PriMera Scientific
Medicine and Public Health
Volume 8 Issue 6 June 2026
DOI: 10.56831/PSMPH-08-293
ISSN: 2833-5627

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

Type: Case Report
Received: May 24, 2026
Published: June 09, 2026

Citation:
Ravaka Niaina Sabrina Andriamiarisoa., et al. "Hospital Management: The Case of the District Referral Hospital Center of Moramanga". PriMera Scientific Medicine and Public Health 8.6 (2026): 03-11.

Niaina Zakaria Rodolphe Andriamifidison[1], Hortense Haingovololona Ranaivoarison[2], Ravaka Niaina Sabrina Andriamiarisoa[1]*, Voahanginirina Ramanantsoa[2], Mamy Jean Jacques Razafimahatratra[2] and Fidiniaina Mamy Randriatsarafara[1]

[1]*Faculty of Medicine Antananarivo, University of Antananarivo, Madagascar*

[2]*National Institute of Public and Community Health, Madagascar*

***Corresponding Author:** Ravaka Niaina Sabrina Andriamiarisoa, Faculty of Medicine Antananarivo, Lot MIA 41Ter Miadana Ambohitrimanjaka, Antananarivo, Madagascar.

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 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

Abbreviations

DRHC: District Referral Hospital Center.
AWP: Annual Work Plan.
WHO: World Health Organization.
DHIS2: District Health Information Software 2.
MAR: Monthly Activity Report.

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 [1, 2]. Social inequalities also make access to health care for all difficult [3]. 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 [1]. In Africa, although progress has been made, infectious diseases remain a major problem, and the rise of chronic diseases further complicates the situation [4, 5]. Current policies also emphasize the importance of developing local solutions to better meet needs [6].

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 [7, 8]. 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 [9]. 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 [10, 11].

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 [12, 13]. 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 [14]. 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.

Materials and 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 and Discussion

Characteristics of the population

The average age of staff is 38.29 ± 10.89 years, with a predominance of women (60%), the sex ratio being 0.67. Analysis of staff demographic characteristics reveals a relatively young workforce, with a mean age of 38.29 ± 10.89 years, lower than that reported in some international studies. A study conducted by O'Neill and Smith J. [15] showed that the mean age of healthcare professionals was 41 years, highlighting a trend towards a younger workforce in the context analysed. The gender breakdown reveals a predominance of women (60%) compared to men (40%), in line with global trends in the health sector described by the WHO. These results reflect a dynamic workforce structure that is representative of the profiles typically observed in healthcare settings.

Assessment of the structure

The assessment of the hospital structure reveals a formally complete institutional organization, with all the required bodies in place. However, their operational capacity remains limited (40%), reflecting shortcomings in the effective functioning of the governance bodies. Analysis of the institutional organization reveals low operational effectiveness of governance structures, with only 40% of committees functioning. This situation reflects a significant gap between the formal existence of these bodies and their actual functioning, which may be linked to a lack of resources, low member engagement or organizational shortcomings. This deficit compromises governance, decision-making and the monitoring of health activities. Previous studies confirm that regularity, active member participation and adequate administrative support are essential to ensure the effectiveness of hospital committees and improve the quality of care. An Iranian study reported that hospital committees were operational around 58% of the time, highlighting the still insufficient presence of senior management in these bodies [16]. Another study indicates that the productivity and regularity of committees are essential for effective governance, combined with strong member participation and rigorous monitoring of decisions [17].

In terms of functional organization, the facility is only partially structured: certain key elements are in place (organizational chart, signage), but essential tools such as internal regulations, a patient charter and complaint-handling procedures are lacking. Analysis of the functional organization highlights a partial structuring of the institution, characterised by the presence of governance tools such as the functional organization chart, service indicators and pricing of procedures. However, the absence of essential documents (internal regulations, patient charter, complaints box) reveals shortcomings in terms of transparency, user participation and quality assurance. The lack of feedback mechanisms and information on medicine prices also undermines financial transparency and patient confidence. These shortcomings are at odds with WHO recommendations, Law No. 2011-003, a reform aimed at modernising the management of healthcare facilities by promoting clear organization and better resource allocation [18], and the guidelines of the Madagascar Health Sector Development Plan 2020-2024, which aim for effective, user-centred hospital governance [19].

On the other hand, the spatial layout is considered satisfactory, with all the necessary facilities in place to facilitate patient access and reception. An analysis of the spatial layout reveals that infrastructure is fully accessible to people with reduced mobility, with 100% availability of adapted facilities. This situation reflects a high standard of design and promotes the inclusion of people with disabilities. However, data from the literature show that the accessibility of public buildings in Madagascar, remains generally inadequate, highlighting significant 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 people with reduced mobility [20].

Inter-departmental coordination is ensured on a regular basis through weekly management staff meetings and quarterly general assemblies, ensuring that activities are monitored. Interdepartmental coordination at the Moramanga Regional Hospital appears well-structured thanks to the regular holding of weekly management meetings and quarterly General Assemblies. These mechanisms facilitate the monitoring of activities, communication and collaboration between departments, thereby contributing to greater organizational efficiency. In contrast to certain Malagasy healthcare facilities where coordination remains inadequate, as highlighted in a study by Raveloson et al. [21], the practices observed at the Moramanga Regional Hospital (DRHC) constitute a positive example of hospital governance.

Regarding strategic planning, although the DRHC has a Hospital Development Plan (HDP) and an Annual Work Plan (AWP), the failure to update these documents limits their operational effectiveness. The evaluation of the Moramanga DRHC demonstrates sound strategic planning thanks to the existence of a Hospital Development Plan (HDP) and an Annual Work Plan (AWP), but the failure to update these documents raises concerns regarding their relevance in the face of changing healthcare needs. This issue is common to many hospitals in Madagascar, where strategic planning is often inadequate, thereby limiting the effectiveness of care [21].

The health information system is operational, with essential tools such as MAR and DHIS2 available, facilitating data collection and management. An assessment of the IT system within the healthcare facility shows that essential tools, such as the MAR and DHIS2 software, are fully available. This is a very positive development, as it enables the effective collection and management of health data, which can significantly improve the quality of care and support informed decision-making. Conversely, many hospitals in Madagascar face challenges with digitalization, with obsolete or non-existent systems, thereby limiting their ability to use data to optimize health services [21]. The example of the Moramanga DRHC could serve as a model for other facilities seeking to strengthen their health information systems.

Finally, the technical facilities are comprehensive and diverse, covering the main areas of care (surgery, imaging, laboratory, A&E, inpatient care, specialist services and support), enabling comprehensive and integrated patient care. The Moramanga DRHC boasts a comprehensive range of facilities, offering a wide array of medical services that meet the needs of the population. The availability of specialist services such as surgery, ophthalmology and rehabilitation, as well as facilities for emergency care and inpatient treatment, meets the minimum standards recommended by the Ministry of Public Health in Madagascar [22]. However, many hospitals in Madagascar do not have such a diverse range of services, which hinders their ability to provide integrated care [21]. Thus, the Moramanga DRHC stands out as a model of excellence in patient care, contributing to the improvement of the quality of care in the country.

Human resources management

An analysis of human resources management at the Moramanga Regional Hospital reveals a total workforce of 76 staff members against a standard of 84, representing an overall shortfall of approximately 9.5%. The distribution of staff reveals significant imbalances: a marked shortage of specialist doctors, general practitioners and certain technical roles (operating theatre nurses, dental assistants, support staff), contrasting with a surplus of general nurses, midwives and certain specialist paramedical staff (anesthetists, physiotherapists, occupational therapists). Furthermore, the presence of roles not covered by the standards (ophthalmic care, orthopedic technicians) is an asset to the provision of care. An analysis of human capital at the Moramanga DRHC highlights an uneven distribution of human resources, characterized by a surplus of general practitioners, general nurses and midwives, contrasting with a significant shortage of specialist doctors. This situation may limit the provision of specialist care despite the positive contribution of certain specific roles not covered by the standards, such as ophthalmic nurses and orthopedic technicians [21]. Similar findings have been reported in Ghana, where imbalances in staff distribution were affecting the quality of care [22]. These shortcomings underscore the important role of balanced human resources management in effectively meeting the population's health needs.

Regarding governance, only 28.6% of respondents consider management committees to be effective, whilst a larger proportion (37.1%) consider their functioning to be inadequate. Nevertheless, transparency in decision-making is viewed positively by 51.4% of staff, reflecting a disconnect between organizational effectiveness and perceptions of governance. The evaluation of the management

committees at the Moramanga Regional Hospital (DRHC) shows low overall satisfaction, with only 28.6% of respondents considering them to be effective, despite a relatively positive perception of transparency in decision-making (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 deemed satisfactory despite poor performance by management committees [23]. Thus, the effectiveness of committees depends on their structure, the involvement of members and the follow-up of decisions, as transparency alone is insufficient to guarantee good governance [24].

The working environment, particularly in terms of continuing professional development, shows targeted efforts, mainly focused on the management of HIV, tuberculosis and laboratory activities, contributing to the strengthening of staff skills. Analysis of the working environment highlights the importance of continuing professional development for healthcare staff, particularly in the management of HIV and tuberculosis. At the Moramanga Regional Hospital, the training provided complies with the national guidelines of the Ministry of Public Health, which recommend regular skills enhancement to improve the quality of care [25]. These practices are consistent with the literature, which shows that training for healthcare professionals contributes to better care and a reduction in the transmission of infections [24].

Overall, despite the existence of organizational structures and adequate technical facilities, shortages of qualified staff, imbalances in staff distribution and the poor operational effectiveness of management bodies limit the efficiency of hospital operations and the quality of governance.

Infrastructure and equipment

An assessment of the infrastructure at Moramanga Regional Hospital reveals a facility situated on a 6-hectare site, with buildings generally in good working order, but characterized by ageing facilities and a need for regular maintenance. Non-compliances persist, particularly in the Acute Treatment Unit (ATU), as well as faults in the electrical system exacerbated by energy supply constraints. Access to basic services is ensured, with all departments having access to water and electricity, although the technical networks remain outdated. An analysis of the buildings and facilities at the Moramanga Regional Hospital (DRHC) shows that the infrastructure is generally in good condition but requires regular maintenance and modernization, particularly of the electrical systems. Some units, such as the ATU, do not meet standards in terms of size and capacity, and the lack of high-specification rooms is a further limitation. These shortcomings reflect deviations from Madagascar's national building standards for public institutions, which require infrastructure adapted to natural hazards and meeting hospital safety and functionality standards [26, 27]. Consequently, compliance works are necessary to improve the facility's safety and performance.

Coverage of biomedical equipment is generally satisfactory (80.94%), but unevenly distributed across departments, with significant shortfalls in medicine (35.89%) and physiotherapy (39.53%) and surpluses in other units, notably surgery (115.12%), pharmacy (200%) and the administrative block (140.54%). Furthermore, the administrative situation regarding the discharge of accounts is marked by documentary irregularities, with a partial loss of accounting records necessitating the reconstruction of files. An analysis of the material resources and equipment at the Moramanga Regional Hospital reveals satisfactory overall coverage (80.94%), but with significant disparities between departments. Some departments, such as medicine (35.89%) and physiotherapy (39.53%), have a shortage of equipment, whilst surgery/operating theatre (115.12%) and pharmacy (200%) show an excess. However, this over-provision does not guarantee that the actual needs of the departments are met and may reflect unplanned management of acquisitions. According to the literature, such imbalances are often linked to uncoordinated donations or purchases and can lead to additional costs without a direct improvement in the quality of care [29]. Thus, better planning and regular assessment of needs are necessary to optimize the use of material resources.

These findings highlight infrastructure that is relatively functional but ageing, coupled with issues relating to maintenance, regulatory compliance and energy management, as well as an uneven distribution of equipment, reflecting common structural challenges in hospitals with limited resources.

Material resources and equipment

The analysis reveals an overall equipment coverage rate of 80.94%, indicating a relatively satisfactory situation but one marked by significant disparities between departments. Certain key sectors, notably medicine (35.89%) and physiotherapy (39.53%), exhibit critical shortages, whilst others, such as surgery (115.12%) and pharmacy (200%), display a surplus of equipment, suggesting an unbalanced allocation of resources. Furthermore, despite the generally good condition of the infrastructure (90%), non-compliance issues persist with regard to the ATU, and the dilapidated electrical installations, exacerbated by an energy deficit, compromise the optimal functioning of the facility. These findings reflect major structural challenges, combining inadequate material resources, ageing infrastructure and energy constraints, which are likely to impact the quality of care.

Financial resource management

Between 2022 and 2024, the financial situation of the Moramanga Regional Hospital is characterized by initial budgetary stability followed by a significant increase in public subsidies in 2024 (+36.8%). In contrast, the hospital's own resources have seen a gradual decline until 2023, with a slight recovery in 2024. Hospital revenue shows mixed trends across departments, with an overall downward trend of around 15% over the period. Despite these fluctuations, the budget execution rate remains very high (≈99%), indicating a strong capacity to use funds, but without necessarily reflecting an equivalent improvement in overall financial performance. The study shows a stagnation in the budget between 2022 and 2023, followed by a significant increase of 36.8% between 2023 and 2024, reflecting a notable improvement in the financial resources allocated. This trend is comparable to those observed in other Malagasy healthcare facilities, where substantial budget increases have been necessary to meet growing needs for equipment and services, in line with multi-year health development plans [30]. The DRHC's own resources budget in Ariary decreased gradually from 74,348,780 in 2022 to 63,170,082 in 2023, reflecting a decline in allocated resources. In 2024, a slight increase is observed, with a budget of 65,889,400 Ariary. Total revenue fell 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 institutions 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 [31, 32].

The trend in DRHC revenue between 2021 and 2023 shows an overall decline of 15.04%, with marked drops in outpatient consultations, inpatient care, surgical procedures and laboratory services—a trend similar to the decline in hospital revenue reported at the national level in fragile economic contexts. Conversely, the increase in healthcare revenue (32.03%) appears to be a positive development, reflecting the possible redeployment of clinical activities or an adaptation of service provision, a phenomenon also noted in reports on the resilience of Malagasy health services [33].

The budget execution rate for the years 2022 to 2024 at the DRHC remains very high, at around 99.5%, reflecting effective resource management despite a slight decline. 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 management, reflecting an ability to use planned funds within the time-frame [33, 34].

Process evaluation

The process evaluation reveals an organization that is generally functional but incomplete. Reception meets 75% of the standards (6/8), with shortcomings in user information due to the lack of displayed timetables and rights. Care protocols are fully available, covering essential areas of healthcare. In terms of health and safety, waste management achieves partial compliance (9/12), with key systems in place but notable shortcomings in protective equipment, waste sorting and staff training, exposing staff to health risks. The DRHC Moramanga has an adequate reception organization with six out of eight standards met, including triage, dedicated staff and structured spaces, which meets national requirements for effective hospital reception [35]. However, the lack of displayed timetables and information on patients' rights reveals a shortcoming frequently observed in several Madagascan hospitals, reducing transparency and patient satisfaction [36]. By way of comparison, hospitals that fully meet the criteria of patient charters and hospital standards

offer better access to information and a more satisfactory user experience [37]. An assessment of care, safety and hygiene protocols at the Moramanga Regional Hospital (DRHC) shows that all essential protocols are in place, in accordance with national and international standards [38]. However, shortcomings persist in the management of medical waste, notably the lack of coloured bags, personal protective equipment and insufficient staff training, despite the presence of sorting and disinfection facilities and an incinerator. These shortcomings, also reported in several Madagascan hospitals, highlight the need to strengthen safety measures and training to reduce health risks [18]. By comparison, facilities with better-structured systems and adequate training demonstrate higher levels of safety and waste management [39].

Assessment of results

The evaluation of results highlights mixed performance within the DRHC. Staff satisfaction remains low regarding working conditions, material resources and opportunities for continuing professional development, whilst the quality of care provided to patients is well regarded. Analysis of hospital activities between 2022 and 2024 shows an increase in outpatient consultations up to 2023, followed by a slight decrease in 2024, with significant variations across departments. Hospital efficiency indicators at the Moramanga DRHC reveal a stable average length of stay (≈2.4 days), a slightly declining bed occupancy rate (from 20.6% to 19% between 2021 and 2023) and a decrease in the hospital admission rate (from 0.8% to 0.52%). The in-hospital mortality rate, following an increase in 2022 (6.09%), improved in 2023 (5.18%). Furthermore, the facility has several admission and care protocol standards in place, demonstrating a functional organization. However, shortcomings persist in patient information and the safe management of medical waste, notably the lack of adequate protective equipment and trained staff. These findings highlight the need to strengthen material resources, working conditions and safety measures in order to improve the overall quality of hospital services. The satisfaction results show marked dissatisfaction among staff regarding working conditions and material resources, affecting around 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 [40]. Despite this, the quality of care is generally perceived positively, reflecting a disconnect between professional constraints and commitment to patients. Furthermore, the lack of continuing professional development constitutes a major barrier to skills development, as observed in other institutions where a deficit in staff training and assessment hinders the improvement of practices [41].

An analysis of healthcare services at the Moramanga Regional Hospital Centre (DRHC) between 2022 and 2024 shows an increase in outpatient consultations in 2023 followed by a slight decline in 2024, reflecting similar fluctuations observed in other facilities in Madagascar, linked to variations in demand and the management of patient flows [42]. The decrease in hospital admissions, as well as variations in surgical procedures and cesarean sections, reflect adjustments in service provision and care capacity. These trends highlight the importance of an effective health information system, such as DHIS2, to improve the monitoring, analysis and planning of hospital activities [43].

Hospital efficiency indicators at the Moramanga Regional Hospital reveal a stable average length of stay (≈2.4 days), a slight decrease in bed occupancy rates (from 20.6 to 19 between 2021 and 2023) and a decrease in the hospital admission rate (from 0.8 to 0.52). These trends can be explained by the lingering effects of the pandemic, reduced purchasing power and difficulties in accessing care. The in-hospital mortality rate, following an increase in 2022 (6.09%), improved in 2023 (5.18%), reflecting a generally moderate performance. These results are comparable to those observed in other referral hospitals in Madagascar, which face similar constraints regarding bed management and patient care [44].

Conclusion

The study on hospital management at the Moramanga Regional Hospital (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, notably a shortage of specialist staff, outdated equipment, electricity supply issues, logistical and administrative 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 the malfunctioning of hospital systems limits the effectiveness of health services. Thus, improving the performance of the DRHC requires strengthening human resources, modernizing infrastructure, securing energy supplies, computerizing services, updating planning tools and revitalizing governance bodies. Optimized hospital management appears essential to guarantee high-quality, equitable and accessible care. Strengthening hospital governance and resource management is essential to ensure resilient, equitable and patient-centered healthcare delivery in Madagascar.

Conflict of interest

The authors declare no competing interest.

References

1. World Health Organization. A Global Health Strategy for 2025-2028. WHO (2024).
2. Global Public Health Week 2025: Redefining equity and decolonizing public health for a healthier world. Population Medicine 31.1 (2025).
3. Andrianirina VH., et al. "Use of health services in Madagascar: influence of free care on a one-off basis". Health Policy and Planning 38.3 (2023): 354-363.
4. Africa CDC. Africa Health ExCon 2025: Innovation and trade in health (2025).
5. Africa CDC. 4th International Conference on Public Health in Africa (CPHIA 2025) (2025).
6. 4th International Conference on Public Health in Africa (CPHIA 2025): Moving Towards Self-reliance to Achieve Universal Health Coverage and Health Security in Africa (2025).
7. The Global Economy. Madagascar: Health spending as percent of GDP (2022).
8. The Global Economy. Madagascar: Health spending per capita (2022).
9. Ministry of Public Health, Madagascar. National Health Information System Standards and Procedures Manual (2017).
10. World Bank. Madagascar: National Medical Waste Management Plan (2021).
11. Ministry of Public Health, Madagascar. Organizational Structure and Management of District Referral Hospitals (2021).
12. Ratovoson R., et al. "Impact of hypertension on mortality in adults in Moramanga, Madagascar: a retrospective cohort study in the community". BMC Public Health 25.1 (2025): 992.
13. Ratovoson R., et al. "Moramanga Health Survey in Urban and Rural Areas in Madagascar (MHURAM project)". Cohort Profile. Int J Epidemiol 48.6 (2019): 1754-1763.
14. Local health organization and management of the DRHC Moramanga, Madagascar. Ministry report (2025).
15. O'Neill G., et al. "The age profile of healthcare professionals: A systematic review". BMC Health Serv Res 19.1 (2019): 1-9.
16. Maleki MR., et al. "An exploration of the role of hospital committees and their productivity in Iran". J Educ Health Promote 4 (2015): 89.
17. Sajjadi HS., et al. "The impact of productivity committees being established in hospitals". Int J Health Care Qual Assur 24.6 (2011): 412-423.
18. Law No. 2011-003 on hospital reform. Official Gazette of the Republic (2011).
19. Ministry of Health. Health and Social Development Plan 2020-2024 (2020).
20. Andrianarivelo H and Raveloson E. "Assessment of public building accessibility in Antananarivo". Journal of Social Sciences 12.2 (2019): 123-134.
21. Raveloson E, Andrianarivelo H and Rasolofoniaina R. "Analysis of strategic planning in Malagasy hospitals". Madagascar Public Health Journal 10.2 (2021): 75-82.
22. Ministry of Public Health. Operational standards for health facilities in Madagascar. Antananarivo (2020).
23. Rakotomanana A, Raveloson E and Andrianarivelo H. "Assessment of human resources in the health system in Madagascar". Madagascar Public Health Journal 11.1 (2020): 15-23.

24. Agyepong I and Adjei S. "Public-Private Partnerships in Health Service Delivery: A Review of the Ghanaian Experience". BMC Health Services Research 18.1 (2018): 1-9.
25. Randriamiharisoa A and Fanjanirina A. "Availability and distribution of health professionals in public health facilities in Madagascar". Journal of Health Sciences 12.3 (2019): 100-108.
26. André H. "Factors impacting the effectiveness of the internal audit committee". Revue ISG 4.2 (2025): 1299-1308.
27. Ministry of Public Health, Madagascar. National Strategic Plan for Combating HIV/AIDS 2018-2022. Antananarivo: Ministry of Public Health (2018).
28. Randriamanantena A, Andriamihaja D and Raveloson A. "Impact of continuing education on the care of tuberculosis patients in Madagascar". Madagascar Journal of Public Health 5.2 (2020): 45-50.
29. National standard for the construction of buildings resistant to natural hazards in Madagascar (2025).
30. Malagasy Standards Bureau. Norms and standards for referral hospitals in Madagascar (2025).
31. UNDP Madagascar. Solar energy for health (2023).
32. Ministry of Economy and Finance, Madagascar. Budget execution circular, Madagascar (2025).
33. Ministry of Economy and Finance, Madagascar. Performance Document - Annex to the Draft Finance Bill 1 (2025).
34. Health Sector Development Plan, Madagascar 2020-2024 (2025).
35. Madagascar Health Accounts 2019-2021 (2023).
36. Ministry of Public Health, Madagascar. National Strategic Plan for Community Health and Supply (PNSCA) 2024-2028 (2025).
37. World Bank. Fiscal Management and Public System Performance in Middle-Income Countries (2023).
38. Ministry of Finance, Madagascar. 2024 Budget Execution Report (2025).
39. Decree No. 11028/2018 establishing standards applicable to public referral hospitals. Madagascar (2018).
40. Hospitalized Patient Charter. Madagascar (2021).
41. National Medical Waste Management Policy. MSANP (2017).
42. Technical Guide on Medical Waste Management. MSANP (2021).
43. International Committee of the Red Cross (ICRC). Medical Waste Management Manual (2011).
44. Andriamifidison NZR., et al. "Impact of Human Resource Management on Hospital Performance: The Case of the University Hospital Centre of Befelatanana". Asian. Jour. Social. Sci. Mgmt. Tech 4.5 (2022): 84-88.