

# REAL WORLD HEALTHCARE RESOURCE UTILIZATION AND COSTS ASSOCIATED WITH MALIGNANT BRAIN TUMORS IN THE BRAZILIAN PRIVATE MARKET

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## BACKGROUND

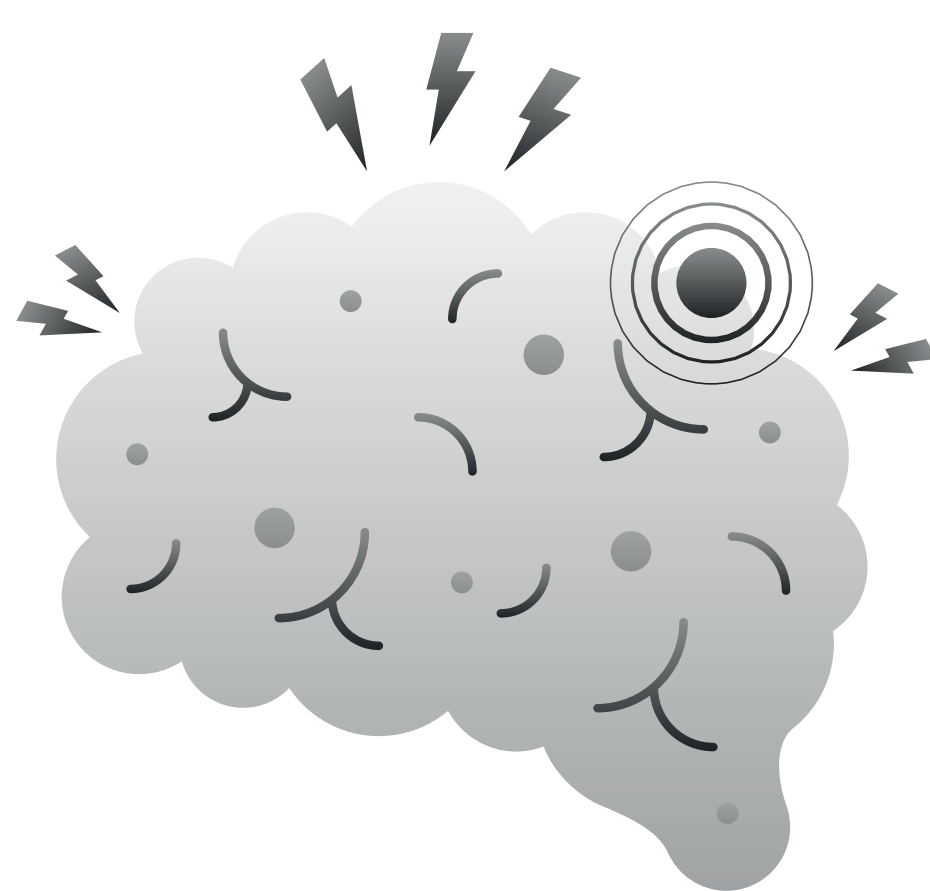
Primary brain tumors, though relatively rare (accounting for approximately 2% of global cancer cases), represent a significant clinical and economic challenge. Among these, gliomas are the most prevalent primary brain tumors in adults. Their aggressive nature often necessitates intensive treatment regimens, which can profoundly impact patients' quality of life and impose substantial burdens on healthcare systems. The complex and often debilitating course of malignant brain tumors, particularly high-grade gliomas, is associated with high healthcare resource utilization and considerable costs, often with limited survival benefits. Understanding the real-world healthcare resource utilization (HCRU) and associated costs of managing malignant brain tumors are crucial for healthcare planning and resource allocation, especially within private healthcare markets.



Approximately  
**2% of global**  
cancer cases

## OBJECTIVES

Primary brain tumors, although rare, pose a major clinical and economic challenge. This study aims to evaluate the healthcare resource utilization (HCRU) and costs associated with malignant brain tumor management within a private health care plan in Brazil, providing valuable insights into the economic burden of these challenging conditions.



Primary brain tumors  
pose a major clinical  
and economic challenge

## METHODS

This retrospective analysis was conducted using administrative data from a private health plan covering the period from January 2019 to December 2024. The study cohort included adult patients diagnosed with malignant brain neoplasms, identified using ICD-10 codes C71 (Malignant neoplasm of brain) and C72.9 (Malignant neoplasm of central nervous system, unspecified). Data includes demographic information, treatments, healthcare resource utilization including visits, surgeries, emergency department visits, therapies, tests, and associated costs. Kaplan–Meier curves were used to estimate the survival rates. Statistical comparisons between categorical and continuous measures were performed using Chi-square and Fisher's exact tests, and Student's T-tests, respectively. A p-value of less than 0.05 was considered statistically significant.



From January/2019  
to December/2024



ICD-10 C71 and C72.9

Available data includes



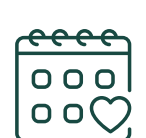
Demographics



Treatments



HCRU



Visits



Surgery



Therapies



Emergency department



Tests

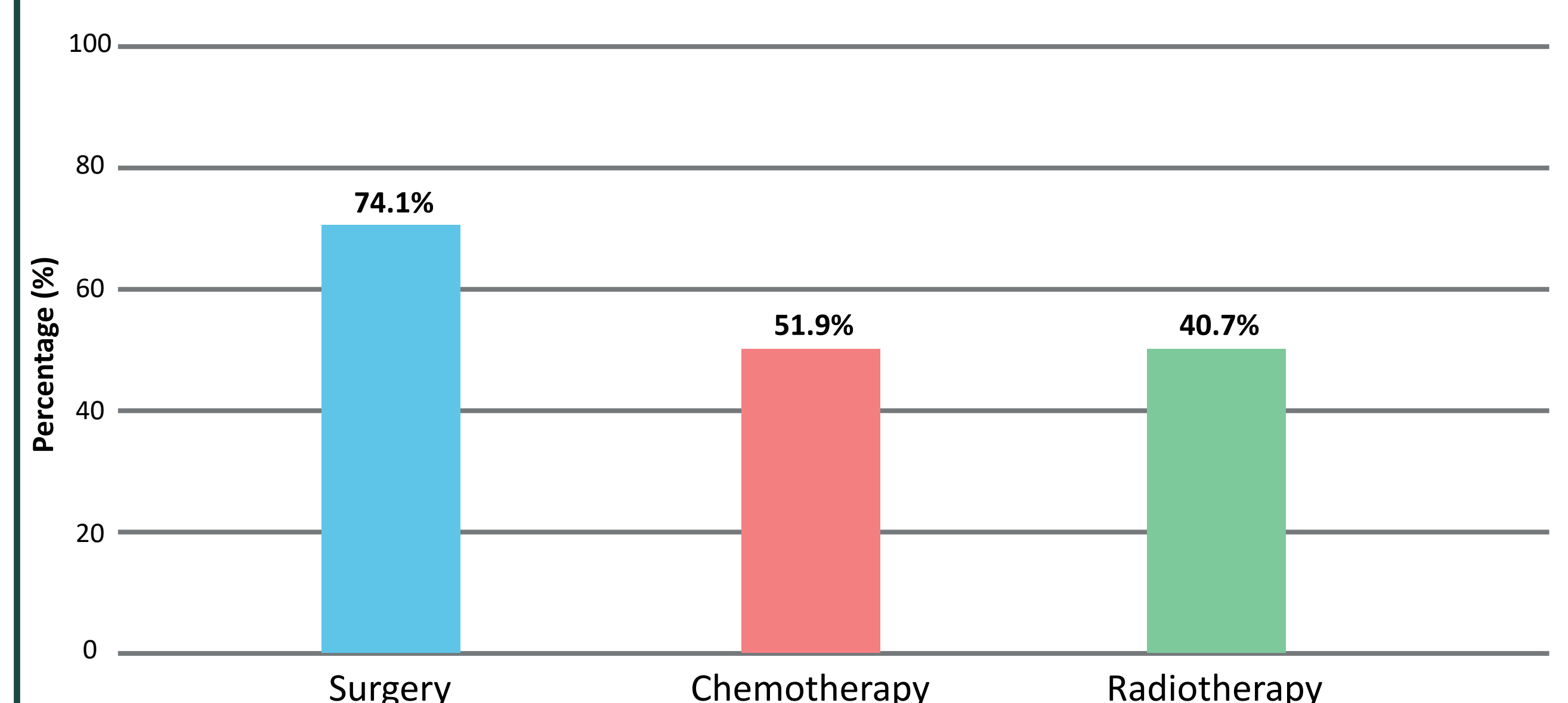


Costs

## RESULTS

Out of 60,672 beneficiaries (average age: 54 years, 59.5% female), 76 patients (0.12%) met the eligibility criteria for malignant brain neoplasms (average age: 60.2 ± 18.9 years; 56.6% female). Among the analyzed patients who underwent neurosurgery and/or treated with oncologic therapies, 74.1% underwent surgical intervention, 51.9% were treated with chemotherapy and/or 40.7% with radiotherapy. The most frequently prescribed therapies were Temozolomide (50%) and Bevacizumab (22%). The annual cost per patient was USD\$ 51,734, driven mainly by hospitalizations (58.9%) and chemotherapy/radiotherapy (29.9%). Annual rates of procedures per-patient: visits 8.3, emergency room visits 2.0, exams 67.7 and hospitalizations 1.6.

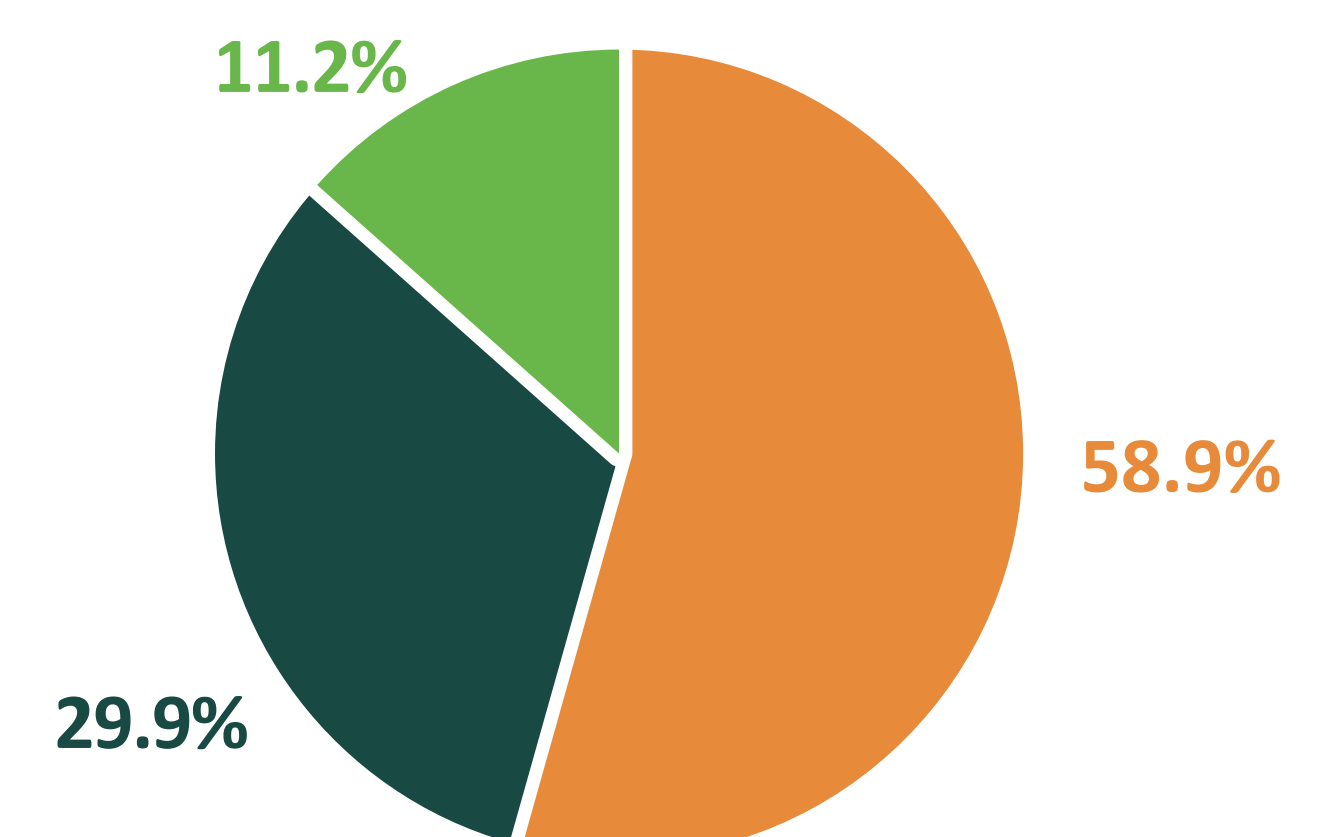
Treatment Modalities for Malignant Brain Tumors



The annual cost per-patient was USD\$51,734

Driven mainly by:

- hospitalizations
- hemotherapy/radiotherapy
- Others



Despite these high costs, the 5-year survival rate observed was only 8.4%, highlighting the aggressive nature of these tumors and the challenges in treatment efficacy. The average hospital stay was 11.2 days per year, indicating significant healthcare dependency and morbidity associated with malignant brain tumors.



USD\$6,658  
Annual Costs  
per Patient



8.4%  
5-Year Survival Rate



11.2  
Average Hospital  
Stay (days/year)

## CONCLUSIONS

The treatment of malignant brain tumors, particularly gliomas, is associated with very high costs and limited survival benefits. This study highlights a significant mismatch between healthcare expenditures and meaningful patient outcomes in the Brazilian private market. The substantial economic burden, coupled with a significant loss of quality of life for patients, underscores the urgent need for more effective and patient centered approaches in neuro-oncology. These findings emphasize the importance of continued research into novel therapies and cost-effective management strategies to improve both clinical outcomes and the economic sustainability of care for patients with malignant brain tumors.

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