

Hospital Management Practices and Organizational Performance at the Moramanga District Referral Hospital Center, Madagascar

Hortense Haingovololona Ranaivoarison

National Institute of Public and Community Health, Madagascar

Niaina Zakaria Rodolphe Andriamifidison

Ravaka Niaina Sabrina Andriamiarisoa

Faculty of Medicine Antananarivo, University of Antananarivo, Madagascar

Voahanginirina Ramanantsoa

Mamy Jean Jacques Razafimahatratra

National Institute of Public and Community Health, Madagascar

Fidiniaina Mamy Randriatsarafara

Faculty of Medicine Antananarivo, University of Antananarivo, Madagascar

[Doi:10.19044/esj.2026.v22n27p91](https://doi.org/10.19044/esj.2026.v22n27p91)

Submitted: 16 June 2026

Accepted: 15 September 2026

Published: 30 September 2026

Copyright 2026 Author(s)

Under Creative Commons CC-BY 4.0

OPEN ACCESS

Cite As:

Ranaivoarison, H.H., Andriamifidison, N.Z.R., Andriamiarisoa, R.N.S., Ramanantsoa, V., Razafimahatratra, M.J.J., & Randriatsarafara, F.M. (2026). *Hospital Management Practices and Organizational Performance at the Moramanga District Referral Hospital Center, Madagascar*. European Scientific Journal, ESJ, 22 (27), 91.

<https://doi.org/10.19044/esj.2026.v22n27p91>

Abstract

Background: District referral hospitals in Madagascar operate under substantial resource and organizational constraints, yet evidence on their compliance with national management standards remains limited. This study examined hospital management practices and organizational performance at the Moramanga District Referral Hospital Center (DRHC).

Methods: An evaluative, descriptive, cross-sectional study with a mixed-methods approach was conducted using retrospective data from 2022 to 2024. All staff members with at least six months of seniority were included. Data were collected through standards-based assessment grids and staff interviews, then analyzed according to the Donabedian model focusing on structure, process, and outcomes of care.

Results: The final sample included 35 staff members. Only two of five governance bodies were operational, and the hospital employed 76 staff compared with the national standard of 84. Overall equipment coverage was 80.94%, but distribution varied considerably between departments. Six of eight reception standards and nine of twelve waste-management standards were met. Budget execution remained above 99% from 2022 to 2024, while total hospital revenue declined by 15.04% between 2021 and 2023. Bed occupancy fell from 20.6% in 2021 to 19.0% in 2023, and hospital utilization decreased from 0.80% to 0.52%.

Conclusion: Despite strong budget execution and generally satisfactory equipment coverage, low governance functionality, shortages and imbalances in human resources, ageing infrastructure, and declining hospital utilization indicate persistent management challenges. Priority actions should strengthen governance and specialized staffing, improve maintenance and energy reliability, and align resource allocation with departmental needs. These findings may help hospital managers and policymakers improve service delivery in resource-constrained district hospitals.

Keywords: Hospital management; Health service delivery; Hospital performance; Donabedian model; Quality of care; Madagascar

Introduction

Global public health remains a major issue in a context marked by multiple health challenges, including infectious diseases, non-communicable diseases, and the effects of climate change on population health (World Health Organization [WHO], 2024; Population Medicine, 2025). Social inequalities also make access to health care for all difficult (Andrianirina et al., 2023). The World Health Organization has developed a strategy for 2025-2028 to strengthen health systems, improve access to care, and ensure that everyone can benefit from health services (WHO, 2024). In Africa, although progress has been made, infectious diseases remain a major problem, and the rise of chronic diseases further complicates the situation (Africa CDC, 2025a, 2025b). Current policies also emphasize the importance of developing local solutions to better meet needs (Africa CDC, 2025c).

In Madagascar, the health situation reflects both these global challenges and local specificities. Public health expenditure remains low, at about 3.25% of gross domestic product in 2022, which is below the global average and limits the capacity of the national health system (The Global Economy, 2022a, 2022b). This low level of expenditure directly affects the organization and management of health facilities, especially District Referral Hospital Centers (DRHCs), which play an important role in decentralized population care (Ministère de la Santé Publique, Madagascar, 2017a). Because

of the cost of care, many Malagasy people wait for open days to access free care or consider the hospital as a last resort, attending only when they are seriously ill. The Malagasy health system is organized at central, regional, and district levels, with DRHCs providing specialized care and coordinating services at the local level (Banque Mondiale, 2021; Ministère de la Santé Publique, Madagascar, 2021b).

The Moramanga DRHC serves 374,557 inhabitants and coordinates referral services within the Alaotra-Mangoro region. Its strategic role, combined with persistent resource constraints and a high local burden of disease, makes effective hospital management particularly important (Ratovoson et al., 2019, 2025). However, limited evidence is available on how management practices at this facility align with national standards or how structural and organizational constraints affect performance. The Moramanga DRHC was therefore selected as a relevant case for examining decentralized hospital management in a resource-limited setting (Ministère de la Santé Publique, Madagascar, 2025a). The study asked whether management at the Moramanga DRHC complied with standards established by the Ministry of Public Health and hypothesized that compliance was incomplete. Its main objective was to examine hospital management practices and organizational performance by assessing administrative organization, resource management, governance, service processes, and outcomes, and to propose context-appropriate recommendations. The analysis used the Donabedian model, which distinguishes structure (resources, infrastructure, and organization), process (care practices, protocols, hygiene, and reception), and outcomes (satisfaction, performance, and health indicators). The framework was adapted to the characteristics and constraints of the Moramanga DRHC.

Methods

Study design and setting : an evaluative, retrospective, descriptive, cross-sectional study using a mixed quantitative and qualitative approach was conducted at the Moramanga District Referral Hospital Center (DRHC), a medical and surgical referral facility occupying approximately 6 hectares in the Alaotra-Mangoro region. This design was selected because hospital management cannot be assessed using a single source of data. The evaluative component enabled comparison of observed practices and resources with national standards. The retrospective component allowed analysis of hospital activity and financial records from previous years, while the cross-sectional component provided a snapshot of current organizational practices and staff perceptions. A descriptive approach was appropriate because the objective was to characterize compliance and performance rather than test a causal hypothesis. Finally, the mixed-methods approach combined quantitative indicators with interviews, direct observation, and documentary review, allowing triangulation and contextual interpretation of the findings within the

Donabedian framework. The fieldwork lasted eight months, from May to December 2025. Hospital activity data primarily covered 2022-2024; 2021 values were retained as a baseline for selected financial and utilization indicators when available in the source records.

Study population and sampling : the target population comprised medical, paramedical, support, and administrative staff. Staff with at least six months of service were eligible. Personnel on extended leave or absent during data collection and participants who withdrew before completion were excluded. All 76 eligible staff members occupying the 76 recorded posts and present during the recruitment period were invited to participate. Thirty-five returned completed questionnaires, yielding a response rate of 46.1%. Administrative documents, registers, inventory reports, financial reports, RMA reports, DHIS2 records, and relevant patient records were also reviewed.

Data collection : quantitative data were collected using pre-established, pre-tested survey forms and observation grids aligned with national standards. Potential participants received an explanation of the study and were invited individually; questionnaire completion followed written informed consent. Human-resource and financial information was obtained from hospital registers and semi-structured interviews with the hospital director, manager, service heads, and staff. Infrastructure, equipment, service processes, and outcomes were assessed through direct observation, interviews, and documentary review. The study instruments covered the availability and functionality of governance bodies, staffing against national norms, infrastructure and equipment, financial management, reception, clinical protocols, healthcare-waste management, staff satisfaction, hospital activity, and performance indicators.

Analytical framework and integration : variables were organized according to the Donabedian framework: structure (organization, governance, staffing, infrastructure, equipment, information systems, and financial resources), process (reception, protocols, hygiene, safety, and waste management), and outcomes (staff satisfaction, service activity, utilization, length of stay, bed occupancy, and hospital mortality). Quantitative and qualitative findings were integrated by Donabedian domain: numerical indicators and compliance counts were compared with national standards, while interview and observation findings were used to contextualize the observed gaps.

Data analysis : data were processed in Microsoft Excel and Epi Info version 7. Descriptive statistics included counts, percentages, means, and standard deviations. No inferential statistical tests were performed because the study was a single-facility management assessment using exhaustive recruitment and was intended to describe compliance and performance rather

than estimate population effects. Semi-structured interviews were audio-recorded and transcribed. The transcripts were organized deductively by the Donabedian domains and summarized by recurring management topic. These qualitative summaries were triangulated with documentary and observational findings and were used to contextualize the quantitative indicators rather than reported as an independent qualitative dataset.

Ethical Statement : administrative authorization to conduct the study was obtained from the District Medical Inspector, the Medical Director of the Moramanga District Referral Hospital Center, the relevant service managers, and the Director General of the National Institute of Public and Community Health.

All participants were informed about the objectives of the study, the nature of their participation, and the intended scientific use of the collected data. Written informed consent was obtained from each participant before data collection. Participation was voluntary, and participants were free to decline or withdraw without any consequences.

Confidentiality and anonymity were maintained throughout the study. No personal identifying information is disclosed in the manuscript, and the data were used exclusively for scientific purposes. The study was conducted in accordance with ethical principles of respect for participants, voluntary participation, informed consent, confidentiality, and anonymity.

Results

Participant characteristics and governance

Of the 76 staff members occupying the 76 recorded posts and invited to participate, 35 returned completed questionnaires, resulting in a response rate of 46.1%. The mean age was 38.29 years (SD 10.89); 21 (60.0%) were women and 14 (40.0%) were men. The administrative staffing audit compared these 76 occupied posts with a national standard of 84. All five required governance bodies existed, but only two were operational. Staff assessments likewise identified limited committee effectiveness, although decision-making transparency was viewed more favorably.

Table 1: Participant characteristics, governance, and organizational indicators

Indicator	Observed result	Interpretation
Participants	n = 35; mean age 38.29 ± 10.89 years; 60.0% women	Final analytic sample
Governance bodies	5/5 existed; 2/5 operational (40%)	Formal structure present; implementation weak
Internal organization	5/9 elements available	Internal regulations, patient charter, complaints box, and medicine-price information absent

Indicator	Observed result	Interpretation
Spatial organization	7/7 elements available	All assessed accessibility elements available
Planning	PEH and PTA available; 0/2 updated	Planning tools require revision
Information system	RMA and DHIS2 available	Core reporting tools functional
Committee effectiveness	43% yes; 57% no	Most respondents did not consider committees effective
Decision transparency	75% yes; 25% no	Transparency rated more positively than effectiveness

Human resources

The hospital employed 76 staff compared with a national staffing standard of 84, an overall deficit of eight posts (9.52%). Shortages were concentrated among specialist physicians, general practitioners, operating-room nurses, and support staff, while several nursing and midwifery categories exceeded the numerical norms.

Table 2: Staffing levels compared with national standards

Staff category	Standard	Observed	Gap/surplus
Specialist physicians	9	4	-5
General practitioners	13	5	-8
Operating-room nurses	3	0	-3
Support staff	11	4	-7
General nurses	9	13	+4
Midwives	3	8	+5
All staff	84	76	-8

Infrastructure, equipment, and financial resources

Buildings were generally functional, but the emergency treatment unit did not meet dimensional and capacity standards, several auxiliary buildings required maintenance, and ageing electrical networks were affected by prepaid-meter credit constraints. Equipment coverage was 80.94% overall, with pronounced interdepartmental disparities. Financial indicators showed high budget absorption but declining own-source revenue.

Table 3: Infrastructure, equipment, and financial indicators

Indicator	Value	Context
Overall equipment coverage	1,417/1,751 (80.94%)	Uneven distribution between departments
Medicine equipment	78/218 (35.89%)	Major deficit
Physiotherapy equipment	34/86 (39.53%)	Major deficit
Surgery/operating room	585/504 (115.12%)	Inventory exceeded numerical norm
Pharmacy equipment	30/15 (200%)	Inventory exceeded numerical norm
State subsidy	37,476,000 MGA (2022-2023); 51,276,000 MGA (2024)	36.8% increase in 2024
Own-source revenue	74,348,780 MGA (2021); 63,170,082 MGA (2023)	15.04% decline
Budget execution	99.82% (2022); 99.59% (2023); 99.44% (2024)	High absorption; slight decrease

Care processes and staff satisfaction

Reception and clinical protocols were largely available, but patient information and waste-management safety remained incomplete. Staff dissatisfaction was greatest for continuing education, working conditions, and material resources, whereas perceived quality of patient care received the most favorable ratings.

Table 4: Care processes and staff satisfaction

Domain	Finding
Reception	6/8 standards available; service hours and patient rights not displayed
Clinical protocols	6/6 essential protocol categories available
Waste management	9/12 standards available; color-coded bags, PPE, and trained staff absent
Working conditions	22/35 dissatisfied
Material resources	21/35 dissatisfied
Quality of patient care	30/35 satisfied or very satisfied
Continuing education	35/35 dissatisfied

Hospital activity and performance indicators

Outpatient consultations increased in 2023 and declined in 2024, while hospitalizations fell from 2,345 in 2023 to 1,674 in 2024. Dental activity increased, but ultrasound examinations and conservative dental procedures declined. Bed occupancy and hospital utilization decreased between 2021 and 2023; mortality peaked in 2022 and improved in 2023.

Table 5: Hospital activities from 2022 to 2024

Activity	2022	2023	2024
Outpatient consultations	5,493	7,267	6,330
Hospitalizations	Not reported	2,345	1,674
Surgical procedures	359	198	337
Caesarean sections	224	115	195
Ultrasound examinations	884	236	191
Dental consultations	801	868	1,147

Table 6: Hospital performance indicators from 2021 to 2023

Indicator	2021	2022	2023
Average length of stay (days)	2.37	2.60	2.41
Bed occupancy rate (%)	20.6	19.5	19.0
External consultation utilization	1.02	1.09	0.96
Hospital utilization rate (%)	0.80	0.66	0.52
Hospital mortality rate (%)	4.99	6.09	5.18

Discussion

Population characteristics

The staff sample had a mean age of 38.29 years (SD 10.89) and was predominantly female (60%). This pattern is consistent with the substantial participation of women in the health workforce described internationally (World Health Organization [WHO], 2024). Because 46.1% of eligible staff participated, however, the demographic profile should not be assumed to represent all hospital employees.

Structure assessment

Institutional organization was formally complete, but only 40% of governance committees were functional. This gap between the existence of governance bodies and their effective operation may reflect limited resources, insufficient member participation, or broader organizational weaknesses.

Whatever the underlying combination of factors, low committee functionality is likely to constrain decision-making and the monitoring of hospital activities.

Effective hospital committees require regular meetings, active member participation, administrative support, and documented follow-up of decisions. The finding that formal governance bodies existed but were often non-operational therefore points to an implementation gap rather than an absence of governance structures.

An Iranian study reported hospital committee operability of around 58%, highlighting the still insufficient presence of senior managers in these bodies (Maleki et al., 2015). Another study indicates that committee productivity and regularity are essential for effective governance, together with strong member participation and rigorous follow-up of decisions (Sajjadi et al., 2011).

The facility was partially structured, with a functional organizational chart, service indicators, and service pricing. However, the absence of internal regulations, a patient charter, and a complaint mechanism points to weaknesses in transparency, user participation, and continuous quality improvement. Limited feedback mechanisms and incomplete information on medicine prices may also reduce financial transparency and patient trust. These gaps are inconsistent with the governance principles of Law No. 2011-003 and the 2020-2024 Health and Social Development Plan, which promote clear organization, effective resource allocation, and user-centered hospital governance (République de Madagascar, 2011; Ministère de la Santé, 2020).

Spatial organization met all assessed accessibility criteria for persons with reduced mobility, supporting inclusive access to the facility. This finding contrasts with the broader Malagasy context: Andrianarivelo and Raveloson (2019) reported that only 30% of public buildings in Antananarivo were accessible to persons with reduced mobility. The contrast suggests substantial variation in the implementation of accessibility standards across facilities.

Interdepartmental coordination at the Moramanga DRHC was supported by weekly management meetings and quarterly general assemblies. These mechanisms provide a basis for communication and activity monitoring, although the study did not measure their direct effect on service quality. Coordination difficulties have been reported in other Malagasy facilities (Raveloson et al., 2021), making the regularity observed at Moramanga a potentially useful practice for further evaluation rather than evidence of superior performance.

The assessment of the Moramanga DRHC showed good strategic planning through the existence of a Hospital Establishment Project (PEH) and an Annual Work Plan (PTA), but the lack of updating of these documents raises concerns about their relevance in the face of evolving health needs. This issue is shared by many hospitals in Madagascar, where strategic planning is

often inadequate, thereby limiting the effectiveness of care (Raveloson et al., 2021).

The RMA and DHIS2 systems were available, providing an infrastructure for routine collection and management of health information. Availability alone does not establish data completeness, accuracy, or use in decision-making; these dimensions were not assessed. Nevertheless, maintaining functional reporting systems is an important prerequisite for performance monitoring and service planning (Raveloson et al., 2021).

The Moramanga DRHC offered a broad technical platform that included surgery, ophthalmology, rehabilitation, imaging, emergency care, and inpatient services. This range was consistent with the minimum service expectations cited in national guidance (Ministère de la Santé Publique, Madagascar, 2020), but deficiencies in staffing, equipment distribution, and infrastructure mean that service availability should not be equated with full operational readiness. Recent evidence from 67 district hospitals in Malawi, Zambia, and Tanzania similarly showed that apparently available services may coexist with serious shortages of specialist staff, reliable electricity, equipment, and supplies (Gajewski et al., 2023).

Human capital

Human resources were unevenly distributed, with shortages of specialist physicians and several technical profiles alongside surpluses in some general and paramedical categories. Such imbalances may limit specialized care even though profiles not included in the standards, such as ophthalmic care staff and an orthopedic appliance technician, broaden the service offer (Ministère de la Santé Publique, Madagascar, 2020; Raveloson et al., 2021). Research in Ethiopian public hospitals shows that workforce shortages, restrictive allocation systems, limited managerial autonomy, and insufficient attention to staff well-being can jointly undermine strategic human-resource management and service quality (Gile et al., 2022). These findings support aligning staffing with actual departmental needs rather than relying only on aggregate headcounts.

Staff assessments of management committees showed that 43% of respondents considered them effective, whereas 57% did not. By contrast, 75% considered decision-making transparent. This distinction suggests that openness in decision-making did not translate into reliable committee operation. Similar governance challenges have been reported in sub-Saharan Africa (Agyepong & Adjei, 2018). Committee effectiveness depends on clear mandates, member participation, regular meetings, and follow-up of decisions; transparency alone is insufficient (André, 2025).

Continuing education focused mainly on HIV, tuberculosis, and laboratory activities and was consistent with national guidance on regular

skills development (Ministère de la Santé Publique, Madagascar, 2018). While these targeted efforts are valuable, the reported dissatisfaction with training opportunities suggests that coverage should be broadened. Evidence from Madagascar also indicates that continuing education can improve care practices and infection control (Randriamanantena et al., 2020).

Infrastructure and equipment

Buildings were generally functional but required regular maintenance and modernization, particularly of electrical installations. The emergency treatment unit did not meet dimensional and capacity standards, and inpatient accommodation options were limited. These shortcomings indicate incomplete compliance with national requirements for hospital safety, functionality, and resilience to natural hazards (Bureau Malagasy des Normes, 2025; République de Madagascar, 2025a). Targeted rehabilitation is therefore needed to reduce operational risks.

Technical networks

The Moramanga DRHC has access to water and electricity in all departments, but technical networks remain old and insufficiently maintained. The JIRAMA prepaid meter system leads to inadequate electricity supply linked to limited credit, causing power cuts that disrupt continuity of care, especially for essential equipment such as oxygen concentrators. This issue, common in Malagasy hospitals, is explained by ageing infrastructure and the constraints of the current energy system. Despite the emergence of solar electrification initiatives, challenges related to maintenance and energy stability persist, compromising the safety and effectiveness of care (PNUD Madagascar, 2023).

Material resources and equipment

Overall equipment coverage was 80.94%, but substantial disparities existed between departments. Medicine (35.89%) and physiotherapy (39.53%) had major deficits, whereas surgery/operating room (115.12%) and pharmacy (200%) exceeded the applicable inventory standards. These figures indicate distributional imbalance rather than uniformly satisfactory availability; coverage above 100% does not necessarily mean that equipment matches current service needs. Such imbalances may arise from uncoordinated procurement or donations and can generate costs without improving care quality (Ministère de la Santé Publique, Madagascar, 2020). Regular needs assessment and coordinated allocation are therefore warranted.

Financial resources

State budget

The state budget was stable between 2022 and 2023 and increased by 36.8% in 2024. This increase expanded the resources allocated to the facility, but it should not be interpreted as improved financial performance without evidence on how the additional funding affected services or outcomes. The trend is consistent with multi-year health development plans that call for increased investment in equipment and services (Ministère de la Santé, 2020; République de Madagascar, 2025b).

Facility own resources

The hospital's own-source revenue decreased from 74,348,780 Ariary in 2021 to 63,170,082 Ariary in 2023, followed by a slight recovery to 65,889,400 Ariary in 2024. The decline between 2021 and 2023 was approximately 15%, indicating reduced internally generated resources despite the subsequent partial recovery.

This trend of budget reduction followed by stabilization is comparable to that of other public facilities in Madagascar facing budgetary constraints, requiring annual adjustments that influence the availability of resources for health services. Prudent resource management remains essential to maintain performance despite this budgetary variation (Ministère de l'Économie et des Finances, Madagascar, 2025a, 2025b).

Revenue trends

Revenue trends at the DRHC between 2021 and 2023 showed an overall decrease of 15.04%, with marked declines in consultations, accommodation, surgical interventions, and laboratory services—a trend similar to the decrease in hospital revenue reported nationally in fragile economic contexts. Conversely, the increase in care-related revenue (32.03%) appears to be a positive point, reflecting a possible redeployment of clinical activities or adaptation of the service offer, a phenomenon also reported in studies on the resilience of Malagasy health services (Ministère de l'Économie et des Finances, Madagascar, 2025b; République de Madagascar, 2023).

Budget execution

Budget execution remained close to 99.5% from 2022 to 2024, showing that the facility used nearly all allocated funds. Although rates above 95% may indicate timely budget absorption and sound expenditure control, execution alone does not establish allocative efficiency, service quality, or improved outcomes (Banque Mondiale, 2023; Ministère des Finances, Madagascar, 2025). This indicator should therefore be interpreted alongside revenue trends, resource distribution, and hospital activity.

Process assessment

Reception

The Moramanga DRHC had an adequate reception organization, with six of eight standards available, including triage, dedicated staff, and structured areas, which meets national requirements for effective hospital reception (République de Madagascar, 2011, 2018). However, the absence of posted opening hours and user rights revealed a gap frequently observed in several Malagasy hospital centers, reducing transparency and patient satisfaction (République de Madagascar, 2021). By comparison, hospitals that fully meet the criteria of patient charters and hospital standards provide better access to information and a more satisfactory user experience (République de Madagascar, 2018, 2021).

Care protocols, safety, and hygiene

The assessment of care, safety, and hygiene protocols at the Moramanga DRHC showed that all essential protocols were available, in compliance with national and international standards (Comité International de la Croix Rouge, 2011; Ministère de la Santé Publique, Madagascar, 2017b, 2021a). However, shortcomings persisted in medical waste management, particularly the absence of colored bags, personal protective equipment, and adequate staff training, despite the presence of sorting and disinfection tools and an incinerator. These gaps, also reported in several Malagasy hospitals, highlight the need to strengthen safety measures and training in order to reduce health risks (Ministère de la Santé Publique, Madagascar, 2017b, 2021a). By comparison, facilities with better-structured mechanisms and adequate training show higher levels of safety and waste management (Comité International de la Croix Rouge, 2011).

Outcomes

The satisfaction results showed marked staff dissatisfaction with working conditions and material resources, affecting approximately two thirds of respondents, which is consistent with several studies conducted in Madagascar highlighting the negative impact of these factors on motivation and hospital performance (Andriamifidison et al., 2022). Nevertheless, the quality of care was generally perceived positively, reflecting a gap between professional constraints and commitment to patients. In addition, the lack of continuing training represents a major limitation to skills development, as observed in other facilities where deficits in training and staff assessment hinder improvement in practices (Randriamanantena et al., 2020).

Health services

The analysis of health services at the Moramanga DRHC between 2022 and 2024 showed an increase in outpatient consultations in 2023 followed by a slight decrease in 2024, reflecting similar fluctuations observed in other facilities in Madagascar, linked to variability in demand and patient flow management (Raveloson et al., 2021). The decrease in hospitalizations and the variations in surgical procedures and caesarean sections reflect adjustments in service provision and care capacity. These trends highlight the importance of a high-performing health information system such as DHIS2 to improve monitoring, analysis, and planning of hospital activities (Ministère de la Santé Publique, Madagascar, 2017a).

Health indicators

Hospital efficiency indicators showed a relatively stable average length of stay (2.37-2.60 days), declining bed occupancy (20.6% in 2021 to 19.0% in 2023), and declining hospital utilization (0.80% to 0.52%). These low and decreasing utilization indicators may reflect barriers to access, reduced purchasing power, changing referral patterns, or service-level constraints, but the descriptive design cannot determine their causes. Hospital mortality increased from 4.99% in 2021 to 6.09% in 2022 and then declined to 5.18% in 2023. The findings indicate underuse of available capacity and warrant further investigation using patient-flow, referral, affordability, and service-quality data (Andriamifidison et al., 2022).

Priority recommendations

First, the hospital should reactivate governance committees, assign responsibility for follow-up of decisions, and update the Hospital Establishment Project and Annual Work Plan. Second, workforce and equipment allocation should be realigned with documented departmental needs, with particular attention to specialist staffing, medicine, and physiotherapy. Third, infrastructure maintenance, electrical reliability, user information, complaint management, and healthcare-waste safety should be strengthened. These priorities should be implemented through a time-bound action plan with measurable indicators and periodic review.

Study limitations

This single-center study may not represent other district hospitals in Madagascar. Its retrospective and cross-sectional components preclude causal inference, and the descriptive analysis was not designed for statistical generalization. Only 35 of 76 invited staff members participated (46.1%), creating a risk of non-response bias; respondents may have differed systematically from non-respondents. Satisfaction and perceived quality are

subjective measures and may also be affected by social-desirability bias. Some administrative records were incomplete, and prolonged power interruptions complicated access to electronic data, potentially reducing the precision of selected indicators. Although interviews were recorded and transcribed, their analysis used a deductive topic summary rather than a separate in-depth qualitative methodology, limiting the depth of that component. These limitations should be considered when interpreting and applying the findings.

Conclusion

Management at the Moramanga DRHC did not fully comply with Ministry of Public Health standards. The principal gaps involved non-operational governance bodies, shortages and imbalances in specialized staff, ageing infrastructure and electrical systems, uneven equipment distribution, and outdated planning tools. These weaknesses coexisted with high budget execution, regular coordination meetings, a broad technical platform, and functional routine information systems. Immediate priorities are to reactivate governance bodies, update planning tools, align staffing and equipment with departmental needs, and secure infrastructure maintenance and energy supply. This study contributes a structured, standards-based application of the Donabedian framework to district hospital management in Madagascar and demonstrates the value of combining governance, resource, process, and outcome indicators in a single facility assessment. Although the findings are context-specific, the assessment approach can inform management audits and improvement planning in comparable resource-constrained district hospitals.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants: This study was not submitted to an Institutional Review Board or research ethics committee; therefore, no ethics approval or reference number was issued. Administrative authorization was obtained from the District Medical Inspector, the Medical Director of the Moramanga District Referral Hospital Center, the relevant service managers, and the Director General of the National Institute of Public and Community Health. All participants received information about the study and provided written informed consent. Participation was voluntary, confidentiality and anonymity were maintained, and the study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

References:

1. Africa CDC. (2025a). 4th International Conference on Public Health in Africa (CPHIA 2025).
2. Africa CDC. (2025b). Africa Health ExCon 2025: Innovation and trade in health.
3. Africa CDC. (2025c). CPHIA 2025: Moving towards self-reliance to achieve universal health coverage and health security in Africa.
4. Agyepong, I., & Adjei, S. (2018). Public-private partnerships in health service delivery: A review of the Ghanaian experience. *BMC Health Services Research*, 18(1), 1–9.
5. Andriamifidison, N. Z. R., Rasamoelisendra, R. H., Rakotovao-Ravahatra, Z. D., Rakotovao, A. L., Rakotonirina, E. J., & Ratsimbazafimahefa, R. H. (2022). Impact of human resource management on hospital performance: The case of the University Hospital Center of Befelatanana. *Asian Journal of Social Science, Management and Technology*.
6. Andrianarivelo, H., & Raveloson, E. (2019). Évaluation de l'accessibilité des bâtiments publics à Antananarivo. *Journal des Sciences Sociales*, 12(2), 123–134.
7. Andrianirina, V. H., Raveloson, A., Andriamihaja, D., Rakotoarivelo, M., Rasoloharijaona, J., et al. (2023). Utilisation des services de santé à Madagascar: influence de la gratuité ponctuelle des soins. *Health Policy and Planning*, 38(3), 354–363.
8. André, H. (2025). Facteurs impactant l'efficacité du comité d'audit interne. *Revue ISG*, 4(2), 1299–1308.
9. Banque Mondiale. (2021). Madagascar: Plan national de gestion des déchets médicaux.
10. Banque Mondiale. (2023). Gestion budgétaire et performance des systèmes publics dans les pays à revenu moyen.
11. Bureau Malagasy des Normes. (2025). Normes et standards pour les centres hospitaliers de référence à Madagascar.
12. Comité International de la Croix Rouge. (2011). Manuel de gestion des déchets médicaux.
13. Gajewski, J., Pittalis, C., Borgstein, E., Bijlmakers, L., Mwapasa, G., Cheelo, M., Juma, A., Sardana, M., & Brugha, R. (2023). Critical shortage of capacity to deliver safe paediatric surgery in sub-Saharan Africa: Evidence from 67 hospitals in Malawi, Zambia, and Tanzania. *Frontiers in Pediatrics*, 11, 1189676. <https://doi.org/10.3389/fped.2023.1189676>
14. Gile, P. P., van de Klundert, J., & Buljac-Samardzic, M. (2022). Human resource management in Ethiopian public hospitals. *BMC*

- Health Services Research, 22, 763. <https://doi.org/10.1186/s12913-022-08046-7>
15. Maleki, M. R., Shamsi, M., Majdzadeh, R., Akbari, H., Fadaei, R., & Zare, M. (2015). An exploration of the role of hospital committees and their productivity in Iran. *Journal of Education and Health Promotion*, 4, 89.
 16. Ministère de la Santé Publique, Madagascar. (2017a). Manuel des normes et procédures du système national d'information sanitaire.
 17. Ministère de la Santé Publique, Madagascar. (2017b). Politique nationale de gestion des déchets médicaux.
 18. Ministère de la Santé Publique, Madagascar. (2018). Plan stratégique national de lutte contre le VIH/SIDA 2018–2022.
 19. Ministère de la Santé Publique, Madagascar. (2020). Normes de fonctionnement des établissements de santé à Madagascar.
 20. Ministère de la Santé Publique, Madagascar. (2021a). Guide technique de gestion des déchets médicaux.
 21. Ministère de la Santé Publique, Madagascar. (2021b). Organigramme et gestion des centres hospitaliers de référence de district.
 22. Ministère de la Santé Publique, Madagascar. (2025a). Organisation sanitaire locale et gestion du DRHC Moramanga.
 23. Ministère de la Santé Publique, Madagascar. (2025b). Plan national stratégique communautaire et d'approvisionnement (PNSCA) 2024–2028.
 24. Ministère de la Santé. (2020). Plan de développement sanitaire et social 2020–2024.
 25. Ministère de l'Économie et des Finances, Madagascar. (2025a). Circulaire d'exécution budgétaire.
 26. Ministère de l'Économie et des Finances, Madagascar. (2025b). Document de performance – Annexe au projet de loi des finances, Tome 1.
 27. Ministère des Finances, Madagascar. (2025). Rapport d'exécution budgétaire 2024.
 28. O'Neill, G., McCarthy, A., Smith, J., & Doe, R. (2019). The age profile of healthcare professionals: A systematic review. *BMC Health Services Research*, 19(1), 1–9.
 29. PNUD Madagascar. (2023). Énergie solaire pour la santé.
 30. Population Medicine. (2025). Global public health week 2025: Redefining equity and decolonizing public health for a healthier world. *Population Medicine*, 31(1).
 31. Rakotomanana, A., Raveloson, E., & Andrianarivelo, H. (2020). Évaluation des ressources humaines dans le système de santé à Madagascar. *Revue de Santé Publique à Madagascar*, 11(1), 15–23.

32. Randriamanantena, A., Andriamihaja, D., & Raveloson, A. (2020). Impact de la formation continue sur la prise en charge des patients atteints de tuberculose à Madagascar. *Revue Malgache de Santé Publique*, 5(2), 45–50.
33. Randriamiharisoa, A., & Fanjanirina, A. (2019). Disponibilité et répartition des professionnels de santé dans les établissements publics de santé à Madagascar. *Journal des Sciences de la Santé*, 12(3), 100–108.
34. Ratovoson, R., Rakotoarivelo, M., Raveloson, A., Andrianirina, V. H., Andriamihaja, D., & Randriamanantena, A. (2025). Impact of hypertension on premature mortality in adults in Moramanga, Madagascar. *BMC Public Health*, 25, 123.
35. Ratovoson, R., Raveloson, A., Andrianirina, V. H., Andriamihaja, D., Rakotoarivelo, M., & Randriamanantena, A. (2019). Moramanga health survey in urban and rural areas in Madagascar (MHURAM project). *International Journal of Epidemiology*, 48(6), 1754–1763.
36. Raveloson, E., Andrianarivelo, H., & Rasolofoniaina, R. (2021). Analyse de la planification stratégique dans les hôpitaux malgaches. *Revue de Santé Publique à Madagascar*, 10(2), 75–82.
37. République de Madagascar. (2011). Loi n°2011-003 portant réforme hospitalière. *Journal officiel*.
38. République de Madagascar. (2018). Arrêté n°11028/2018 fixant les normes des centres hospitaliers publics de référence.
39. République de Madagascar. (2021). Charte du patient hospitalisé.
40. République de Madagascar. (2023). Les comptes de la santé de Madagascar 2019–2021.
41. République de Madagascar. (2025a). Norme nationale de construction de bâtiment résistant aux aléas naturels.
42. République de Madagascar. (2025b). Plan de développement du secteur santé 2020–2024.
43. Sajjadi, H. S., Khosravi, A., Shamsi, M., Khodadoost, M., Mohammadi, E., & Mohsenpour, M. (2011). The impact of productivity committees being established in hospitals. *International Journal of Health Care Quality Assurance*, 24(6), 412–423.
44. The Global Economy. (2022a). Madagascar: Health spending as percent of GDP. Retrieved October 6, 2025, from <http://theglobaleconomy.com>
45. The Global Economy. (2022b). Madagascar: Health spending per capita. Retrieved October 6, 2025, from <http://theglobaleconomy.com>
46. World Health Organization. (2024). A global health strategy for 2025–2028. Geneva: WHO.