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

# BRAIN CANCER MORTALITY TRENDS IN BRAZIL AND ITS REGIONS FROM 2013 TO 2023.

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**Introduction:** Brain cancer represents 88% of central nervous system tumors, encompassing a group of highly lethal neoplasms, in which glioblastoma multiforme is the subtype associated with the highest mortality. Globally, there has been an increase in its incidence, especially in developed countries, and its mortality remains high due to current therapeutic limitations. Considering these challenges, analyzing brain cancer mortality trends is essential for assessing the effectiveness of its diagnosis and treatment in Brazil. **Objectives:** To analyze the trend of brain cancer mortality in Brazil and its regions, from 2013 to 2023. **Methods:** This is a descriptive, retrospective and quantitative study. Trends in age-adjusted mortality (AAM) were analyzed from 2013 to 2023 in Brazil and its five regions, with mortality data obtained from the National Cancer Institute's (INCA) Online Atlas of Mortality and population data from the Department of Informatics of the Unified Health System (DATASUS). The Average Annual Percentage Change (AAPC) with their respective 95% Confidence Intervals (95%CI) were determined using Joinpoint software, and the trends were classified as upward, stationary or downward. Statistical significance was set at $p < 0.05$. **Results:** In the period analyzed, there were 81,439 deaths from brain cancer in Brazil, with the South region accounting for 44.73% of all deaths. The highest AAM was also recorded in the South (4.41), followed by the Center-West (3.62), Southeast (3.43), Northeast (3.15) and North (2.78) regions. The national trend was downward (AAPC: -1.1; 95%CI -1.7; -0.5; $p < 0.000001$). Similarly, the Midwest (AAPC: -0.9; 95%CI -1.7; -0.1; $p < 0.024$), North (AAPC: -1.6; 95%CI -2.5; -0.8; $p < 0.000001$), Southeast (AAPC: -1.3; 95%CI -2.0; -0.7; $p < 0.000001$) and South (AAPC: -1.1; 95%CI -2.0; -0.2; $p < 0.0079$) regions showed a downward trend. The trend was stationary only in the Northeast (AAPC: -0.5; 95%CI -1.6; -0.7; $p < 0.38$). **Conclusion:** There has thus been a progressive reduction in brain cancer mortality in Brazil between 2013 and 2023. This may reflect recent

advancements in neuro-oncology and the subsequent development of new therapeutic techniques, as well an improved access to care. In addition, the downward pattern was evident in most Brazilian regions, except in the Northeast, which registered a stationary trend. However, the number of deaths and the age-adjusted mortality were higher in the South. This possibly indicates an intensification of policies related to the treatment of the disease during the period, focused especially on areas with higher known mortality, associated with an underreporting of cases in the North and Northeast regions. Therefore, there is a need for public health strategies that address regional disparities and ensure equitable access to brain cancer care across Brazil.

**Keywords:** Brain Neoplasms; Mortality; Epidemiology.