

# Temporal analysis of in-hospital mortality from cardiac arrhythmias in the Southeast region of Brazil between 2020 and 2024

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**Background:** Cardiac arrhythmias, which involve disorders in the formation or conduction of the heart's electrical impulses, result in alterations in heart rhythm and affect more than 300,000 individuals annually. Among the cardiac arrhythmias, Atrial Fibrillation (AF) stands out as the most common arrhythmia, particularly in older individuals, representing a growing challenge for public health. **Objective:** To analyze the temporal trends of hospitalizations and in-hospital mortality rates due to arrhythmias between 2020 and 2024 in the Southeast region of Brazil. **Methods:** A retrospective ecological study was conducted using data from the Mortality Information System and the Hospital Information System of the Brazilian Unified Health System (SIH/SUS), accessed through the Department of Informatics of the Unified Health System (DataSUS), based on projections of the resident population of the Southeast region between 2020 and 2024. The following data were analyzed: deaths due to conduction disorders and cardiac arrhythmias from 2020 to 2024, stratified by sex, in the total population of the South and Southeast regions; and the number of deaths used to calculate mortality rates per 10,000 inhabitants. **Results:** Over the five-year period analyzed, a total of 164,883 hospitalizations for conduction disorders and cardiac arrhythmias were recorded in the Southeast region. The year 2020 presented the lowest number of cases (28,024), while 2024 had the highest (38,848), representing an increase of 38.62%. When analyzing the states of the Southeast region individually, a progressive increase was observed across all years. The state of Rio de Janeiro showed the highest percentage increase (84.37%, from 14,669 in 2020 to 19,347 in 2024), followed by Espírito Santo, with a 50.46% increase (from 1,409 in 2020 to 2,120 in 2024). Regarding in-hospital mortality rates, there was a reduction from 12.83 in 2020 to 11.99 in 2024, corresponding to a percentage decrease of 6.54%. At the state level, Rio de Janeiro presented the highest in-hospital mortality rates throughout all years, particularly in 2021 (23.76), followed by São Paulo, especially in 2021 (15.24). The states of Minas Gerais and Espírito Santo showed the lowest rates in the Southeast region over the five-year period analyzed. **Conclusion:** Based on the data analysis, a significant increase in hospitalizations due to arrhythmias was observed in the Southeast region between 2020 and 2024, particularly in Rio de Janeiro, which exhibited the highest percentage growth. Despite the increase in hospitalizations, in-hospital mortality rates showed a slight reduction, which may indicate improvements in the management of these conditions

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