▪ Headache Medicine 2026, Supplement ▪ p-ISSN 2178-7468, e-ISSN 2763-6178

Headache Medicine

ID: 228

# The hospital cost of primary pain: a BRL 27.9 million analysis of headache admissions in the Brazilian Public Health System

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**Introduction**
Primary headache syndromes, such as migraines and tension-type headaches, are essentially outpatient clinical conditions. However, failures in the primary care network, the shortage of specialist consultations, and the difficulty in accessing prophylactic medications continue to drive the acute exacerbation of these conditions. Faced with intractable pain and home treatment failure, patients resort to emergency departments, resulting in a massive volume of hospitalizations for intravenous rescue analgesia. Understanding the true financial impact of this influx is crucial to evaluate the allocative efficiency of resources in the Brazilian Public Health System (SUS).

**Objective**
To measure the total financial cost and the profile of hospital expenditures associated with admissions for headache and migraine (ICD-10 G43 and G44) within the SUS during the five-year period from 2019 to 2023.

**Methods**
An epidemiological, retrospective, and descriptive national-based study was conducted. Raw microdata were extracted from the Hospital Information System (SIH/DATASUS) and processed in RStudio using the microdatasus package. All Hospital Admission Authorizations (AIHs) featuring ICD-10 codes G43 (Migraine) or G44 (Other headache syndromes) as the primary billing diagnosis were filtered. The primary economic outcome variable evaluated was the total amount billed by healthcare institutions.

**Results**
The analysis consolidated a universe of 51,214 admissions nationwide over the evaluated five years. The total gross financial impact generated by this patient contingent reached the exact amount of BRL 27,987,588.71 spent by public coffers. The average cost per individual admission was approximately BRL 546.48. This billing was mostly concentrated on the fixed costs of hospital hotel services and general clinical support, since the standard management of these crises predominantly involves the infusion of analgesics, corticosteroids, and fluid therapy, without the routine association of surgical procedures or high-complexity technology.

**Conclusion**
The expenditure of nearly 28 million reais on hospitalizing inherently benign and controllable pathologies exposes a severe inefficiency in the SUS healthcare network. This amount represents a high opportunity cost for public health: the resources currently consumed by hospital daily rates at the tertiary level would be applied infinitely more efficiently at the primary level. Investing in the decentralization of neurological care, training family health teams to manage chronic headaches, and facilitating access to modern preventive treatments has the potential to mitigate patient suffering, decongest emergency rooms, and save millions in resources currently sustaining preventable hospitalizations.

**Keywords:**
Health care costs
Pharmacoeconomics
Resource allocation

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