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The Cancer Control Challenge:
Better Understanding It to Better Face It

SPATIAL INEQUALITIES IN ACCESS TO ONCOLOGICAL HOSPITALIZATION DURING THE COVID-19 PANDEMIC IN THE BRAZILIAN AMAZON REGION

Ezio do Amaral Rodrigues[1], João Gabriel Duarte de Lima[1], Antonio Jose Souza Nascimento[1], Eduardo Coimbra Coelho de Assis[1], Enrico Magela Batalha Falcão[1], Saul Rassy Carneiro[1], João Pedro Araujo Lima[1], Luiza Beatriz da Silva Moraes[1], Ronaldo Vieira de Oliveira Filho[1], Sophia Gouveia Damasceno[1].

[1]Universidade Federal do Pará

Introduction: The COVID-19 pandemic severely disrupted the continuity of essential health services, including cancer treatment. The Brazilian Amazon region, historically marked by geographic and socioeconomic disparities, may have experienced disproportionate impacts on access to oncological hospitalizations. Understanding these inequalities is essential for equitable public health planning. **Objectives:** To evaluate spatial inequalities in access to oncological hospitalizations in the municipalities of the Legal Amazon before and during the COVID-19 pandemic, correlating them with hospital infrastructure and disease burden. **Methods:** This was an ecological before-and-after study conducted in 771 municipalities of the Brazilian Legal Amazon, covering the states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins. Data on hospital admissions for neoplasms (ICD-10: C00–C97) were extracted from the Hospital Information System (SIH-SUS). Age-standardized hospitalization rates per 100,000 inhabitants were calculated using population estimates from the Brazilian Institute of Geography and Statistics (IBGE). The availability of oncology beds was obtained from the National Registry of Health Establishments (CNES), and data on COVID-19 cases and deaths from SINAN and SIM. Socioeconomic indicators such as the Municipal Human Development Index (IDHM) and rural population proportion were collected from the Atlas Brasil. Spatial analysis was performed using Local Indicators of Spatial Association (LISA), and multivariate analysis was performed using stepwise linear regression ($p < 0.05$). **Results:** During the pandemic period (2020–2021), the mean age-standardized oncological hospitalization rate dropped from 129.4 to 98.5 per 100,000 inhabitants, representing an average reduction of 23.8%. Municipalities with low IDHM had a mean drop of 31.2%, while those with high oncology bed density showed reductions of less than 10%. LISA analysis identified significant clusters of high reduction in access in western Amazonas, southern Pará, and northern Maranhão ($p < 0.05$). The multivariate model showed that lower oncology bed density ($\beta = -0.34$; $p < 0.01$) and higher

COVID-19 mortality (β = -0.22; *p* = 0.03) were significantly associated with greater decreases in hospitalization rates, independently of IDHM and rurality. **Conclusion:** The pandemic exacerbated pre-existing disparities in access to cancer care in the Legal Amazon. Municipalities with limited hospital infrastructure and higher COVID-19 burden were the most affected. These findings highlight the urgency of investing in regional oncology services and strengthening health system resilience in vulnerable areas.

Keywords: COVID-19; Oncology access; Spatial disparities; Legal Amazon