

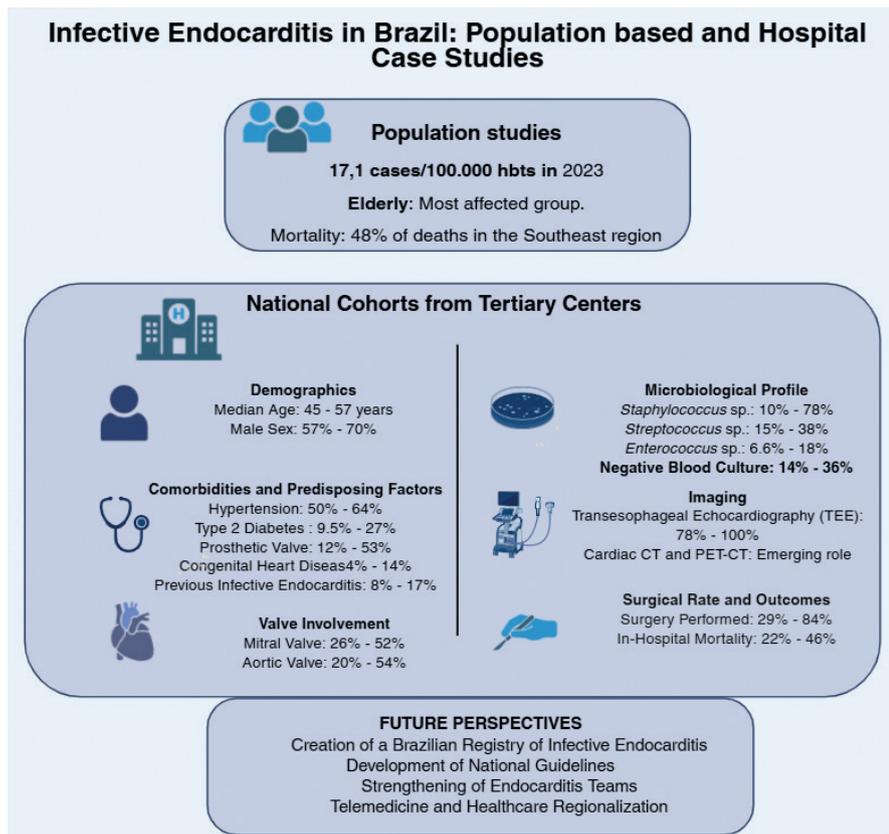
Infective Endocarditis in Brazil: A Narrative Review and Critical Analysis of Population and Hospital Case Data

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Central Illustration: Infective Endocarditis in Brazil: A Narrative Review and Critical Analysis of Population and Hospital Case Data



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Overview of Infective Endocarditis in Brazil: Epidemiology, Challenges, and Future Perspectives

Keywords

Endocarditis; Unified Health System; Heart Valve Diseases; Diagnostic Imaging.

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Abstract

Infective endocarditis remains a serious condition with high morbidity and mortality rates despite advances in diagnostic and therapy. While the Global North has seen a shift toward older patients with prosthetic valve infections, Brazil's understanding of the disease is hindered by reliance on fragmented, hospital-based data, primarily from the Southeast region. This narrative review synthesizes recent evidence to outline the national panorama. Population studies indicate an increase in incidence and mortality, primarily

affecting men and the elderly, but with marked regional heterogeneity. Analyses of hospital case series reveal an epidemiological profile characterized by patients younger than international averages, with a high prevalence of comorbidities, underlying structural heart disease, and prosthetic valves. The microbiological landscape is diverse, with no consistent predominance between staphylococci and streptococci. Nevertheless, a particularly concerning finding is the high incidence of negative blood cultures. Severe complications are frequent, and variability exists in surgical intervention rates and in-hospital mortality across studies. In light of this scenario, the authors propose a set of strategic actions to guide future advances: the creation of a Brazilian Registry of Infective Endocarditis, the development of Contextualized National Guidelines, the strengthening of multidisciplinary teams (Endocarditis Teams), and the implementation of measures with the potential to reduce regional disparities, such as telemedicine and the regionalization of care. The consolidation of these initiatives has the potential to transform the current landscape by enhancing epidemiological knowledge, standardizing care practices, and ultimately improving clinical outcomes nationwide.

Introduction

Infective endocarditis (IE) is a severe systemic disease of high clinical complexity, presenting significant challenges for management.^{1,2} It predominantly affects individuals with pre-existing valvular heart disease and, despite scientific advances, remains associated with a high risk of complications and mortality.³⁻⁶

In recent decades, the epidemiological profile of endocarditis has undergone a significant transformation, primarily described in the Global North. It has evolved into a condition that predominantly affects elderly individuals, those with multiple comorbidities, with an increasing number of cases related to cardiac device use.² This epidemiological shift has been driven mainly by the greater availability of cardiac procedures, including prosthetic valves, pacemakers, and the use of intravascular catheters. Consequently, the disease has assumed a more acute character, affecting older individuals with comorbidities, who constitute a group at higher risk for complications and mortality.²

In contrast, studies from the Global South indicate that the disease affects younger patients, often associated with valvular sequelae of rheumatic fever and streptococcal infections.^{6,7} However, some case series describe a different profile, with many cases occurring in individuals with congenital heart disease,⁸ and the epidemiological transition observed in the Global North appears to be underway in other parts of the world as well.⁹

In 2019, an estimated 1,090,530 cases of the disease and 66,320 deaths occurred globally.⁸ Population-based studies indicate that the incidence of IE has been increasing in recent decades,⁸ along with its lethality. On a global scale, the incidence of IE also demonstrates considerable heterogeneity, with reported rates ranging from 4.9 to 10.2 cases per 100,000 inhabitants.^{10,11}

This epidemiological variability is further reflected in risk factors, microbiology, surgical indications, and disease outcomes. For example, marked differences are observed in the proportion of cases associated with intravenous drug use,¹²

the percentage of negative blood cultures,^{7,11} rates of surgical indication,^{13,14} the spectrum of complications, and lethality, which can range from 14.9% to 45.8%.^{11,15} These indicators vary widely across regions and populations, underscoring the complexity of the disease.

Brazil likely exhibits marked particularities, as distinct epidemiological realities coexist within the same territory, ranging from large, developed urban centers to regions with limited access to healthcare.

Given this scenario, the objective of this narrative review is to integrate global data, population estimates, and recent Brazilian hospital case series, providing a critical analysis of the national landscape of IE and proposing practical recommendations to improve disease management in Brazil.

Methodology

For the development of this narrative review, a comprehensive bibliographic search was conducted in major national and international scientific databases, including PubMed, MEDLINE, the Virtual Health Library (BVS), LILACS, and Google Scholar. The search strategy utilized the descriptors "infective endocarditis," "endocarditis," "bacterial endocarditis," "Brazil," and "Duke criteria," combined using the Boolean operators AND and OR.

The search focused on publications from the last six years (2020-2025) in Portuguese or English, including original articles, reviews, cohort studies, meta-analyses, and other relevant documents. Classic Brazilian studies were intentionally included to complement the initial search results. The selection process involved identification, screening of titles and abstracts, and assessment for eligibility through full-text reading.

To avoid duplication of case series, a single publication per cohort was selected based on the most comprehensive study. Case series restricted to specific subgroups were excluded to maintain a broad overview of the disease within the national context.

As this is a narrative review, no meta-analysis was conducted, nor was a standardized risk-of-bias assessment tool applied. Evidence extracted from the selected studies was synthesized descriptively and comparatively, with the aim of highlighting consistent trends, knowledge gaps, and the particularities of IE in the Brazilian context.

Thirteen Brazilian publications reporting hospital-based case series of IE from January 2020 to November 2025 were identified. Of these, seven cohorts containing clinical, microbiological, and outcome data were selected for tabular synthesis (Tables 1–3).

Results and Discussion

To synthesize the key interrelationships between epidemiology, clinical presentation, care challenges, and proposed solutions discussed in this review, the Central Figure provides a comprehensive visual overview. The following sections will provide a detailed critical analysis of each of these components, beginning with population-based data.

Table 1 – Baseline characteristics and comorbidities in Brazilian infective endocarditis cohorts

Year	Location	N	Age (median)	Male sex	Community acquired	Rheumatic valve disease	Congenital heart disease	Prosthetic valve	Previous endocarditis	SAH	T2DM
2025	São Paulo ⁴⁵	530	56	63.6%	-	35.1%	4.1%	53%	16.9%	52%	18%
2024	Minas Gerais ⁴⁶	263	52	60.5%	-	30%	9%	26%	8.5%	-	14%
2024	São Paulo ⁴⁷	204	53	57%	37.7%	9%	-	12%	9.3%	64%	27%
2024	Rio de Janeiro ⁴⁸	502	48	65%	64.7%	30.7%	13.9	31%	12.6%	50%	15%
2023	Rio de Janeiro ¹⁵	240	55	57%	46%	-	-	22%	8%	-	21%
2023	Rio Grande do Sul ⁴⁹	179	57	70%	-	-	-	12%	-	51%	20%
2021	Minas Gerais ⁵⁰	211	48	70.6%	-	-	-	30%	-	-	-

* Subtitle - SAH - Systemic arterial hypertension; T2DM - Type 2 diabetes mellitus; (-) - Data not reported.

Table 2 – Microbiological profile in Brazilian Infective Endocarditis Cohorts

Location	<i>Staphylococcus sp</i>	<i>Streptococcus sp</i>	<i>Enterococcus sp</i>	HACEK *	Culture negative
São Paulo ⁴⁵	11.5%	26%	7.7%	1.1%	21%
Minas Gerais ⁴⁶	35%	14%	7.6%	0.4%	33.8%
São Paulo ⁴⁷	78%	14.6%	7%	0%	18%
Rio de Janeiro ⁴⁸	10%	15%	12.8%	<5%	33%
Rio de Janeiro ¹⁵	37%	38%	18%	0.8%	19%
Rio Grande do Sul ⁴⁹	22%	15%	-	-	14%
Minas Gerais ⁵⁰	19%	14.7%	6.6%	-	33.3%

* HACEK - *Haemophilus*, *Aggregatibacter*, *Cardiobacterium*, *Eikenella*, and *Kingella*; (-) - Data not reported.

Table 3 – Valve Involvement, Echocardiographic Findings, Complications, and In-Hospital Outcomes in Brazilian Infective Endocarditis Cohorts

Location	Mitral valve	Aortic valve	TEE	HF	Perivalvular Abscess	Surgical Treatment	In-Hospital Mortality
São Paulo ⁴⁵	52%	54%	-	40%	12.9%	56%	30.2%
Minas Gerais ⁴⁶	-	-	-	-	28%	57.5%	34.2%
São Paulo ⁴⁷	44%	20%	100%	29.1%	30%	34%	44.6%
Rio de Janeiro ⁴⁸	44%	38%	78%	58%	21%	83.6%	25%
Rio de Janeiro ¹⁵	43.8%	22%	-	-	-	29%	45.8%
Rio Grande do Sul ⁴⁹	33%	38%	81%	54%	10%	38%	22.3%
Minas Gerais ⁵⁰	41%	26%	-	-	-	-	22.3%

*Abbreviations: TEE - Transesophageal Echocardiography; HF - Heart Failure; (-) - Data not reported.

Population-Based Studies

The understanding of IE in Brazil is largely derived from hospital-based cohorts in tertiary centers, with a notable concentration in the Southeast region. Robust population-based studies on incidence and prevalence are lacking nationwide. To address this gap, large hospital databases, such as the DATASUS systems, including the Mortality Information System (SIM) and the Hospital Information System (SIH), have been employed.^{16,17}

Among the available epidemiological surveys, the Global Burden of Disease (GBD) study is the most comprehensive. Although it does not provide a publication dedicated exclusively to Brazil, data from this source⁸ indicate that the incidence rate of the disease increased from 9.15 to 17.14 cases per 100,000 inhabitants between 1993 and 2023. Additionally, mortality associated with the disease reached 2,958 recorded deaths in 2023.

This apparent growth in incidence may not solely reflect a true increase in cases. Factors such as improved access to healthcare services, advances in diagnostic methods (like the wider availability of echocardiography), the adoption of electronic medical records, and potential changes in disease coding may have significantly contributed to enhanced detection and reporting, thereby inflating the observed rates.

According to SIM data,¹⁶ a total of 52,055 deaths from IE were reported between 2000 and 2019. The mortality profile was predominantly male, within the 60–79-year age group, and concentrated in the Southeast region. Cluster analysis identified three distinct mortality profiles: (a) women aged 80 years or older, with endocrine and circulatory diseases, concentrated in the South and Southeast; (b) men aged between 30 and 79 years, with infectious and genitourinary diseases, also predominant in the South and Southeast; and (c) individuals aged 0 to 29 years of both sexes, with respiratory diseases, showing a higher proportion of deaths in the North, Northeast, and Central-West regions.¹⁶

Brazilian Hospital Case Series

While population-based studies help to frame the problem on a large scale, a detailed understanding of the clinical presentation, microbiological profile, and outcomes of IE in Brazil relies predominantly on case series and cohorts conducted in tertiary reference hospitals. Tables 1, 2, and 3 summarize the selected Brazilian studies.

The following section provides a synthesis of these publications. The analysis is organized according to the main risk factors and predisposing conditions, followed by the characterization of etiological agents, specifics of valve involvement, and associated complications. In addition, surgical rates and in-hospital mortality are evaluated.

It is important to note that most studies were conducted in tertiary centers with access to cardiac surgery. Considerable heterogeneity is observed in the study periods, as well as in the number of cases from each center.

The selected studies encompass a broad temporal spectrum, with inclusion periods ranging from 2000 to 2023, and most reported follow-up periods exceeding ten years.

Nevertheless, heterogeneity in recruitment windows and the absence of systematic overlap between study periods limit the ability to perform a consistent temporal analysis of the evolution of IE in Brazil.

The studies also differ in their methodological objectives. These include publications aimed at validating predictive risk scores, assessing long-term neurological outcomes, and conducting descriptive analyses of individual case series.

Diagnostic Criteria and Presenting Symptoms

All analyzed studies employed the Modified Duke Criteria¹⁸ for the case definition of IE. Beginning in 2024, the incorporation of the new Duke-ISCVID criteria¹⁹ was observed in two publications, reflecting the recent update in international guidelines.

The reporting of signs and symptoms related to endocarditis was not always consistent across studies. Fever upon admission was documented in 67.5% to 90.6% of cases, and a new cardiac murmur was reported in 50.7% to 74.8% of patients.

Demographic Profile of Patients

The aggregate analysis of the seven published studies from Brazilian tertiary centers (Tables 1, 2, and 3) revealed a median age ranging from 45 to 57 years. These values are generally lower than those documented in case series from the Global North, where median ages frequently exceed 60 years.^{3-5,10,13,20,21}

The predominance of male sex (57% to 70%) is consistent with the international literature.^{10,13,20-22} Despite a lower incidence of the disease, women present with a higher risk of death and lower rates of cardiac surgery.²³⁻²⁵

Presence of Comorbidities

Systemic arterial hypertension stands out as the most prevalent comorbidity, present in 50-64% of patients across the centers that reported this data. Diabetes mellitus shows a prevalence ranging from 9.5% to 27% among the different cohorts.

The prevalence of systemic arterial hypertension is close to 50% in various international case series,^{5,11,26} and the Brazilian studies are consistent with this finding. Regarding the prevalence of diabetes mellitus, approximately 20-30% of patients in Global North countries present with this condition,^{5,11} values slightly higher than those observed in the Brazilian studies.

Valve Involvement and Predisposing Factors

The analysis of risk factors reveals a diverse profile of predisposing conditions. Prosthetic valve endocarditis was described in 12-53% of cases, cases related to cardiac electronic devices in 6.9-29.3%, and congenital heart disease in 4.1-13.9%. A personal history of a previous episode of IE was documented in 8% to 16.9% of cases.

Cases related to illicit intravenous drug use were infrequent. This scenario contrasts with some countries where the condition constitutes a public health challenge,²⁷ and accounts

for up to 23.5% of IE cases, as observed in the study by Jordal et al.²⁸ This is a complex problem with impacts on individual health and psychosocial well-being, requiring multidisciplinary care.²⁷

Structural valvular disease due to rheumatic fever was documented in only four studies, with a variable frequency of 9% to 35%. This heterogeneity likely reflects differences in the referral profile and specialization of the services, as some centers are references for patients with pre-existing valvular disease or those who have undergone cardiac surgery.

Regarding the most frequently affected valve, data varies between the aortic (20-54%) and mitral (26-52%) valves. Globally, these are the most commonly affected valves, with discrepancies among studies as to which is predominant.^{26,29-31} Tricuspid valve endocarditis appears in third place in frequency, and its involvement is considered a factor related to socioeconomic vulnerability, also due to its correlation with intravenous drug use.³²

Population-based studies indicate that rheumatic heart disease has shown a reduction in its incidence in Brazil in recent decades, although with a trend towards stabilization of its prevalence. This contrasts with the increase in prevalence estimates and crude mortality for non-rheumatic valvular heart diseases, especially in older ages, driven by degenerative conditions.³³

Microbiological Profile

Most Frequently Involved Microorganisms

The microbiological analysis of Brazilian cohorts reveals a disparity in the predominance between staphylococcal (10% to 37%) and streptococcal (14.7% to 38%) infections, as described in Table 2. One center reported an atypical prevalence of 78% for *Staphylococcus* sp., constituting an outlier value, possibly related to specific characteristics of the served population or methodological particularities.

More recent case series show a preponderance of *S. aureus* infections globally,^{5,6,26,34-36} and some temporal series indicate that staphylococcal infections have been increasing in recent decades,⁵ with additional concern for the rise in infections caused by methicillin-resistant *Staphylococcus aureus*.³⁷

In third place are infections by *Enterococcus* sp., a pathogen typically associated with infections in older individuals with comorbidities and linked to worse clinical outcomes.^{1,5} A Brazilian study that specifically evaluated the elderly population identified enterococci as the most frequently isolated pathogens.³⁸

Culture-Negative Endocarditis

A particularly relevant finding is the high proportion of negative blood cultures, which ranged from 14% to 36% across different centers. The absence of microbial growth in blood cultures primarily reflects the prior use of antimicrobials and infections caused by fastidious microorganisms or those that do not grow in conventional culture media.³⁹ Its occurrence is related to therapeutic challenges and worse clinical outcomes.⁴⁰

The rates of negative blood cultures in IE vary widely worldwide, from 7.5% to 50% of cases,^{7,28} reflecting population heterogeneity and disparities in access to healthcare services across regions.

In addition to optimizing the diagnostic workup by encouraging blood culture collection *prior* to antimicrobial administration, the investigation of fastidious pathogens such as *Bartonella* sp., *Coxiella burnetii*, and *Brucella* sp. is essential. National publications have previously discussed these infections individually.^{40,41}

Although there are no systematic Brazilian studies documenting these disparities at a national level, clinical experience, combined with the wide variation observed in the published data, indicates that this is a relevant challenge in clinical practice.

Imaging Exams: Access and Application in the National Scenario

Imaging evaluation plays a central role in the diagnosis and management of IE. International guidelines systematically recommend performing a transthoracic echocardiogram (TTE) in all patients with suspected endocarditis, followed by a transesophageal echocardiogram (TEE) when the TTE is inconclusive, in patients with prosthetic valves or intracardiac devices, and whenever the clinical probability of the disease remains high.¹

In the Brazilian cohorts analyzed in this article, the use of TEE is frequent but not uniform, ranging from 78% to 100%. On the other hand, in some large cohorts, the use of TEE was not reported or could not be quantified in a standardized manner, suggesting heterogeneity both in practice and in the systematic recording of exams.

This scenario is compatible with the perception that, in large tertiary services, access to echocardiography – including TEE – is usually broad and relatively agile, allowing for integrated diagnostic confirmation, risk stratification, and surgical planning. In contrast, in smaller hospitals and regions with a lower density of specialists, the evaluation is often likely restricted to TTE, with greater difficulty in documenting small vegetations, abscesses, and prosthetic dehiscence, although there is a lack of published systematic data quantifying these disparities.

Additional modalities, such as cardiac computed tomography (CT) and 18F-FDG PET-CT, are being incorporated as complementary tools for detecting perivalvular complications, assessing prosthetic endocarditis, and investigating extracardiac embolic foci.^{42,43}

In Brazil, despite the wide availability of cardiac CT in tertiary centers and the recognized utility of PET-CT in specific scenarios, these exams remain poorly incorporated into the routine care of IE. This limitation stems from structural, logistical, and professional training factors, directly impacting the early detection of perivalvular complications and diagnostic confirmation in prosthetic valves.

The Brazilian case series analyzed here do not describe, in a standardized way, the routine use of these imaging exams. Practical experience suggests that these exams remain concentrated in high-complexity centers and private services, with limited supply and unequal access in the public network.

This restriction may contribute to the underdiagnosis of structural complications, delays in surgical indication, and a reduced ability to identify distant embolic foci, especially in contexts where TEE is inconclusive or technically limited.

Cardiac CT is an additional tool for detecting perivalvular complications, including abscesses, pseudoaneurysms, fistulas, and valve dehiscence. According to the ESC 2023 guidelines,¹ its role is complementary to echocardiography, being particularly valuable when TEE is inconclusive or limited – whether due to prosthetic artifacts, unfavorable anatomy, or persistent clinical suspicion without definitive echocardiographic documentation.

CT is useful in both native and prosthetic valves, although its contribution is even greater in prostheses due to the acoustic limitations of TEE. Despite its wide availability and more accessible cost compared to PET-CT, the use of CT in the national context can still be expanded. Some factors that may influence its utilization include the clinical request in the initial management, the definition of institutional routines, and the refinement of specific imaging protocols for endocarditis. When not considered early, there is a possibility that significant structural complications are identified in more advanced stages of management, sometimes during the surgical procedure.

¹⁸F-FDG PET-CT, in contrast, plays a role in demonstrating active inflammation, with high accuracy in patients with prosthetic valves. According to the ESC 2023 guidelines,¹ it is considered a Class I recommendation for the assessment of prosthetic endocarditis more than three months after implantation, especially when clinical suspicion persists despite a negative or inconclusive TEE. In these scenarios, PET-CT provides significant diagnostic value, and contributes to the identification of distant embolic foci.

Its use, however, remains limited in Brazil due to cost, restricted availability in the public healthcare system, and the need for specialized training of nuclear medicine teams. Nevertheless, national data, including experience from a tertiary center, demonstrate relevant clinical impact in prosthetic valves and other complex scenarios.⁴³

Thus, CT and PET-CT are complementary methods, each with strengths in different diagnostic dimensions:

- CT: is especially effective in identifying structural complications and is usually more accessible, although it depends on early request and radiological expertise.
- PET-CT: is extremely useful in cases involving prosthetic valves, especially when clinical suspicion persists. However, its use is limited by high cost and lower availability.

Expanding the appropriate use of these modalities requires institutional care pathways, training of imaging teams, and systematic integration of these exams into Endocarditis Team discussions, ensuring faster, more precise, and evidence-based decisions.

Complications and Outcomes

Heart Failure and Perivalvular Abscess

The Brazilian cohorts analyzed in this study demonstrate a high frequency of severe complications from IE.

Decompensated heart failure was a common presentation, affecting 29.1% to 58% of patients in the centers that reported this data. The formation of perivalvular abscesses, a serious local complication, was documented in up to 30% of patients in one center, with other records indicating prevalences between 10% and 28%.

Parallel to international registries,^{26,30} which report heart failure in 14.1% to 31.9% and embolic events/stroke in 17.5% to 20.6%, the Brazilian cohorts demonstrate a particularly severe disease burden. Embolic complications were also widely reported in the national cohorts, although heterogeneity in definitions prevents direct comparison with international rates. Finally, the formation of perivalvular abscesses showed similar rates, ranging from 13% to 16% in international registries.^{26,30}

Surgical Intervention and In-Hospital mortality

The rate of surgical intervention for IE differed substantially among Brazilian centers (29% to 83.6%). This variation reflects potential differences in patient profiles and the surgical indications established by each service. In comparison, large international registries, such as EURO-ENDO and ICE, describe rates of surgical approach of 51% and 52%.^{26,30}

In-hospital mortality in the analyzed Brazilian cohorts showed heterogeneity, with rates between 22.3% and 45.8%. This variability falls within the global spectrum reported in the literature, where mortality rates also fluctuate significantly: ranging from 14.9% to 25.1% in European and Latin American registries,^{11,14,26,30} and reaching up to 37.1% in specific series.²⁵

Multidisciplinary Approach: Endocarditis Teams

According to the most recent international guidelines (ESC 2023), the management of IE by specialized multidisciplinary teams – Endocarditis Teams – is a central recommendation and a standard of quality care.¹ These teams should preferably integrate cardiologists, cardiovascular surgeons, infectious disease specialists, imaging experts, microbiologists, and palliative care specialists.

Observational evidence suggests a positive association between the operation of Endocarditis Teams and improved clinical outcomes, including reduced short-term mortality.⁴⁴

Beyond the core Endocarditis Team, responsible for coordinating and integrating care, more complex cases often require support from other medical specialties such as neurosurgery, vascular surgery, nephrology, and intensive care medicine, as well as the involvement of professionals from dentistry, psychology, physiotherapy, and social work.

The lack of a formal assessment of this implementation in Brazil constitutes a relevant research gap. Consequently, the creation, structuring, and consolidation of Endocarditis Teams, adapted to the reality of the Brazilian Unified Health System (SUS) and supplementary healthcare, emerge as a priority for improving the quality of IE care in the country.

Final Considerations, Limitations, and Future Perspectives

The analysis of evidence on IE in Brazil, although marked by fragmentation and methodological limitations, reveals a

complex scenario. The available findings indicate a distinctive epidemiological profile, characterized by younger patients than those described in international case series, but with a significant burden of comorbidities. Most cases were left-sided endocarditis, and a heterogeneous percentage of cases occurred in patients with cardiac prostheses.

The microbiological profile is diverse, with concerning rates of negative blood cultures, reflecting both regional particularities and opportunities for improvement in diagnostic workup. Similarly, the wide variation in surgical intervention rates and in-hospital mortality across different centers may indicate disparities in the structure and organization of care throughout the country.

These conclusions, however, must be interpreted considering some limitations. The use of secondary databases is subject to underreporting and coding errors, just as the modeled estimates from the GBD lack individual-level clinical validation. Furthermore, the predominance of publications originating from tertiary services in the Southeast and some state capitals results in the underrepresentation of other Brazilian regions, limiting the generalizability of the findings. Additionally, the heterogeneity in study objectives, definitions of events, complications, and surgical indications among services prevents more robust comparisons.

Given this scenario, several enhancement opportunities can be considered to strengthen the epidemiological understanding and care organization for IE in Brazil. These proposals should not be interpreted as prescriptive models, but as potential pathways, conditioned on technical feasibility and the country's regional differences.

Brazilian Registry of Infective Endocarditis: The creation of a collaborative, multicenter, and progressively expanded registry could reduce the current fragmentation of information and generate more representative data. Implementation would depend on coordination between centers, resource availability, and institutional interest.

Contextualized National Guidelines: The development of recommendations adapted to the epidemiological and structural realities of the diverse regions, including protocols for investigating negative cultures, could contribute to greater standardization of practices. Such an initiative requires broad technical consensus and participation from scientific societies.

Strengthening Multidisciplinary Teams: International experience suggests benefits from the operation of Endocarditis Teams. In the Brazilian context, models adapted to local conditions—not necessarily uniform—could improve integration between cardiology, surgery, infectious diseases, imaging, and palliative care.

Multidisciplinary and inter-institutional collaboration represents a promising path for advancing patient care. The formation of research networks, hospital consortia, and partnerships between academia and health services has the potential to accelerate the translation of knowledge into more effective care practices and, consequently, better clinical outcomes.

Author Contributions

Conception and design of the research, acquisition of data, analysis and interpretation of the data, statistical analysis, writing of the manuscript and critical revision of the manuscript for intellectual content: Santos DAM, Tarasoutchi F, Fernandes JRC, Paixão MR, Strabelli TMV, Köohler KF, Mansur AJ, Siciliano RF.

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This article does not contain any studies with human participants or animals performed by any of the authors.

Use of Artificial Intelligence

During the preparation of this work, the author(s) used Deep Seek to refine the academic language, ensure terminological precision in medical English, and enhance the overall clarity and coherence of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take full responsibility for the content of the published article.

Availability of Research Data

All datasets supporting the results of this study are available upon request from the corresponding author.

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