography Rate per 1,000 Women (aged 50–69) ranged from 3.80 to 17.93 in the North and from 35.50 to 48.93 in the South; the proportion of histopathological tests relative to mammograms ranged from 0.48% to 2.84% in the North and from 0.76% to 1.67% in the South; the hospitalization rate for breast cancer per 100,000 women ranged from 17.50 to 37.17 in the North and from 73.49 to 110.86 in the South; and breast cancer mortality rate per 100,000 women ranged from 6.68 to 9.79 in the North and from 17.80 to 23.12 in the South. **Conclusion:** Mammography rates per 1,000 women (aged 50–69) were higher in the South, indicating greater accessibility to early screening — a key factor in breast cancer control. The proportion of histopathological exams relative to mammograms showed more consistency and volume in the South from 2014 to 2019, suggesting more frequent referrals for diagnostic investigation. However, from 2020 to 2024, these proportions became higher in the North, possibly indicating improvements in diagnostic services. Regarding the hospitalization rate for breast cancer per 100,000 women, there was a

relative increase of approximately 112.40% in the North and 50.85% in the South. Although the South had initially higher rates, this reflects broader coverage and better access to health services, suggesting a trend of improvement in detection and healthcare performance in both regions. Although higher in the South, the breast cancer mortality rate likely reflects better reporting systems and more comprehensive healthcare infrastructure, rather than a higher disease burden.

Keywords: Breast cancer; early diagnosis; regional inequalities.