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Hospital Management: The Case of the District Referral Hospital Center of Moramanga

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Abstract

Background: Hospital management remains a major challenge for ensuring quality care in a context marked by multiple health issues. This study aimed to identify the components of hospital management and assess the practices and approaches implemented at the District Referral Hospital Center (DRHC) of Moramanga.

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: Results showed a very high budget execution rate of approximately 99.5% over the study period, reflecting effective resource management despite a slight decline. Equipment coverage was satisfactory overall, reaching 80.94%. Reception and patient intake services were

adequately organized, with six of eight required standards available, including triage systems, dedicated staff, and structured reception areas. Hospital activity trends revealed a marked increase in outpatient consultations in 2023, followed by a slight decline in 2024. Efficiency indicators showed a stable average length of stay of around 2.4 days, while the bed occupancy rate slightly decreased from 20.6 in 2022 to 19 in 2023. The hospital utilization rate also progressively declined from 0.8% to 0.52%.

Conclusion: The need to strengthen medical staffing and increase revenue through investments, particularly by creating improved inpatient accommodation conditions, is evident in order to improve the quality of care and hospital performance, while taking into account the specific needs of patients and staff.

Keywords: Donabedian; hospital; management; 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 management of DRHCs in Madagascar, particularly that of the Moramanga DRHC, which serves a total population of 374,557 inhabitants, is essential to improving public health in the Alaotra-Mangoro region. Studies have shown a high prevalence of hypertension and its effects on premature mortality, highlighting the importance of effective management of resources and health services (Ratovoson et al., 2019, 2025). Given its strategic position and its role in coordination with peripheral services, the Moramanga DRHC provides a relevant setting for analyzing the challenges and opportunities related to decentralized hospital management in a resource-limited context (Ministère de la Santé Publique, Madagascar, 2025a). The central question is whether the hospital management of the Moramanga DRHC fully complies with the standards established by the Ministry of Public Health. The hypothesis formulated is that this management does not fully comply with these standards. In this context, the main aim of the study was to assess the compliance of hospital management within the Moramanga DRHC. To achieve this, the specific objectives were to examine the administrative organization, identify the different components of facility management, evaluate the management practices and approaches applied, and propose appropriate recommendations to improve performance and the quality of care provided. The analysis is based on the Donabedian model, which is widely used to assess the quality of hospital facilities. This model distinguishes three complementary dimensions: structure (resources, infrastructure, and organization), process (care practices, protocols, hygiene, and reception), and outcomes (satisfaction, performance, and health indicators). This conceptual framework was adapted to take into account the specific characteristics and constraints of the Moramanga DRHC. This work is divided into five sections: general presentation, methodology, results, discussion and recommendations, and a conclusion addressing prospects for the health system in the region.

Methods

The study was conducted at the District Referral Hospital Center of Moramanga, located in the heart of the city of Moramanga. It is a medical and surgical center covering an area of approximately 6 hectares. This was an evaluative, retrospective, descriptive, and cross-sectional study using a mixed quantitative and qualitative approach. The target population consisted of hospital staff, including medical, paramedical, and administrative personnel who had at least six months of seniority in the facility at the time of the survey. In addition, hospital administrative documents from 2022 to 2024 were reviewed. The variables studied were divided into three complementary categories according to the Donabedian model: structure variables, process variables, and outcome variables. Exhaustive sampling

was used during the study period. Regarding data collection tools, pre-established and pre-tested survey forms and observation grids aligned with national standards were used. The data were processed using Excel and Epi Info version 7. Descriptive analyses were performed using frequencies, proportions, means, and standard deviations.

Results

The mean age of staff was 38.29 ± 10.89 years, with a female predominance (60%); the sex ratio was 0.67. The assessment of the hospital structure highlighted a formally complete institutional organization, with all required bodies in place. However, their operationality remained limited (40%), reflecting shortcomings in the effective functioning of governance bodies. In terms of functional organization, the facility showed partial structuring: some key elements were available (organizational chart, signage), but essential tools such as internal regulations, the patient charter, and complaint management mechanisms were lacking. By contrast, the spatial organization was considered satisfactory, with full availability of infrastructure promoting accessibility and patient reception.

Interdepartmental coordination was ensured regularly through weekly meetings of the management staff and quarterly general assemblies, ensuring monitoring of activities.

Regarding strategic planning, although the DRHC had a Hospital Establishment Project (PEH) and an Annual Work Plan (PTA), the lack of updating of these documents limited their operational effectiveness. The health information system was functional, with essential tools such as the RMA and DHIS2 available, facilitating data collection and management.

Finally, the technical platform was complete and diversified, covering the main areas of care (surgery, imaging, laboratory, emergency care, hospitalization, specialized services, and support services), allowing comprehensive and integrated patient care.

Human Resource Management

The analysis of human resource management at the Moramanga DRHC showed a total workforce of 76 staff members compared with a standard of 84, corresponding to an overall deficit of approximately 9.5%. Staff distribution revealed significant imbalances: a marked shortage of specialist physicians, general practitioners, and certain technical profiles (operating room nurses, dental assistants, support staff), contrasting with an excess of general nurses, midwives, and some specialized paramedical staff (anesthetists, physiotherapists, and occupational therapists). In addition, the presence of profiles not included in the standards (ophthalmic care staff and an orthopedic appliance technician) represented an asset for the care offer.

With regard to governance, only 28.6% of respondents considered the management committees to be effective, while a larger proportion (37.1%) considered their functioning inadequate. Nevertheless, transparency in decision-making was perceived positively by 51.4% of staff, reflecting a distinction between organizational effectiveness and perception of governance.

The working environment, particularly in terms of continuing training, showed targeted efforts mainly focused on HIV care, tuberculosis care, and laboratory activities, thereby contributing to strengthening staff skills.

Overall, despite the existence of organizational structures and an adequate technical platform, shortages of qualified human resources, imbalances in staff distribution, and the low operationality of management bodies limited the effectiveness of hospital functioning and the quality of governance.

Infrastructure

The assessment of infrastructure at the Moramanga DRHC showed a facility established on a 6-hectare site, with buildings generally in good functional condition but characterized by ageing installations and a need for regular maintenance. Non-compliance persisted, particularly in the emergency treatment unit (ATU), as well as failures in the electrical system, worsened by energy supply constraints. Access to basic services was ensured, with all departments having access to water and electricity, although the technical networks remained outdated.

Biomedical equipment coverage was generally satisfactory (80.94%) but unevenly distributed across departments, with marked deficits in medicine (35.89%) and physiotherapy (39.53%), and surpluses in other units, particularly surgery (115.12%), the pharmacy (200%), and the administrative block (140.54%). In addition, the administrative situation related to discharge documentation was marked by documentary irregularities, with partial loss of accounting archives requiring reconstruction of files.

These findings highlight relatively functional but ageing infrastructure, associated with problems of maintenance, normative compliance, and energy management, as well as unequal distribution of equipment, reflecting structural challenges commonly found in resource-limited hospital facilities.

Material Resources and Equipment

The analysis showed overall equipment coverage of 80.94%, indicating a relatively satisfactory situation but one marked by substantial disparities between departments. Some essential sectors, particularly

medicine (35.89%) and physiotherapy (39.53%), had critical shortages, while others, such as surgery (115.12%) and the pharmacy (200%), had equipment surpluses suggesting an imbalanced allocation of resources. Furthermore, despite the generally good condition of infrastructure (90%), non-compliance persisted in the emergency treatment unit, and outdated electrical installations, worsened by an energy deficit, compromised the optimal functioning of the facility. These findings reflect major structural issues combining inadequate material resources, ageing infrastructure, and energy constraints, which may affect the quality of care.

Financial Resource Management

Between 2022 and 2024, the financial situation of the Moramanga DRHC was characterized by initial budgetary stability followed by a significant increase in public subsidies in 2024 (+36.8%). Conversely, the facility's own resources decreased progressively until 2023, with a slight recovery in 2024. Hospital revenue showed heterogeneous trends across departments, with an overall downward trend of approximately 15% over the period. Despite these fluctuations, the budget execution rate remained very high (approximately 99%), reflecting a strong capacity to use allocated funds, but not necessarily indicating an equivalent improvement in overall financial performance.

Process Assessment

The process assessment revealed an organization that was generally functional but incomplete. Reception met 75% of standards (6/8), with shortcomings in user information related to the absence of posted opening hours and patient rights. Care protocols were fully available and covered the essential health domains. Regarding hygiene and safety, waste management reached partial compliance (9/12), with key mechanisms present but notable gaps in protective equipment, differentiated sorting, and staff training, exposing the facility to health risks.

Outcome Assessment

The outcome assessment highlighted contrasting performance within the DRHC. Staff satisfaction remained low regarding working conditions, material resources, and opportunities for continuing training, while the quality of care provided to patients was well appreciated. The analysis of hospital activities between 2022 and 2024 showed an increase in outpatient consultations up to 2023, followed by a slight decrease in 2024, with substantial variations across departments. Hospital efficiency indicators at the Moramanga DRHC showed a stable average length of stay (approximately 2.4 days), a slight decrease in the bed occupancy rate (from

20.6 to 19 between 2021 and 2023), and a decrease in the hospital utilization rate (from 0.8% to 0.52%). The hospital mortality rate, after increasing in 2022 (6.09%), improved in 2023 (5.18%). In addition, the facility had several reception standards and essential care protocols, indicating a functional organization. However, shortcomings persisted in user information and safe medical waste management, particularly the absence of adequate protective equipment and trained personnel. These results highlight the need to strengthen material resources, working conditions, and safety measures in order to improve the overall quality of hospital services.

Discussion

Population Characteristics

The analysis of staff demographic characteristics showed a relatively young population, with a mean age of 38.29 ± 10.89 years, lower than that reported in some international studies. A study by O'Neill et al. (2019) showed that the mean age of health professionals was 41 years, indicating a tendency toward a younger workforce in the context analyzed. The sex distribution showed a female predominance (60%) compared with men (40%), consistent with global trends in the health sector described by the WHO. These results reflect a dynamic staff structure representative of profiles usually observed in health facilities.

Structure Assessment

The analysis of institutional organization revealed low operationality of governance structures, with only 40% of committees being functional. This situation reflects a significant gap between the formal existence of bodies and their effective functioning, which may be linked to a lack of resources, low member involvement, or organizational shortcomings. This deficit undermines governance, decision-making, and monitoring of health activities.

Previous studies confirm that regularity, active participation of members, and adequate administrative support are essential to ensure the effectiveness of hospital committees and improve the quality of care.

An Iranian study reported hospital committee operationality 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 analysis of functional organization showed partial structuring of the facility, marked by the presence of governance tools such as a functional organizational chart, service indicators, and pricing of services. However, the

absence of essential documents (internal regulations, patient charter, complaint box) revealed shortcomings in transparency, user participation, and quality improvement. The lack of feedback mechanisms and information on drug prices also undermines financial transparency and patient trust. These gaps contradict WHO recommendations, Law No. 2011-003, a reform intended to modernize the management of health facilities by promoting clear organization and better allocation of resources (République de Madagascar, 2011), and the orientations of the 2020-2024 Health and Social Development Plan (PDSS), which aim to promote effective and user-centered hospital governance (Ministère de la Santé, 2020).

The analysis of spatial organization revealed complete accessibility of infrastructure for persons with reduced mobility (PRM), with 100% availability of adapted facilities. This situation reflects a good level of layout and promotes inclusion of people with disabilities. However, data from the literature show that accessibility of public buildings in Madagascar remains generally insufficient, highlighting substantial disparities in the application of accessibility standards. According to research conducted by Andrianarivelo and Raveloson (2019), only 30% of public buildings in Antananarivo were accessible to PRM.

Interdepartmental coordination at the Moramanga DRHC appeared well structured through regular weekly management staff meetings and quarterly general assemblies. These mechanisms promote monitoring of activities, communication, and collaboration between departments, thereby contributing to better organizational effectiveness. Unlike some Malagasy health facilities where coordination remains inadequate, as highlighted by Raveloson et al. (2021), the practices observed at the Moramanga DRHC constitute a positive example of hospital governance.

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 assessment of the facility's computerization system showed complete availability of essential tools, such as the RMA and DHIS2 software. This situation is very positive because it allows effective collection and management of health data, which can significantly improve quality of care and informed decision-making. In contrast, many hospitals in Madagascar face computerization difficulties, with obsolete or non-existent systems, limiting their ability to use data to optimize health services (Raveloson et al., 2021). The example of the Moramanga DRHC could serve

as a model for other facilities seeking to strengthen their health information systems.

The Moramanga DRHC has a complete technical platform, offering a broad range of medical services that meet the needs of the population. The availability of specialized services such as surgery, ophthalmology, and functional rehabilitation, as well as infrastructure for emergency care and hospitalization, complies with the minimum standards recommended by the Ministry of Public Health in Madagascar (Ministère de la Santé Publique, Madagascar, 2020). In contrast, many hospitals in Madagascar do not have such a diversity of services, which hinders their capacity to provide integrated care (Raveloson et al., 2021). Thus, the Moramanga DRHC stands out as a model of excellence in patient care, contributing to improved quality of care in the country.

Human Capital

The analysis of human capital at the Moramanga DRHC highlighted an unequal distribution of human resources, characterized by an excess of general practitioners, general nurses, and midwives, contrasting with a major shortage of specialist physicians. This situation may limit the provision of specialized care despite the positive contribution of certain specific profiles not included in the standards, such as ophthalmic care nurses and an orthopedic appliance technician (Ministère de la Santé Publique, Madagascar, 2020; Raveloson et al., 2021). Similar findings have been reported in Ghana, where imbalances in staff distribution affected the quality of care (Agyepong & Adjei, 2018). These shortcomings highlight the importance of balanced human resource management in order to respond effectively to the health needs of the population.

The assessment of management committees at the Moramanga DRHC showed low overall satisfaction, with only 28.6% of respondents considering their functioning effective, despite a relatively positive perception of decision-making transparency (51.4%). This situation indicates that internal communication has improved, but does not translate into sufficient operational effectiveness. Similar results have been observed in sub-Saharan Africa, where transparency is often considered satisfactory despite the weak performance of management committees (Agyepong & Adjei, 2018). Thus, committee effectiveness depends on their structuring, member involvement, and follow-up of decisions; transparency alone is insufficient to ensure good governance (André, 2025). The analysis of the working environment highlighted the importance of continuing training for health personnel, particularly for HIV and tuberculosis care. At the Moramanga DRHC, the training provided complied with the national guidelines of the Ministry of Public Health, which recommend regular

strengthening of skills to improve the quality of care (Ministère de la Santé Publique, Madagascar, 2018). These practices are consistent with literature showing that training of health professionals contributes to better care and reduced transmission of infections (Randriamanantena et al., 2020).

Infrastructure and Equipment

The analysis of buildings and installations at the Moramanga DRHC showed infrastructure that was generally in good condition but required regular maintenance and modernization, particularly of electrical installations. Some units, such as the emergency treatment unit, did not meet standards in terms of dimensions and capacity, and the absence of high-end rooms represented an additional limitation. These shortcomings indicate deviations from national construction standards for public facilities in Madagascar, which require infrastructure adapted to natural hazards and to hospital safety and functionality standards (Bureau Malagasy des Normes, 2025; République de Madagascar, 2025a). Compliance work is therefore necessary to improve the safety and performance of the facility.

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

The analysis of material resources and equipment at the Moramanga DRHC revealed satisfactory overall coverage (80.94%), but with significant disparities between departments. Departments such as medicine (35.89%) and physiotherapy (39.53%) had equipment deficits, while surgery/operating room (115.12%) and the pharmacy (200%) showed over-equipment. However, this over-equipment does not guarantee adequacy in relation to the actual needs of departments and may reflect unplanned acquisition management. According to the literature, these imbalances are often linked to uncoordinated donations or purchases and may generate additional costs without directly improving the quality of care (Ministère de la Santé

Publique, Madagascar, 2020). Better planning and regular needs assessment are therefore necessary to optimize the use of material resources.

Financial Resources

State Budget

The study showed budget stagnation between 2022 and 2023, followed by a significant increase of 36.8% between 2023 and 2024, reflecting a notable improvement in allocated financial resources. This dynamic is comparable to trends observed in other Malagasy health facilities, where substantial budget increases were needed to respond to growing needs for equipment and services, in line with multi-year health development plans (Ministère de la Santé, 2020; République de Madagascar, 2025b).

Facility Own Resources

The own-resource budget in Ariary for the DRHC decreased progressively from 74,348,780 in 2022 to 63,170,082 in 2023, indicating a decline in allocated resources. In 2024, a slight increase was observed, with a budget of 65,889,400 Ariary. Total revenue decreased by approximately 15% over this period, reflecting fluctuations in the hospital's overall financial performance.

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

The budget execution rate for the years 2022 to 2024 at the DRHC remained very high, around 99.5%, reflecting effective resource management

despite a slight decrease. This level of execution is comparable to that observed in several middle-income countries, where rates above 95% are generally considered indicators of sound budgetary control, reflecting the capacity to use planned funds on time (Banque Mondiale, 2023; Ministère des Finances, Madagascar, 2025).

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 meet 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 at the Moramanga DRHC showed a stable average length of stay (approximately 2.4 days), a slight decrease in the bed occupancy rate (from 20.6 to 19 between 2021 and 2023), and a decrease in the hospital utilization rate (from 0.8 to 0.52). These trends may be explained by the persistent effects of the pandemic, reduced purchasing power, and difficulties in accessing care. The hospital mortality rate, after increasing in 2022 (6.09%), improved in 2023 (5.18%), indicating moderate overall performance. These results are comparable to those observed in other referral hospitals in Madagascar, which face similar constraints in bed management and patient care (Andriamifidison et al., 2022).

Conclusions

The study of hospital management at the Moramanga DRHC shows that management does not fully comply with the standards of the Ministry of Public Health, confirming the initial hypothesis. The results highlight several structural and organizational shortcomings, including a shortage of specialized staff, ageing equipment, electricity supply problems, logistical weaknesses, and deficiencies in planning and governance. These constraints negatively affect the quality and continuity of care, as well as the overall performance of the facility and staff satisfaction. These findings are consistent with studies conducted in similar contexts where dysfunctions in hospital systems limit the effectiveness of health services. Improving DRHC performance, therefore, requires strengthening human resources, modernizing infrastructure, securing the energy supply, computerizing services, updating planning tools, and revitalizing governance bodies.

Optimized hospital management appears essential to guarantee quality, equitable, and accessible care.

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