

Radiofrequency ablation in the treatment of atrial fibrillation: an analysis of procedures performed by the Brazilian Unified Health System between 2020 and 2024

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Background: Atrial fibrillation is the most common sustained cardiac arrhythmia and is associated with an increased risk of stroke, heart failure, and mortality. Among available therapeutic options, radiofrequency ablation has emerged as an effective alternative for heart rhythm control. It is a minimally invasive procedure performed using catheters inserted into the heart, which apply thermal energy to cauterize the abnormal electrical conduction foci responsible for the arrhythmia. Therefore, evaluating the availability of this treatment within the Brazilian Unified Health System (SUS) is essential to understand population access and identify possible regional inequalities. **Objective:** To analyze the number and distribution of radiofrequency ablation procedures for the treatment of atrial fibrillation performed by the SUS across different regions of Brazil between 2020 and 2024. **Materials and Methods:** This is an ecological, retrospective, and descriptive study based on secondary data extracted from the Hospital Information System of the SUS (SIH/SUS), accessed through the Department of Information and Informatics of the SUS (DataSUS) platform. All hospital procedures recorded as radiofrequency ablation for atrial fibrillation performed between 2020 and 2024 in all Brazilian states were included. For each year and state, the absolute number of procedures and the geographic distribution of hospital admissions were analyzed. Data were organized in electronic spreadsheets and analyzed using descriptive statistics, with calculation of absolute frequencies and percentage variation between years. **Results:** Between 2020 and 2024, the SUS in Brazil performed 1,265 radiofrequency ablation procedures for atrial fibrillation. The number of procedures increased from 120 in 2020 to 344 in 2024, representing a 186.7% increase. The year with the highest number of records was 2023, with 406 procedures, accounting for 32.1% of the national total. The Southeast region concentrated the highest volume during the period, with 714 records (56.4%), followed by the South with 235 (18.6%) and the Central-West with 117 (9.2%). The Northeast recorded 103 procedures (8.1%), while the North had the lowest volume, with only 25 records (2%). The state of São Paulo led in absolute numbers across all years, with a total of 477 procedures (37.7% of all records nationwide), increasing from 24 in 2020 to 129 in 2024. Minas Gerais followed with 145 procedures (11.5%), peaking in 2024 (53), and Paraná

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with 126 (10%), with the highest volume in 2023 (46 procedures). In the Central-West, Goiás accounted for 86 of the 117 regional procedures (73.5%), with higher concentrations in 2021 and 2022. In the Northeast, the highest volumes were recorded in Piauí (14) and Bahia (12), mainly between 2022 and 2023. In the North, the distribution was sparse, with no records in states such as Roraima, Acre, Amapá, Rondônia, and Tocantins (Table 1). **Conclusion:** The data demonstrate a significant increase in radiofrequency ablation procedures for atrial fibrillation between 2020 and 2024, with a notable peak in 2023. The Southeast region accounted for most procedures, particularly the state of São Paulo, followed by Minas Gerais and Paraná. Conversely, the low availability in the North and Northeast regions highlights inequalities in access to specialized treatment, underscoring the importance of expanding availability and equity of these services within the SUS.

Table 1. Hospital Procedures in the Public Health System – Brazil.

Approved ALHs per year, by processing year, according to state

Procedure: 0406050074 – Therapeutic Electrophysiological Study II (Atrial Fibrillation Ablation)

Period: 2020–2024

State	2020	2021	2022	2023	2024	Total
Total	120	161	234	406	344	1,265
13 Amazonas	–	–	–	1	–	1
15 Pará	4	2	9	–	–	15
21 Maranhão	3	3	8	–	–	14
22 Piauí	–	–	–	1	1	2
23 Ceará	1	3	–	3	3	10
24 Rio Grande do Norte	–	1	1	–	2	4
25 Paraíba	–	–	–	2	1	3
26 Pernambuco	1	3	–	–	–	4
28 Sergipe	–	–	1	2	–	3
29 Bahia	–	7	3	3	2	15
31 Minas Gerais	24	16	30	31	45	146
32 Espírito Santo	26	34	51	77	77	265
33 Rio de Janeiro	4	–	–	3	1	8
35 São Paulo	26	48	74	200	129	477
41 Paraná	15	12	20	34	45	126
42 Santa Catarina	3	–	1	26	16	46
43 Rio Grande do Sul	1	6	3	6	12	28
54 Goiás	12	24	30	12	8	86
53 Distrito Federal	–	2	3	5	2	12

Source: Ministry of Health – Hospital Information System of the Brazilian Unified Health System (SIH/SUS).