

**INFLUENCE OF MONITORING AND EVALUATION PRACTICES ON THE
PERFORMANCE OF MANAGED EQUIPMENT SERVICE PROJECTS IN PUBLIC
REFERRAL
HOSPITALS IN NAIROBI CITY COUNTY, KENYA**

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DECLARATION AND APPROVAL

This thesis/project is my original work and has never been presented for any academic award in any institution.

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DEDICATION

I dedicate this project to my beloved children, Ryan Keith, Liam, and Gavyn Liria, whose support and inspiration drive my pursuit of knowledge and excellence.



ACKNOWLEDGEMENT

I would like to express my deepest gratitude to God for His unwavering guidance and blessings throughout my master's journey. His grace and wisdom have been instrumental in every step of this endeavor.

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Mount Kenya University

ABSTRACT

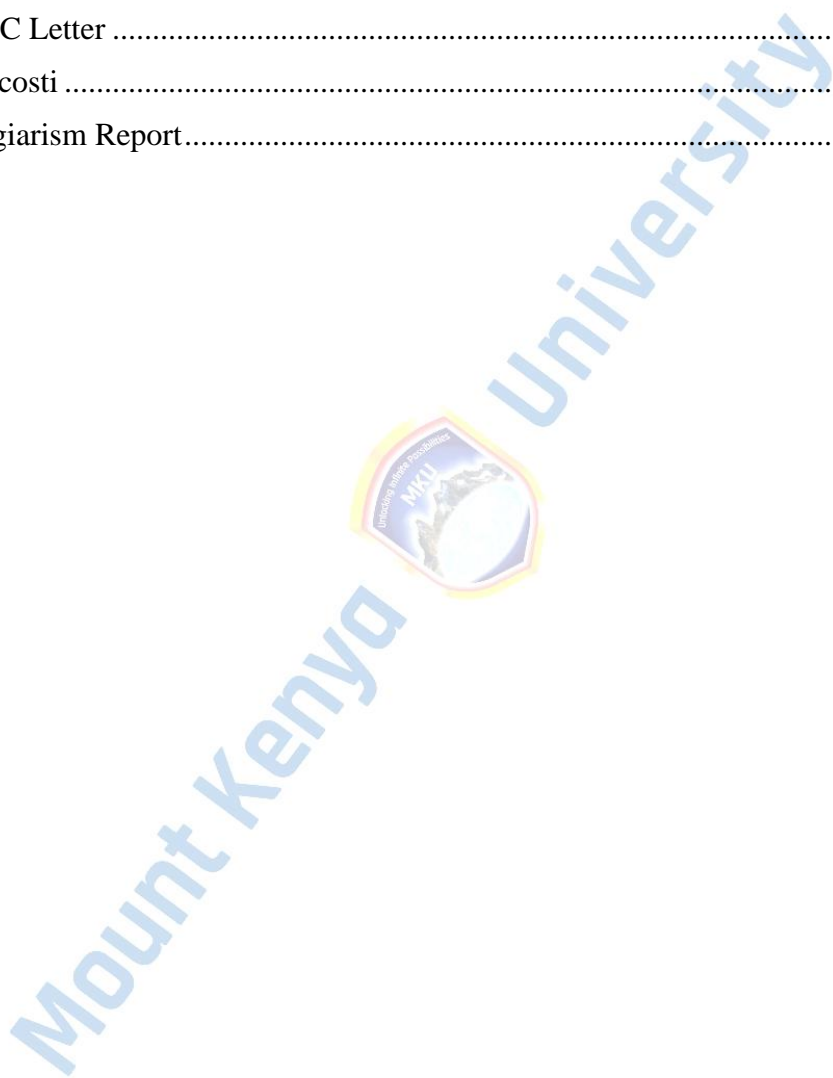
Managed Equipment Service projects often face issues such as inadequate maintenance, leading to equipment downtime and operational inefficiencies. Additionally, challenges include insufficient training for healthcare staff and poor coordination between stakeholders, which impact the overall effectiveness and sustainability of the projects. This study aimed to evaluate the effect of monitoring and evaluation practices on the performance of Managed Equipment Service projects in public referral hospitals within Nairobi City County, Kenya. The specific objectives were: to examine how M&E planning influenced the performance of MES projects in these hospitals; to assess the effect of M&E technical expertise on the performance of MES projects in public referral hospitals; to establish the influence of resource allocation for monitoring and evaluation on the performance of MES projects; and to explore the influence of M&E data management on the performance of MES projects in public referral hospitals in Nairobi City County. The research was guided by three theories: the Logical Framework Theory, Human Capital Theory, and Stakeholder Theory. A descriptive research design was employed to provide a comprehensive understanding of these variables. The study involved 172 key stakeholders, including members of the Ministry of Health Implementation Committee, project managers, medical engineers, and various healthcare professionals who were directly engaged in MES projects in Nairobi County. For the pilot phase, 10 respondents were drawn from Kenyatta National Hospital and Mbagathi Hospital. Data were analyzed using a combination of quantitative and qualitative methods. Quantitative data collected through questionnaires were analyzed descriptively using SPSS Version 26, with the results presented through tables, graphs, and charts. Inferential statistics, including multivariate regression and correlational analysis, were conducted to determine the strength and significance of relationships among variables. Qualitative data were subjected to content and thematic analysis to identify and interpret key themes and patterns. The study concluded that effective Monitoring and Evaluation (M&E) planning significantly enhances the performance of Managed Equipment Service (MES) projects, although challenges such as delayed implementation, weak risk assessments, and inadequate stakeholder involvement persist. It also established that M&E technical expertise, resource allocation, and data management positively influence MES outcomes, though issues like inconsistent staff training, underfunding, and weak data utilization limit full potential. Inferential statistics supported these conclusions, revealing strong positive correlations between all four M&E variables and project performance—most notably M&E planning ($r = 0.682$, $p < 0.01$), with the model explaining 52.2% of performance variance ($R^2 = 0.522$). Based on these findings, the study recommended that the Ministry of Health and allied agencies institutionalize inclusive M&E planning, strengthen continuous staff training, increase funding for M&E activities, and promote better data use in decision-making to improve the sustainability and impact of MES projects. The study contributes to existing knowledge by offering sector-specific empirical evidence on how structured M&E enhances MES outcomes, addressing gaps in training, coordination, and data utilization.

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LIST OF ABBREVIATIONS AND ACRONYMS

PPPs	Public-Private Partnerships
M&E	Monitoring and Evaluation
MES	Managed Equipment Services
KPMG	Klynveld Peat Marwick Goerdeler
WHO	World Health Organization
SPSS	Statistical Package for Social Scientists
ICU	Intensive Care Unit
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Ganapathy and Reddy (2021) highlight that the healthcare sector requires significant investment in infrastructure and modern technologies to provide quality patient care, leading to substantial costs that necessitate collaboration with additional partners. Kioko and Mose (2024) identify four critical components information, health equipment, human resources, and financing that drive health sector operations. Due to the high costs and growing demand for services, both government and private sectors are encouraged to partner to secure the needed capital. Samad and Faraz (2024) argues that Public-Private Partnerships (PPPs) offer health facilities better access to capital, expertise, and technology. Proper use of medical equipment can enhance patient care quality, reduce operational costs by minimizing staffing needs, and improve overall productivity and satisfaction. Investment in research and development by medical device manufacturers is essential for delivering high-quality, innovative products, which is crucial for maintaining and improving healthcare standards globally.

Globally, the effective management of hospital equipment is crucial in healthcare systems, where it plays a significant role in enhancing service delivery and patient outcomes. Effective equipment management improves efficiency, reduces costs, and ensures timely maintenance, thereby extending equipment lifespans. However, equipment malfunctions and inefficiencies in inventory control remain challenges worldwide, impacting healthcare service quality and patient safety.

Many developed countries have adopted technology-driven solutions for equipment management, including automated inventory systems and predictive maintenance (Amitabh & Mathur, 2024).

Managing hospital equipment is even more difficult in Africa than in other continents due to limited resource availability, inadequate maintenance strategies and heavy reliance on donations. For example, research conducted in Ghana shows that inadequate equipment management causes regular failures hence making the dependability on healthcare services unsatisfactory (Adusei, Bour, Amu & Afriyie, 2024). There are still some constraints however, such as issues of high operational costs, and inadequacy of skilled technical personnel all of which have been tackled by trainings done in Ghana on basic health care personnel equipment management.

In Ghana, the performance of health projects has been significantly influenced by limitations in medical equipment availability. Insufficient access to essential medical devices has been linked to delays in diagnosis and treatment, lower quality of care, and increased operational challenges in health facilities (Azasi, 2024). These challenges are reflective of broader issues across many African nations, where resource constraints often hinder the effective delivery of healthcare services. The experiences in Ghana highlight the urgent need for better management and investment in medical equipment to improve health project outcomes and ensure that healthcare facilities can deliver timely and high-quality care.

Hospitals in developing nations find it difficult to properly use medical equipment in providing services since health ministries have difficulties in obtaining the equipment. This is according to Ongel, Tanyer and Dikmen (2024). The competent labour required for the maintenance of the medical equipment is also lacking. Dubois, Lefouili, and Straub (2019) state that shortages of

medical equipment are frequently observed in these countries that are developing. The majority of medical equipment is imported, with local manufacturers concentrated on personal protective equipment and basic consumables. Western companies use effective innovation methods to create medical equipment with an emphasis on their own markets. Thus, a disproportionately large amount of imported medical equipment frequently stops working in low-resource environments (Chakravarty, 2021).

East African nations such as Ethiopia experience several challenges such as the lack of skilled human resource and low maintenance cash inflows to enhance the efficiency of equipment and shorten downtime. As highlighted by Tesfaye, Terefa and Desisa (2023), medical facilities in Ethiopia are commonly characterized by the delays in health care services due to unpredictable and sophisticated, often costly equipment breakdowns. New developments in Ethiopia have included primarily capacity development work where donor organizations and NGOs support tech staff to carry out regular equipment maintenances and repairs.

The accessibility, cost, and effective use of necessary medical equipment are critical in ensuring the provision of quality health care in all sectors. Frugal medical equipment is frequently intended to handle difficulties in the poor countries, where a big percentage of the population depends on public health (Chakravarty, 2021). Deonarain (2024) discovered that a shortage of safe, trustworthy, and efficient medical equipment in public hospitals hinders health care delivery, can lead to poor patient outcomes, and poses major hazards to the health system. In East Africa, one observation of relevance is that there has been a problem surrounding the method in which procurement, worker training, and maintenance of medical equipment are carried out. According to research, buying medical equipment occasionally happens without a budget for consumables,

maintenance and service support, or quality control (Chowdhury, 2024). Patient demands are not being addressed, medical equipment are not being used to their full potential or are decommissioned when a spare part is not prepared for in case of a failure or when maintenance staff lacks the necessary skills to restore the device. This has grown to be a serious issue.

The performance of health projects in Tanzania has demonstrated the significant impact of limited medical equipment on healthcare delivery. Inadequate access to essential medical devices has led to challenges such as increased patient wait times, reduced service efficiency, and compromised care quality in Tanzanian hospitals (Vianney, Kimaro, Buza, Knight-Jones, Fevre, Richards & Shirima, 2024). Similarly, across the broader African context, such issues are prevalent, with many countries experiencing difficulties in providing adequate healthcare services due to insufficient equipment. This scenario underscores the critical need for improved health equipment management and investment to enhance the performance of health projects and ensure effective patient care.

Ayah (2020) reports that in developing countries, as much as 70% of medical equipment is broken, which has an impact on patient outcomes and service delivery. The high prevalence of malfunctions and non-repair in Kenyan healthcare institutions is partly caused by the usage of medical equipment that is not suited for the country's climate. The issue is made worse by the lack of skilled biomedical professionals, which results in subpar patient outcomes and inadequate treatment. Managed Equipment Service (MES) programmes have become an important strategy in Kenya in response to the difficulties encountered by the healthcare industry. These initiatives supply contemporary medical equipment to institutions and outsource its operation to specialized service providers in response to the growing demand for high-quality healthcare services.

The Managed Equipment Service (MES) projects, a public-private partnership between the Kenyan government and private firms, aimed to equip 98 public hospitals with medical devices across Kenya. Under this arrangement, the government made payments based on performance indicators, while private partners handled procurement, installation, maintenance, and replacement of equipment over an initial seven-year period, with an option to extend by three years. The oversight of the project was managed by ministry and county representatives who ensured timely payments and addressed healthcare needs in areas such as dialysis, emergency services, maternal health, surgery, critical care, and imaging. Initiated in 2015 as part of the Medium Term Plan II, the MES project sought to enhance access to specialized diagnostic equipment in response to outdated equipment issues identified by the Ministry of Health's 2014 assessment (Republic of Kenya, 2023).

The Kenya Health Policy Forum (2014) recommended Public-Private Partnerships (PPPs) as a solution after identifying limited equipment, poor maintenance, and quickly evolving technologies as the key obstacles to effective provision of healthcare and outcomes. Gaps in equipment upkeep and investment in health facilities were also highlighted by the Kenya HealthCare Federation (2016). In response, the Kenyan government and private companies launched the Managed Equipment Services (MES) project as a PPP to supply medical equipment to 98 public hospitals spread over 47 counties. In this model, private partners handled the equipment's acquisition, installation, maintenance, and replacement, with the government paying for the equipment in instalments based on metrics of performance. (Miseda, 2020).

The success of Managed Equipment Service (MES) projects is highly dependent on effective project monitoring. Regular evaluations of milestones, resource use, and timeline adherence help

detect potential issues early and enable timely corrective measures, keeping the project on track to achieve its goals (Muchelule, 2018). A KPMG study (2017) on MES projects in Kenya underscores the crucial role of robust monitoring mechanisms for ensuring project success and sustainability. It highlights the importance of thorough data collection and analysis to evaluate equipment impact, identify inefficiencies, and guide strategic decisions. Additionally, Okeyo et al. (2019) emphasize that effective monitoring enhances transparency and accountability, fostering trust and collaboration among stakeholders, including government agencies, private partners, and the public. Thus, monitoring is vital for addressing problems proactively, maintaining transparency, and ensuring accountability in MES projects in Kenya.

A public-private collaboration between the Kenyan government and private enterprises, the Managed Equipment Service (MES) programs sought to supply medical equipment to 98 public hospitals around the nation. Through this collaboration, the government was able to purchase the equipment in time-based installments determined by important performance metrics. During the contractual time, which was initially set for seven years with the possibility to extend for an additional three years, private sector partners were in charge of equipment repair, setup, upkeep, and procurement. Oversight teams comprised ministry and county representatives, tasked with monitoring project performance, ensuring timely remuneration, and addressing urgent healthcare needs in areas such as dialysis, emergency, maternal health, surgery, critical care, and imaging services. The MES project, which was initiated in 2015 as a component of the Medium-Term Plan II (2013-2017), sought to improve geographic equity in access to specialized diagnostic medical equipment. This was in response to concerns raised by the Ministry of Health's 2014 needs

assessment regarding outdated equipment and the need for improved service delivery in public health facilities (Republic of Kenya, 2013).

Two hospitals from each of the 47 counties, along with four referral hospitals, were designated to receive specialized medical equipment, totaling 98 hospitals. The selection of beneficiary health facilities was the responsibility of individual county governments (IEA Kenya, 2020). The Managed Equipment Services (MES) project, which expired in December 2022, sparked discussions on whether to extend it. Media reports outlined three options for the government: extending the project by three years, purchasing the equipment at the contractors' acquisition rate, or withdrawing the equipment from the facilities. Despite mixed signals, with reports suggesting project cancellation, there are indications of an agreement between county and national governments for a three-year extension (Daily Nation, 2022). Health infrastructure development through the MES project is highlighted in the Medium-Term Plan III as a flagship project receiving special attention and priority from the government during the FY 2022/23-FY 2024/25 period. Recent clarifications refute the notion of project cancellation, asserting a temporary suspension pending findings and advice from a task force addressing contentious issues, including the servicing turnaround time (IEA Kenya, 2020).

Efforts were focused on the timely delivery of medical equipment, organized into seven different lots, to counties according to the project schedule. However, as of 2020/21, a year before the end of the MES project contract, some equipment remained undelivered, despite adjustments to the target quantities during project implementation. Minor cases of duplication indicated gaps in the comprehensiveness of the initial needs assessment, and the project lacked provisions for redistributing equipment in the event of duplication. Notably, the MES contract did not account

for the cost of consumables and reagents necessary for the operation of equipment, such as renal, critical care, radiology, and theatre equipment, leading to an unexpected financial burden on counties. Audit findings highlighted that the MES equipment was restricted to specific, expensive consumables and reagents not readily available in the market, prompting KEMSA to engage with counties as an alternative supplier after successful price negotiations (OAG, 2022).

Public referral hospitals serve as critical pillars in the healthcare system, providing specialized medical care, advanced diagnostics, and treatment services to address complex health conditions. These facilities act as referral points for primary and secondary healthcare institutions, ensuring that patients requiring higher levels of care receive appropriate medical interventions. Public referral hospitals are equipped with specialized units, including intensive care, oncology, and dialysis centers, and often serve as training and research institutions for healthcare professionals. In Kenya, the government has initiated various programs, such as the Managed Equipment Service (MES) projects, to address infrastructural and resource challenges in these hospitals. MES projects have facilitated the acquisition of state-of-the-art medical equipment, enabling public referral hospitals to enhance service delivery and improve patient outcomes (Abdi, 2024).

In Nairobi City County, Kenyatta National Hospital (KNH) and Mbagathi Hospital stand out as prominent public referral hospitals benefiting from the MES initiative. KNH, East Africa's largest hospital, provides specialized care in oncology, cardiology, and neurology, supported by advanced radiology and laboratory systems acquired through MES. Similarly, Mbagathi Hospital, a critical referral facility for densely populated areas like Kibra, has significantly improved its diagnostic and treatment capabilities with MES equipment such as dialysis machines and imaging systems. These advancements have not only increased the hospitals' capacity to handle a larger patient load

but have also enhanced the quality of healthcare services offered. However, challenges such as maintenance costs, training gaps, and logistical inefficiencies in equipment management highlight the need for effective M&E practices to maximize the benefits of MES projects and ensure their sustainability (Gatimu & Minja, 2024).

1.2 Statement of the Problem

Access to modern medical equipment and adequate resources is fundamental for the efficiency of any healthcare system. However, Kenya's public health sector continues to grapple with underfunding, poor infrastructure, and mismanagement, which negatively affect service delivery (Chepkonga & Nyaga, 2019; Njoroge, 2019; Karanja et al., 2023; Njeri & Ng'ang'a, 2023). These issues manifest in shortages of essential drugs, under-compensated health workers, and neglected equipment maintenance, resulting in frequent service disruptions. Although devolution aimed to strengthen county-level healthcare, financial misappropriation and weak institutional support persist (Miriti, 2018; Ombese, 2020; Republic of Kenya, 2021; WHO, 2023). The Managed Equipment Service (MES) initiative was introduced to address some of these shortcomings, yet the lack of consistent monitoring, skilled personnel, and clear planning frameworks has hindered its effectiveness across public hospitals.

Globally, equipment adoption in hospitals is viewed as key to quality healthcare provision, yet Africa still struggles with underutilized technologies due to inadequate management, technical expertise, and resource allocation (Bitkina, Kim & Park, 2020; Bahreini et al., 2019; WHO, 2023; Miriti, 2018). In Kenya, the challenges are particularly acute in MES projects, with equipment lying idle due to infrastructural gaps and poor coordination between stakeholders (Wahome, 2019; Ombese, 2020; Republic of Kenya, 2021; Karanja et al., 2023). A notable case is the

underutilization of a CT scanner in Nyandarua County, which remained unused for nine months due to lack of trained personnel and M&E oversight (Bahreini et al., 2019; Wahome, 2019). These examples underscore the urgency of strengthening monitoring and evaluation systems to ensure project sustainability, optimize healthcare delivery, and uphold accountability in equipment deployment and use.

Despite growing interest in MES implementation, critical research gaps remain. Contextually, most studies have addressed general health sector constraints, often ignoring the pivotal role of M&E practices in shaping project performance (Njeri & Ng'ang'a, 2023; Ombese, 2020; Republic of Kenya, 2021; Bitkina, Kim & Park, 2020). Methodologically, previous research has relied heavily on qualitative data, lacking the empirical strength of quantitative or mixed-methods analyses that reveal statistically measurable relationships (Chepkonga & Nyaga, 2019; Bahreini et al., 2019; Miriti, 2018; Karanja et al., 2023). Geographically, studies have mainly concentrated on rural areas, overlooking urban public referral hospitals like those in Nairobi City County, which face distinct logistical and operational challenges. This study fills these gaps by employing a descriptive design and mixed methods to assess how M&E planning, technical expertise, resource allocation, and data management influence MES performance in Nairobi's public referral hospitals.

1.3 Study Purpose

The study purposed to assess influence of M&E practices on the performance of managed equipment service projects in public referral hospitals within Nairobi City County, Kenya

1.4 Research Objectives

This study was guided by the following research objectives

- i. To assess the influence of monitoring and evaluation planning on the performance of managed equipment service projects in public referral hospitals in Nairobi City County.
- ii. To assess the influence of monitoring and evaluation technical expertise on the performance of managed equipment service projects in public referral hospitals in Nairobi City County.
- iii. To establish the influence of monitoring and evaluation resource on the performance of managed equipment service projects in public referral hospitals in Nairobi City County.
- iv. To explore the influence of monitoring and evaluation data management on the performance of managed equipment service projects in public referral hospitals in Nairobi City County.

1.5 Research Questions

- i. How does monitoring and evaluation planning influence the performance of managed equipment service projects in public referral hospitals within Nairobi City County?
- ii. In what ways does monitoring and evaluation technical expertise influence the performance of managed equipment service projects in public referral hospitals in Nairobi City County?
- iii. How does the allocation of resources influence the performance of managed equipment service projects in public referral hospitals in Nairobi City County?
- iv. What influence does monitoring and evaluation data management have on the performance of managed equipment service projects in public referral hospitals in Nairobi City County?

1.6 Significance of the Study

Hospitals

This study enables hospitals to identify and adopt effective M&E practices that enhance equipment utilization, maintenance, and service delivery. It supports improved clinical outcomes through data-informed decisions and optimized resource use in MES project implementation.

Equipment Suppliers

Suppliers will gain insights into how M&E frameworks influence equipment performance in hospitals. The findings help them align service delivery with hospital needs, strengthen after-sales support, and contribute to sustainable MES partnerships.

County Governments and Ministry of Health

The study informs evidence-based policy and budgeting decisions. It offers practical recommendations for strengthening M&E systems to improve the management, accountability, and sustainability of MES projects in public health facilities.

Future Scholars

The research contributes to empirical knowledge on M&E in healthcare projects, providing a foundation for future academic inquiry, comparative studies, and innovation in MES implementation strategies.

1.7 Scope of the Study

This study evaluated the influence of Monitoring and Evaluation (M&E) practices on the performance of Managed Equipment Service (MES) projects in public referral hospitals in Nairobi City County, Kenya. The four independent variables examined were M&E planning, M&E technical expertise, M&E resource allocation, and M&E data management. The study targeted 172

key stakeholders, including members of the Ministry of Health Implementation Committee, MES project managers, medical engineers, and various healthcare professionals directly involved in MES projects. A descriptive research design was adopted to facilitate a detailed examination of the existing M&E practices and their relationship with project performance outcomes. The research was conducted over a six-month period, from November 2024 to April 2025, within selected public referral hospitals in Nairobi City County.

1.8 Study Limitations

One significant limitation of this study was the busy schedules of personnel and management in referral hospitals in Nairobi, which made it challenging to secure their participation during data collection. To overcome this, the study utilized flexible data collection methods, such as online surveys and interviews, which were conducted at times convenient for the respondents. Another challenge was that some participants had reservations about participating in the study due to fear of victimization or concerns about confidentiality. To address this, the study emphasized the confidentiality and anonymity of responses, assuring participants that their information would be used solely for research purposes. Trust was built through clear communication about the study's objectives and ethical considerations, which helped alleviate concerns and encouraged participation.

1.9 Delimitations of the Study

The study was delimited to exploring the influence of M&E practices on the performance of Managed Equipment Service (MES) projects in public referral hospitals within Nairobi City County, Kenya. Specifically, the research focused on four key aspects of M&E practices: planning,

technical expertise, resource allocation, and data management. The study targeted 172 stakeholders directly involved in MES projects, including representatives from the Ministry of Health Implementation Committee, MES service providers, and various hospital committees and engineering personnel. A descriptive research design was employed, collecting both quantitative and qualitative data through structured and unstructured questionnaires. The scope excluded private hospitals and MES projects outside Nairobi City County, ensuring a focused analysis of public referral hospitals to derive context-specific insights relevant to the county's healthcare framework.

1.10 Assumption of the study

The study assumed that all participants had a comprehensive understanding of the Managed Equipment Service (MES) projects and their monitoring and evaluation (M&E) practices. It presumed that respondents would provide accurate and honest information regarding their experiences and perceptions of MES project performance. This assumption was critical for ensuring the reliability of the data collected and the validity of the study's findings. Additionally, the study assumed that the existing M&E practices in public referral hospitals in Nairobi were representative of the broader challenges and successes experienced in similar healthcare settings. It also assumed that any biases or limitations in the responses would be mitigated through careful survey design and data analysis techniques, ensuring that the findings were reflective of the overall impact of M&E on MES project performance.

1.11 Operational definition of key terms

M&E Practices: refers to the systematic methods and procedures used to assess the progress, effectiveness, and impact of Managed Equipment Service (MES) projects in public referral hospitals.

M&E Planning: Refers to the development of strategies and frameworks for systematically monitoring and evaluating MES projects. This includes setting clear objectives, defining indicators for performance measurement, establishing data collection methods.

Technical Expertise: Refers to the specialized knowledge and skills required to effectively manage, operate, and maintain medical equipment within MES projects.

Resource Allocation for M&E: Refers to the distribution and management of financial, human, and material resources necessary for the successful implementation and operation of MES projects.

M&E Data Management: Refers to the systematic processes of collecting, storing, analyzing, and utilizing monitoring and evaluation data to inform decision-making and improve project performance.

Project Performance: Refers to the effectiveness and outcomes of MES projects in public referral hospitals, as influenced by M&E practices.

CHAPTER TWO

LITERATURE REVIEW

2.1 Literature Review

This highlights a comprehensive summary of existing research and scholarly sources relevant to a particular topic. It helps identify gaps, trends, and key findings to guide the current study.

2.2 Empirical literature

Empirical literature refers to research-based studies that provide observed evidence on how monitoring and evaluation practices affect the performance of MES projects.

2.2.1 Monitoring and Evaluation Planning and Project Performance

Ahtesham (2024) examined the influence of Monitoring and Evaluation (M&E) planning on success and sustainability in education projects managed by NGOs in Pakistan. With NGOs contributing 56% of resources toward educational development to align with SDGs, the study found that poor logical frameworks—particularly the absence of sustainability-focused planning—hampered long-term outcomes. Using data from 25 NGO and government representatives, the study applied recursive abstraction to design a tool based on the project management life cycle. Results indicated that strong M&E planning improved resource efficiency, performance tracking, and project delivery. It recommended adopting comprehensive M&E frameworks to boost sustainability. However, this study centered on NGO-funded education projects, whereas the current research investigates government-led healthcare projects, which operate under distinct institutional and sectoral dynamics.

Versteeg, Hermans, Ahrari, and Van De Walle (2021) investigated the practical benefits and challenges of using adaptive Monitoring and Evaluation (M&E) frameworks in water development projects, focusing on a case study in Khulna, Bangladesh. The study simplified a complex theoretical model of adaptive planning into three key components and applied them to the local context. It effectively highlighted how identifying core assumptions, uncertainties, and required adjustments can enhance flexibility in managing spatial planning, water quality, finances, and institutional capacity. A major limitation identified was the presence of deliberate misinformation, which hindered adaptive practices. While the study contributes to understanding adaptive M&E in environmental infrastructure, the current research focused on structured M&E frameworks within healthcare projects, where adaptability is secondary to compliance and accountability.

In South Africa, Ogunbayo et al. (2024) investigated strategies for effective monitoring and evaluation (M&E) practices in construction projects to ensure cost, schedule, scope, and quality objectives were achieved. Using data from 36 construction professionals via random sampling and descriptive statistical analysis, the study identified key strategies, including regular feedback on M&E activities, clear construction goals and objectives, proper documentation, stable policies, frequent problem reporting, and effective communication. Findings emphasized the importance of understanding project objectives throughout the project lifecycle for successful M&E practices. The study concluded that construction professionals and project managers should enhance their knowledge of M&E systems and processes to improve project outcomes. These findings underscore the role of M&E planning in aligning activities with project goals, fostering accountability, and ensuring the consistent monitoring of critical project components. There is a geographical gap as this study was carried in South Africa while the current study will be in Kenya.

The impact of project planning and M&E on the longevity of the Millennium Village Project in Pampaida, Ikara Local Government Area, and Kaduna State, Nigeria, was examined by Yusuf, Dankumo, and Odoh (2024). Using a mixed-methods approach, the study collected data from project stakeholders through interviews and structured questionnaires. Descriptive and inferential statistics were used to assess quantitative data, and content analysis yielded qualitative insights. The results showed that thorough M&E procedures and efficient project planning greatly enhanced the Millennium Village Project's sustainability. Specifically, M&E planning, involving regular assessments of project goals, resource allocation, and stakeholder involvement, emerged as critical to sustaining project outcomes. The study recommended continuous M&E training for stakeholders and the integration of robust planning frameworks to enhance the long-term impact and sustainability of development initiatives. This study was on sustainability of projects while the current study assesses the performance of projects.

Kamau and Muchelule (2024) explored how involvement in evaluation and monitoring planning affects the success of livelihood development programs in Somaliland. The study looked at how M&E team capabilities and M&E planning influence project results. Using a census survey technique, the study surveyed 84 respondents, including UNFAO resilience project team members, M&E personnel, third-party monitoring firm workers, and project implementing partners. The study used quantitative methodologies, including both descriptive and inferential statistics. The findings demonstrated that PM&E planning considerably improves project performance, with both team capacity and PM&E planning having a strong relationship with successful project results. The study indicated that strong project management and evaluation planning and team competence are critical for increasing the effectiveness of livelihood development programs in Somaliland.

This study was purely quantitative while the current study will make use of both quantitative and qualitative methods.

Kamugisha (2024) examined the role of M&E practices in promoting urban water sustainability within the WASAC project in Kigali City, Rwanda. The study focused on the influence of M&E planning, stakeholder involvement, and M&E training on project outcomes. Employing a descriptive research design, data were gathered from 126 respondents, including project management teams, M&E officials, analysts, and engineers, using questionnaires, interviews, and documentation. Analysis was conducted using SPSS. Findings indicated that M&E planning, stakeholder involvement, and training significantly influenced urban water sustainability, with mean contributions of respectively. Continuous M&E training was highlighted as crucial for equipping staff with implementation skills. The study recommended aligning control measures with M&E plans and ensuring stakeholder engagement throughout all project phases to enhance sustainability. The study was in Rwanda while the current study is in Kenya.

Mtaki (2024) explored the impact of project monitoring on the implementation of COVID-19-funded classroom construction projects in Ludewa District, Tanzania. Employing a mixed-methods approach, the study combined qualitative input from 16 key informants with quantitative data from 189 stakeholders selected through stratified random and purposive sampling. Analysis via STATA ver13 revealed that effective M&E planning and stakeholder monitoring competence significantly enhanced project implementation. Additionally, in-house monitoring methods yielded positive outcomes, with classroom construction success showing statistical significance at the 1% level. The study emphasized monitoring as vital for ensuring project alignment with set goals and development standards. While Mtaki focused on education infrastructure during an

emergency response, the current study emphasizes routine M&E structures within healthcare projects under normal service delivery contexts.

Mutai and Musembi (2024) investigated how project M&E techniques affected the efficacy of water projects in the western region of Kenya. The study's goal was to evaluate how project outcomes were impacted by technical competency and M&E strategy. Using a descriptive study technique, Krejcie and Morgan surveyed 654 respondents, including supervisors, project directors, and land surveyors, and looked at 218 water projects, with a sample size of 242 determined by their formula. Primary data were collected using semi-structured questionnaires, and SPSS was utilized to analyze the data using both descriptive and inferential statistical methods, including Pearson correlation and regression analysis. The findings demonstrated that both M&E planning and technical capability had a positive and significant impact on the performance of water projects. The study recommended that project management in the western region implement clear planning roles and schedules and ensure staff are well-trained and qualified in M&E practices. Different sampling techniques was employed. This study will employ purposive sampling technique.

Kakw'u (2024) assessed how project management practices—specifically project planning and Monitoring and Evaluation (M&E)—influence the success of road development projects executed through public-private partnerships in Nairobi City County. Using descriptive and inferential statistics from 82 participants, the study found that structured M&E, including regular monitoring, real-time data analysis, and proactive risk management, significantly enhanced project performance. Emphasis was also placed on the role of stakeholder engagement in aligning project goals and improving execution efficiency. The study recommended consistent adherence to M&E frameworks, financial discipline, routine data tracking, risk response strategies, and active

stakeholder involvement to drive successful outcomes. However, unlike Kakw'u's focus on PPP-funded infrastructure, the current study evaluates government-managed MES health projects, where technical service delivery, not risk-sharing, defines performance.

Onyango and Pedo (2024) investigated the influence of Monitoring and Evaluation (M&E) practices on road project performance in Nairobi City County. Grounded in Control and Systems Theories, the study employed a descriptive research design and sampled 254 respondents from infrastructure agencies including KeNHA, KeRRA, and KURA. Findings revealed that effective M&E planning—especially program assessments and monitoring systems—positively impacted project outcomes. Tracking key performance indicators (KPIs), monitoring milestones, and managing budgets were highlighted as essential for timely and efficient project delivery. The authors recommended ongoing, structured assessments within robust M&E frameworks to ensure success. While the study focused on civil infrastructure, the current research differs by examining healthcare-based MES projects, where technical service continuity and equipment functionality are central performance concerns.

Thuo and Ndungu (2024) analyzed the influence of M&E practices on the performance of KeNHA road maintenance projects in Kenya's Central region. The study emphasized the role of M&E budget allocation and its integration into M&E planning for effective project outcomes. The research employed a descriptive survey design, targeting 24 road projects maintained by KeNHA, involving 72 road engineers and 50 KeNHA staff. Using a census sample approach, data collection employed structured questionnaires, with analysis conducted through SPSS version 27. Results indicated a strong positive correlation between budget allocation and project performance with budget allocation explaining 56.3% of performance variance. The study underscored that

embedding budget considerations within M&E planning enhances training, logistics, and overall project success. It recommended prioritizing comprehensive M&E plans, ensuring sufficient fund allocation for monitoring activities.

Oduor and Odhiambo (2024) explored the influence of Monitoring and Evaluation (M&E) planning on the performance of rural electrification projects in Kenya's Central Rift Region. Despite their goal of fostering economic growth and poverty reduction, 47% of these government-funded projects faced delays, as revealed by the Auditor General's FY 2021/2022 report. Anchored on critical planning theory and using a descriptive research design, the study targeted 116 ongoing projects, employing census sampling. Findings showed M&E planning significantly impacted project performance, with regression analysis indicating that M&E practices explained 49.5% ($R^2=0.495$) of the variation in performance. Effective M&E planning was found essential for accurate progress tracking, timely adjustments, and efficient resource utilization. The study recommended aligning M&E plans with project objectives and incorporating flexibility for adaptive management to enhance rural electrification project success.

2.2.2 Monitoring and Evaluation Technical Expertise and Project Performance

Hussain and Jumani (2024) studied Pakistani secondary school M&E procedures, with an emphasis on current procedures, gaps identification, and improvement suggestions. The study collected data via interviews with 12 Regional Directors and questionnaires from 186 school principals using a concurrent triangulation research design. According to the investigation, low reliability and objectivity resulted from many schools' reliance on antiquated M&E procedures without the use of modern models, technology, or outside evaluators. The report emphasised the necessity of implementing new technology, hiring impartial evaluators, and having a thorough

M&E framework. To improve the calibre of assessments, recommendations included creating a solid M&E model and hiring qualified evaluators. Different methodology was employed in this study. The current study made use of descriptive research design.

Udeh (2024) focused on UGI Technologies in Lagos, Nigeria, and investigated how project assessment and analysis affect project success. The study demonstrated how important project analysis and evaluation are to project success and found that technical assessment knowledge greatly aided in project definition and overall project performance. According to the study, a comprehensive assessment helped project managers pinpoint important areas for development, especially in socioeconomic effect evaluations and budget control. Additionally, the investigation demonstrated that appropriate assessment procedures improved consumer satisfaction by more precisely addressing socioeconomic issues. The study concluded that continuous evaluation and analysis, guided by technical expertise, are essential throughout the project lifecycle to improve both project success and client outcomes. It recommended that UGI Technologies, and similar firms, prioritize evaluation processes for sustained project performance. This was a desktop research while the current study was an empirical research.

Andreas (2024) used IntraHealth Namibia's USAID HIV Clinical Services Technical Assistance Project (UTAP) as a case study to investigate the variables affecting M&E systems' efficacy. The study underlined how crucial technical knowledge is to M&E teams' ability to assess the efficacy of M&E systems. With a coefficient of 0.710, the results showed a substantial positive relationship between the technical proficiency of M&E personnel and the caliber of data gathered. The study also shown that having access to skilled personnel greatly increased data collecting accuracy and efficiency, which raised the general efficacy of M&E procedures. Additionally, it was discovered

that budget allocation had a favorable effect on M&E teams' technical capability. These results underscored the importance of investing in M&E resource allocation and adequate financial resources to optimize M&E performance and project success. This study was based in Namibia while the current study will be in Kenya.

In Mogadishu, Somalia, Gureh and Ondara (2024) investigated how project management techniques affected local NGOs' execution of Somali Humanitarian Fund (SHF) initiatives. Their results demonstrated how important M&E procedures are to project success. Strong M&E processes were necessary to guarantee responsibility, facilitate remedial measures, and match project outcomes with goals. However, the study identified gaps in demonstrating corrective measures and aligning outcomes with set goals, suggesting the need for enhanced M&E capacity. The study also found that communication challenges and inadequate planning adversely affected project timelines, while financial constraints underscored the need for improved transparency and financier assessment. Recommendations included institutionalizing M&E processes, adopting best practices in planning, strengthening financial management, and improving communication strategies to optimize SHF project outcomes for vulnerable populations in Mogadishu.

Elsabet (2024) investigated factors influencing project implementation within the Ethiopian Engineering and Investment Group in Debre Berhan. The study identified monitoring and evaluation (M&E) as a critical factor impacting project execution. Effective M&E practices enabled accurate tracking of progress, timely identification of challenges, and implementation of corrective measures, contributing to improved project outcomes. However, gaps in technical expertise among M&E personnel and insufficient utilization of tools hindered efficiency. The research emphasized the need for structured M&E frameworks, adequate training for M&E staff,

and the integration of modern tools and technologies to enhance project monitoring. Recommendations included fostering capacity-building initiatives, adopting standardized M&E practices, and promoting stakeholder collaboration to ensure alignment with project goals. These steps were suggested to address identified challenges, optimize resource use, and improve the overall effectiveness of project implementation in Debre Berhan.

Abebe (2024) looked at what makes government-funded initiatives in Debre-Birhan City, Amhara Regional State, Ethiopia, successful. Monitoring and evaluation (M&E) was emphasized in the study as a critical factor in project performance. Thorough M&E frameworks made ensuring that project activities were in accordance with goals, deadlines were met, and resources were used efficiently. However, challenges such as inadequate technical capacity, limited stakeholder engagement, and insufficient budgetary allocation for M&E hindered performance. The findings emphasized the importance of equipping M&E teams with necessary skills and tools to enhance data accuracy and decision-making. Recommendations included increasing investment in M&E training, ensuring adequate funding for M&E processes, and fostering collaboration among stakeholders to strengthen accountability and transparency.

Peter (2024) evaluated the factors that contribute to successful M&E systems for non-governmental organizations in Tanzania's Kinondoni District, emphasizing the important influence that M&E technical proficiency has on project outcomes. According to the study, M&E personnel with specific training and expertise were essential to guaranteeing that M&E operations were carried out correctly. It was discovered that technological proficiency facilitated more precise data gathering, efficient project progress tracking, and prompt strategy modifications. Additionally, the study showed that skilled M&E personnel improved stakeholder participation, encouraging

accountability and openness in NGOs. This expertise also facilitated the identification and addressing of challenges during project implementation, improving overall performance. The study concluded that investment in M&E capacity-building was essential for the successful performance of NGO projects, recommending the continuous development of technical skills within M&E teams. There is a contextual gap as this study explored NGO projects while the current study explored healthcare projects.

Ndayambaje and Tindyebwa (2024) examined how youth project performance is impacted by M&E procedures, with a particular emphasis on a UNDP-funded digital mental health project in Rwanda. 180 people in total—staff, management, and project partners—were polled for the study, which used primary data from surveys and additional information from document reviews. The validity and dependability of the data collection tools were confirmed by a pilot study. Changes in M&E procedures might account for 28.1% of the variation in project performance, according to data analysis done with SPSS; other factors not included in the study were responsible for the remaining 71.9%. The study discovered a substantial relationship between M&E practices and project success, with a strong regression model indicated by an F-test value of 5.571 and a significance level of 0.03. The study recommended enhancing M&E strategies and increasing training for M&E staff to improve project outcomes and involving policymakers early to support project objectives.

Njoroge and Muchelule (2024) examined how team management strategies affect the performance of water projects in Kiambu County, Kenya. Using descriptive and explanatory research designs, the study evaluated 103 water projects and surveyed 321 individuals, selecting 187 respondents for analysis. It focused on two independent variables—team management skills and team

monitoring—against project performance as the dependent variable. Regression results indicated that team monitoring ($\beta = 0.497$) had a stronger effect on project outcomes than team management skills ($\beta = 0.222$). The study emphasized the importance of qualified M&E personnel and strong team coordination to improve project execution. However, while this study emphasizes team dynamics in local water initiatives, the current research centers on institutionalized M&E systems within national-level healthcare equipment service projects.

Ambatsa and Mutwiri (2024) explored how Monitoring and Evaluation (M&E) processes influence the effectiveness of tuberculosis (TB) control programs in Kakamega County, Kenya. Grounded in management and human capital theories, the study focused on M&E planning and capacity building. A descriptive research design was employed, with data collected via questionnaires from a census of 65 program stakeholders. Findings indicated that both capacity building and structured M&E planning significantly enhanced TB program performance. Correlation analysis revealed strong positive associations between these practices and successful program outcomes. The study recommended regular training and strengthened planning to improve effectiveness. While the study aligns with the health sector, the current research shifts focus to national-level MES equipment projects, where M&E supports technical service delivery rather than disease-specific interventions.

Kimote and Muchai (2024) explored strategies for strengthening Monitoring and Evaluation (M&E) in NGO-led development projects in Machakos County, Kenya. The study emphasized the pivotal role of M&E technical expertise in boosting project performance. It found that skilled M&E personnel contributed to better tracking, timely delivery, informed decision-making, and accurate identification of key performance indicators. Projects with qualified M&E professionals were

more likely to meet their objectives, optimize resource use, and reduce delays through reliable data collection and reporting. The study concluded that technical M&E capacity significantly influences project success and should be prioritized in development efforts. However, while focused on NGO-driven interventions, the current study examines public health MES projects where technical M&E expertise supports long-term service sustainability under government-led frameworks.

Mwangangi (2024) examined the effectiveness of Water, Sanitation, and Hygiene (WASH) initiatives in Mombasa County, Kenya, with a focus on participatory campaigning, M&E planning, and capacity building. The study revealed a strong positive correlation between project performance and M&E capacity building, while also affirming the critical role of structured M&E planning in achieving success. The ability to generate, manage, and share data was emphasized as a driver of competitive advantage. Although technology integration had a weaker influence, it still played a notable role. The study recommended reengineering organizational processes to strengthen M&E systems and improve project outcomes. However, unlike the WASH-focused, community-driven approach in Mombasa, the current study targets MES healthcare projects where performance hinges on centralized oversight and technical infrastructure.

2.2.3 Resource Allocation for M&E and Project Performance

Ayele, Bekele, and Tafasse (2024) examined the methods of M&E and how they affected the execution of education policies in Ethiopia's Gambella Region. The researchers used a case study design to gather secondary data through desk studies and primary data through interviews with experts and bureau officials. Their research exposed serious flaws in the current M&E system, such as a deficient structure, inadequate M&E resource allocation, a lackluster stakeholder

coordination effort, and insufficient money. In order to promote efficient policy implementation in the education sector and enhance decision-making processes, the study underlined the need for a comprehensive M&E framework and improved legislative support. This was a case study research design while the current study was descriptive.

The impact of financial allocation on the effectiveness of initiatives inside NGOs in Mogadishu, Somalia, was investigated by Abdikani and Ouma (2024). The study underlined how crucial effective budget allocation is to the accomplishment of NGO operations, particularly in settings with limited resources like Somalia. It was discovered that effective financial resource allocation improved overall performance, facilitated job completion on time, and increased operational efficiency, all of which had a direct influence on project outcomes. Budgetary allocation supported key areas such as staffing, resource procurement, and monitoring and evaluation (M&E), all of which contributed to better project performance. Furthermore, the study noted that a lack of adequate budget allocation hindered the NGOs' ability to plan effectively, engage stakeholders, and implement robust M&E systems. The study concluded that NGOs should prioritize sufficient budgetary resources to enhance project performance and ensure sustainability. There is a contextual gap as this study explored NGO projects while the current study is on public health institutions in Kenya.

Dube and Mutundu (2024) explored how Monitoring and Evaluation (M&E) practices affect the performance of agricultural initiatives funded by NGOs, with a specific focus on KENAFF. The study examined stakeholder involvement, frequency of data collection, and integration of local knowledge into organizational goals. Findings revealed mixed perceptions regarding the effectiveness of current M&E techniques, though financial performance was rated positively. This

indicates that adequately resourced M&E systems had a generally beneficial impact, despite gaps in stakeholder inclusion and local knowledge application. The study recommended sustaining current M&E structures while enhancing qualitative feedback, increasing community engagement, and aligning processes with grassroots realities. While the study centers on agricultural projects, the current research focuses on MES healthcare initiatives where stakeholder engagement is more institutionalized and less community-driven.

Mugisha and Osiemo (2024) focused on the Building Learning Foundation (BLF) project in Rwanda's Gasabo District to investigate how monitoring and evaluation (M&E) methods affect the success of initiatives sponsored by the education sector. The study evaluated M&E budgetary allocation, risk analysis, training, and accountability as critical aspects using the Theory of Change and Realistic Evaluation Theory. When SPSS was used to examine data from 130 respondents, it found a high positive connection and that the predictors accounted for 74.2% of the variance in project performance. M&E budgetary allocation had the strongest effect followed by training, risk analysis, and accountability. The study emphasized the importance of effective M&E management and recommended cost-benefit analyses to optimize budget allocation for enhanced project outcomes. There is theoretical gap as different theories will underpin this research.

Brigid and Barasa (2024) examined how NGOs operating in Kenya's Kakuma Refugee Camp used M&E techniques to guide the implementation of their educational initiatives. The purpose of the study was to evaluate how project implementation is impacted by M&E planning, resource allocation, technical knowledge, managerial participation, and stakeholder involvement. Employing both closed-ended and open-ended questionnaires, the research used a descriptive survey approach to focus on nine NGOs that receive UNHCR support. The results of data analysis

using SPSS version 22 showed that stakeholder engagement, technical expertise, and thorough M&E planning were essential to project success. Although the study discovered good associations, it also pointed out areas that needed improvement, most notably the distribution of M&E resources. It suggested that they be improved in order to successfully improve project outcomes. This study looked at educational projects while the current study is on healthcare projects.

With an emphasis on planning and tool use, Gor and Mungai (2024) investigated how monitoring methods affected the performance of NGOs' projects in Nairobi City County, Kenya. Using a descriptive technique, the study selected 167 out of 2,824 NGOs, and questionnaires were used to collect data from M&E and project staff. The investigation's findings demonstrated a strong positive correlation between project success and the application of planning and monitoring technologies. Regression research revealed that the modifications made to these methods significantly improve project performance. According to the report, good project execution requires efficient monitoring planning and tool use in order to get better results and sustainability. It also advised their integration into project management. The study suggested allocating sufficient resources for tasks related to monitoring and assessment.

Dahir and Mose (2024) investigated the role of monitoring and evaluation (M&E) budget allocation in the performance of affordable housing projects in Kenya's metropolitan counties. The study established that adequate M&E budget allocation significantly enhanced project outcomes by ensuring sufficient resources for planning, stakeholder engagement, and performance tracking. Allocated budgets allowed for comprehensive data collection, timely reporting, and the implementation of corrective measures, which were critical for addressing challenges and aligning project activities with intended objectives. Conversely, inadequate budgeting constrained the

ability to carry out these functions effectively, leading to delays, resource mismanagement, and unmet project goals. The study highlighted that well-structured budgets empowered project teams to implement robust M&E frameworks, enhancing transparency and accountability. Recommendations included institutionalizing M&E budget planning to optimize resource utilization and improve the overall success of affordable housing projects.

Chelangat (2024) explored the influence of project management dynamics on the performance of public projects at Kenya Ports Authority (KPA). The study highlighted the critical role of procurement processes, project financing, stakeholder participation, and communication management in determining project success. It revealed that efficient procurement practices ensured timely acquisition of resources, while adequate project financing minimized disruptions and enhanced resource allocation. Active stakeholder involvement fostered collaboration and alignment with project goals, while robust communication systems facilitated the seamless exchange of information across project teams. Inefficiencies in any of these areas negatively impacted project timelines, cost, and quality. The study recommended regular policy reviews, enhanced budget controls, stakeholder training, and investments in modern communication technologies to address these challenges and improve project outcomes at KPA. These findings underscored the need for holistic management approaches to optimize public project performance.

Wawira (2023) explored how monitoring and evaluation (M&E) practices, particularly resource allocation, influence funding retention in Civil Society Organisations (CSOs) in Kiambu County, Kenya. The study highlighted that despite the vital role CSOs play in achieving national and global development goals, they face financial sustainability challenges, worsened by global crises. The research found that proper M&E resource allocation positively affected funding retention by

enhancing planning, stakeholder engagement, capacity development, and gender mainstreaming. Specifically, allocating adequate resources to M&E planning helped improve donor relations, while resource-backed stakeholder engagement and capacity development efforts were key to maintaining donor confidence. Furthermore, gender mainstreaming, supported by effective M&E resource allocation, also improved funding retention. The study concluded that CSOs should invest in robust M&E systems with strategic resource allocation to improve funding retention and recommended further studies on how M&E resource strength impacts donor retention.

The function of monitoring and evaluation (M&E) systems in the execution of NG-CDF projects in Kenya's Gatundu North Constituency was investigated by Kuria and Ngatia (2024). The study discovered that creating capacity and ensuring effective stakeholder involvement were essential to the success of the project. Effective monitoring and timely project completion were guaranteed by M&E systems in conjunction with sufficient resource allocation. The study found that proper allocation of human and financial resources for M&E operations improved the caliber of project execution. The researchers underlined that the effective execution of NG-CDF initiatives required knowledgeable staff, careful planning, and participatory M&E processes. In conclusion, the study recommended that enhanced M&E frameworks and sufficient budgetary allocations be prioritized to support the success and sustainability of NG-CDF projects in the region.

Using Nyamira County, Kenya, Chanua and Osoro (2024) examined the connection between M&E practices and the execution of child protection initiatives. Strong, substantial correlations were identified in the study between project performance and the dissemination of M&E results, as well as between M&E learning and project implementation. Strengthening these ties was shown to be mostly dependent on the efficient deployment of resources for M&E. The study stressed how

crucial it is to increase M&E capacity, particularly in areas that need sufficient funds and resources, like data collection, analysis, and use. The researchers recommended that management improve M&E strategies by ensuring sufficient resource allocation for these activities, as well as developing effective dissemination plans to keep stakeholders well-informed. This would ensure the optimization of M&E practices, ultimately enhancing the successful implementation of child protection programs in the county.

2.2.4 Monitoring and Evaluation Data Management and Project Performance

Ovčina and Kalajdžić's (2024) study examined the relationship between M&E and the execution of project management systems (PIMS) for financial monitoring and the success of non-profit projects in developing nations, particularly Bosnia and Herzegovina (BiH). The resource-based view (RBV), dynamic capacities, and M&E planning theory were used in the study to highlight the crucial role non-profit projects play in economic growth. M&E and PIMS were found to have a beneficial effect on project results, and this had a significant effect on M&E planning processes such as internalization, accumulation, and transfer. Additionally, the study highlighted the importance of effective M&E data management, offering insights for policymakers, donors, and researchers to improve non-profit project performance. This study was in Bosnia and Herzegovina while the current study will be in Kenya.

Malahleha (2024) investigated how enhancing data management effectiveness can improve data quality for evidence-based decision-making at Pelonomi Tertiary Hospital. Recognizing the critical role of reliable data in healthcare decision-making, the study highlighted the risks of ill-informed choices and the need for sound data management policies. Using a qualitative case study

approach, data was collected through self-administered questionnaires and semi-structured interviews with purposively selected participants. Findings revealed that adopting new technologies could address system fragmentation and harmonize data management practices, boosting data quality for decision-making. The study emphasized the importance of management support in ensuring high data quality and compliance with human resource requirements outlined in the District Health Information Management Systems policy. Urgent attention was recommended to integrate data management roles into the hospital's organogram to sustain improved practices and outcomes. This study was purely qualitative while the current study will make use of both quantitative and qualitative data.

Chesa (2024) explored strategies for improving M&E of local government performance in South Africa, emphasizing the role of effective data management. The study highlighted that comprehensive M&E practices, particularly robust data management systems, are pivotal in ensuring accountability, tracking progress, and enhancing service delivery. Data collection, analysis, and reporting were identified as critical components, enabling timely decision-making and fostering transparency. Chesa emphasized the need for local governments to prioritize the allocation of resources toward developing integrated data management systems capable of providing accurate and actionable insights. The study concluded that the effectiveness of M&E in local government is heavily reliant on the quality and utilization of data management practices. Recommendations included investing in capacity building, implementing standardized data frameworks, and enhancing stakeholder engagement to ensure that M&E data informs policy and operational improvements effectively. This was a desktop research while the current study is an empirical research.

According to Rutikanga and Gachili (2024), 83.2% of the variance may be explained by the high positive correlation between M&E management of information and health project performance. Informed decision-making, gap identification, and progress tracking all depend on efficient M&E data management. The study emphasized how crucial precise and timely data reporting is to improving project results. It suggested that the Ministry of Health set aside funds and make investments in reliable data management systems to guarantee the accuracy and consistency of M&E data. To improve the efficacy and sustainability of health initiatives, comprehensive M&E frameworks should place a high priority on specific goals, actionable indicators, and easily accessible information.

The impact of using M&E data on project performance in the construction industry was investigated by Ogunbayo et al. (2024). The goal of the study was to evaluate how well M&E methods improve project results, specifically with regard to quality control, cost control, and on-time delivery. The findings revealed that effective utilization of M&E data significantly improved project performance, with a positive impact on project timelines, budget adherence, and quality standards. The study highlighted that M&E data utilization enabled better decision-making and risk management, ultimately leading to enhanced project success. It concluded that consistent use of M&E data is crucial for optimizing performance and achieving desired outcomes in construction projects. Recommendations included strengthening M&E systems and promoting data-driven practices across the construction industry.

Katerengabo et al. (2023) examined the impact of beneficiary involvement in the implementation of M&E plans on the performance of Tanzania's Conditional Cash Transfer Project, emphasizing M&E data management. Using a mixed research design with a sample size of 400 household heads

and targeted Village Committees and Monitoring Officers, the study revealed a significant positive influence ($t=8.472$, $p\text{-value}=0.000$) of household involvement in M&E processes on project performance. Effective M&E data collection and utilization emerged as critical factors in tracking progress and ensuring transparency. The study emphasized that integrating beneficiaries into M&E activities strengthens data quality and relevance, improving project outcomes. Recommendations included revising the M&E policy to prioritize household participation, forming M&E teams with household representatives, and enhancing the use of M&E data for decision-making. This approach was deemed essential for sustaining impactful development initiatives.

Ssali (2024) focused on Uganda's Ministry of Education and Sports (MoES) and investigated the organisational elements influencing the use of M&E results in executing government programs. Using quantitative research methods and grounded theory, the study examined how organisational culture, processing abilities, and information availability affect the use of M&E results in a sample of 191 respondents. Key findings highlighted inefficiencies such as reliance on paper-based records, leading to data wastage and poor presentation of M&E results, which negatively impact their use. The study recommended transitioning to digital M&E systems, regular capacity building for staff, and fostering a mindset change within MoES to embrace M&E results. It concluded that adopting these strategies would enhance planning, budgeting, and policymaking. Further research was suggested on the effects of political influences and information dissemination on M&E results' demand and application in government agencies.

Nimco and Kaumbulu (2024) examined how budgetary allocation, data management and utilization, and training levels influence the implementation of monitoring and evaluation (M&E) systems in local NGOs in Borama, Somaliland. The study adopted a cross-sectional survey

approach involving 10 local NGOs with 60 respondents, using questionnaires for data collection. The data was analyzed through descriptive statistics and multiple linear regression. Results revealed that budgetary allocation had no significant effect on M&E implementation ($\beta = 1.339$, $p = 0.538$). However, both data management and utilization and the level of training significantly impacted M&E system effectiveness. The study concluded that local NGOs should prioritize data management and M&E resource allocation to improve M&E implementation, ultimately enhancing project performance and sustainability. Recommendations included the need for more robust M&E systems to support NGO operations and project success.

Nyindha and Kamaara (2024) explored the role of data analytics in project management performance in NGOs within Nairobi County, Kenya. The study used a descriptive research design, targeting 325 registered NGOs, with senior project managers as the key respondents due to their familiarity with monitoring and evaluation data's impact on project performance. Results indicated a significant positive relationship between quality data and risk management on project performance. The study emphasized the importance of strategic risk mitigation, data-driven decisions, and aligning with organizational goals for improving NGO project outcomes. It concluded that an integrated approach is essential for enhancing project performance in the NGO sector in Nairobi County.

Omondi et al. (2024) investigated the function of M&E in the performance of National Government-funded rural road construction projects in Kenya, with an emphasis on M&E data management. The study evaluated how M&E affects project results by focusing on important stakeholders in road construction projects using a descriptive research design. The results demonstrated a strong positive correlation between project performance and efficient M&E data

collection and analysis, highlighting the need of standardized data management procedures. The necessity of precise data to monitor project progress, guarantee resource efficiency, and uphold responsibility were among the important realizations. The study recommended that government agencies invest in robust M&E systems that integrate real-time data collection and reporting mechanisms. Additionally, involving stakeholders in the M&E process was suggested to enhance transparency and improve decision-making, ultimately ensuring the successful delivery of rural roads projects.

2.3 Theoretical Framework

These are theories that help shape the research. This research study was based on four theories, logical framework theory, Human Capital Theory, stakeholder theory and Resource-based View Theory.

2.3.1 Logical Framework Theory

The Logical Framework Theory was developed by the United States Agency for International Development (USAID) in the 1960s and further refined by the work of Peter Bourne and his colleagues in the 1980s. This theory, also known as the LogFrame, provides a structured approach for planning, monitoring, and evaluating projects. It involves creating a Logical Framework Matrix, which outlines the project's goals, inputs, activities, outputs, and The Logical Framework Theory posits that effective project management requires a clear and systematic framework that defines project objectives, activities, and expected results. The theory assumes that well-defined goals, measurable indicators, and a logical sequence of actions will lead to successful project outcomes. It also assumes that project activities and

outputs can be clearly linked to the desired impacts and that stakeholders are engaged in the planning process to ensure alignment with their needs (USAID, 1969).

Critics of the Logical Framework Theory argue that it can be overly rigid and may not account for the complexities and dynamics of real-world projects. Despite these criticisms, the Logical Framework Theory remains relevant to the study of Managed Equipment Service (MES) projects as it provides a structured method for M&E planning. By using the LogFrame, the study can assess how well-defined objectives and systematic evaluation contribute to the performance of MES projects in public referral hospitals, ensuring that the projects meet their intended goals and improve healthcare delivery.

2.3.2 Human Capital Theory

Economist Theodore Schultz first established the Human Capital Theory in the early 1960s, and Gary Becker later refined it further in his groundbreaking book *Human Capital* (1964). According to the notion, investments in people, especially in the areas of health, education, and training, benefit both individuals and society as a whole. According to Becker, people's abilities, expertise, and experience make up human capital, which is a type of capital that can improve economic results and production (Becker, 1964).

Human Capital Theory suggests that investing in human resources is crucial for improving organizational performance. The theory assumes that people are assets whose value can be increased through proper investment in education, training, and health care. The theory also assumes that individuals will seek to maximize their economic benefits by investing in their own education and skills development (Schultz, 1961).

Human capital theory critics contend that it ignores structural and social elements that could affect productivity and oversimplifies the connection between education and economic results. It has also been criticised for supposing that all human capital investments result in proportionate returns, which isn't necessarily the case, especially in settings where structural restrictions exist (Bowles & Gintis, 1975). Despite these criticisms, Human Capital Theory is relevant to the current study of MES projects, particularly in examining the influence of technical expertise and resource allocation on project performance.

2.3.3 Theory of Change

Proposed by Weiss (1995), the Theory of Change emphasizes the importance of mapping out the pathways through which interventions are expected to lead to desired outcomes. It posits that by clearly outlining these pathways and the underlying assumptions, stakeholders can better understand the causal relationships involved in program implementation. This approach encourages the systematic evaluation of both the processes and the impacts of interventions, facilitating informed decision-making and effective resource allocation (Weiss, 1995).

The Theory of Change operates under several key assumptions. Firstly, it assumes that a well-defined set of activities will logically lead to specific outcomes if executed correctly. Secondly, it posits that contextual factors can influence the effectiveness of these activities (Chen, 2015). Moreover, the linearity implied by traditional ToC models can be challenged, as many interventions experience feedback loops and non-linear relationships that are not easily captured in a traditional framework (Connell & Kubisch, 1998).

The Theory of Change is relevant to the objective of analyzing how M&E data utilization affects the performance of managed equipment service projects. This theory helps outline how different

M&E practices, like planning and data management, lead to better project outcomes in public referral hospitals.

2.3.4 Resource-Based View (RBV) Theory

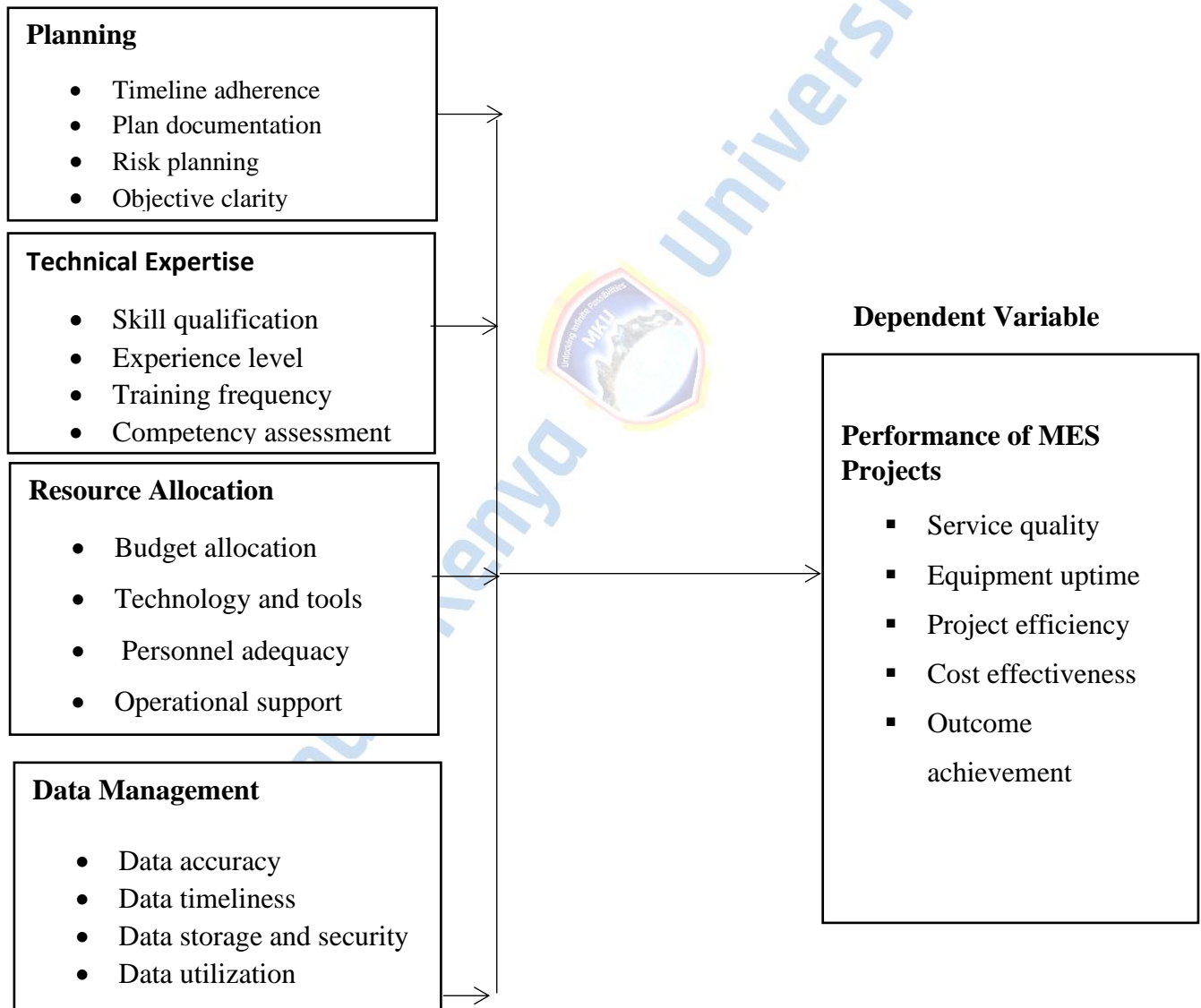
The Resource-Based View (RBV) theory was initially proposed by Penrose (1959) and further developed by Barney (1991). This theory posits that an organization's resources—both tangible and intangible—are critical for achieving and sustaining competitive advantage. The RBV emphasizes that valuable, rare, inimitable, and non-substitutable (VRIN) resources are essential for performance and long-term success (Barney, 1991). Resources include physical assets, financial capacity, technical infrastructure, and skilled human capital, all of which must be adequately allocated and managed to support operational goals.

The RBV theory assumes that optimal resource deployment enhances efficiency, adaptability, and performance outcomes. In the context of MES projects, the availability and strategic use of resources for monitoring and evaluation—such as funding, tools, infrastructure, and staff—directly influence the system's ability to track, assess, and improve performance. Critics argue that RBV lacks external orientation, underemphasizing dynamic market changes and stakeholder influences (Priem & Butler, 2001). However, for this study, the RBV provides a useful framework for evaluating how resource allocation for M&E contributes to the successful implementation and sustainability of MES projects in public referral hospitals.

2.4 Conceptual framework

The conceptual framework illustrates the relationship between monitoring and evaluation (M&E) practices and the performance of Managed Equipment Service (MES) projects. It operationalizes four independent variables—M&E planning, technical expertise, resource allocation, and data management—and examines their combined influence on MES project performance in public referral hospitals in Nairobi City County.

Independent Variable



Source: Researcher (2025)

2.5 Recap of literature review and Research Gaps

Author and Year	Study	Key Findings	Knowledge gap and Focus of Current study
Ahtesham (2024)	M&E planning in education NGO projects in Pakistan	Strong M&E planning enhanced efficiency and sustainability; weak logical frameworks were limiting.	Focused on NGO education sector; current study investigates structured M&E in government-led MES healthcare projects in Kenya.
Versteeg et al. (2021)	Adaptive M&E in water development, Bangladesh	Adaptive M&E improved project flexibility; misinformation hindered effectiveness.	Focused on adaptive models in water sector; current study centers on compliance-focused M&E in healthcare infrastructure.
Ogunbayo et al. (2024)	M&E practices in construction projects, South Africa	Clear goals, documentation, and communication improved project control.	Geographical gap; current study focuses on healthcare MES projects in Kenya.
Yusuf et al. (2024)	M&E in Millennium Village Project, Nigeria	Strong M&E planning boosted sustainability of community projects.	Focused on sustainability; current study emphasizes performance outcomes of MES projects.
Kamau & Muchelule (2024)	M&E planning and team capacity in Somaliland	PM&E planning and team skills enhanced project success.	Quantitative design only; current study uses both qualitative and quantitative methods.

Kamugisha (2024)	M&E planning and urban water sustainability in Rwanda	M&E planning, training, and stakeholder involvement significantly improved outcomes	Geographical gap; current study is based in Kenya, focusing on healthcare MES.
Mtaki (2024)	Monitoring in COVID-19 classroom construction, Tanzania	Competent M&E planning improved emergency project implementation.	Contextual gap; emergency education project vs routine healthcare MES project performance.
Mutai & Musembi (2024)	M&E technical competency in water projects, Kenya	Technical expertise and planning boosted project performance.	Sectoral gap; current study focuses on MES in healthcare using purposive sampling.
Kakw'u (2024)	M&E in road PPPs in Nairobi	Structured M&E and risk management improved infrastructure project delivery.	Contextual gap; current study examines MES health projects, not PPP infrastructure.
Onyango & Pedo (2024)	M&E in Nairobi road projects	KPI tracking and milestone monitoring improved civil infrastructure delivery.	Sectoral difference; current study focuses on service continuity and equipment efficiency in healthcare MES projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presented the research methodology that was employed by the researcher to collect and analyze data.

3.1 Research Methodology

The current study employed a mixed research methodology, integrating both quantitative and qualitative approaches to provide a comprehensive analysis of how monitoring and evaluation (M&E) practices influence the performance of Managed Equipment Service (MES) projects in public referral hospitals in Nairobi City County.

3.2 Research Design

A research design is a plan that directs how research is conducted (Dehalwar & Sharma, 2023). The research design used in this study was descriptive. A thorough investigation of current M&E procedures and their effects on the performance of MES projects was made possible by the descriptive study approach. This design was ideal for documenting the present condition of M&E procedures in the hospitals, offering a thorough grasp of their application and outcomes. This design allowed the researcher to systematically collect data from a broad sample of stakeholders—such as healthcare staff, engineers, and project managers—thereby enabling the identification of trends, gaps, and patterns in M&E planning, technical expertise, resource allocation, and data management. Furthermore, descriptive design is useful for guiding evidence-based recommendations, as it highlights what is happening, to what extent, and under what conditions, without inferring causality.

3.3 Study Location

The study was conducted in Nairobi City County, Kenya, focusing on public referral hospitals, including Kenyatta National Hospital and Mbagathi Hospital, alongside various stakeholders involved in Managed Equipment Service (MES) projects and healthcare service delivery. Nairobi City County was selected as the study location because it hosts major public referral hospitals such as Kenyatta National Hospital and Mbagathi Hospital that serve as central hubs for specialized healthcare services in Kenya. These facilities are primary beneficiaries of the Managed Equipment Service (MES) program and represent diverse, high-volume healthcare settings where MES implementation is critical to service delivery.

3.4 Target Population

The study involved public referral hospitals in Nairobi. A total of 172 key stakeholders who were directly engaged in Managed Equipment Service (MES) projects in Nairobi County participated. This included 12 members from the Ministry of Health Implementation Committee and 8 project managers from MES service providers. Additionally, perspectives were gathered from 30 field medical engineers and 20 members of the Association of Medical Engineers of Kenya (AMEK). Furthermore, 15 members from the Nairobi City County MES Project Implementation Committee and 10 members from the Kenyatta and Mbagathi Referral Hospital MES Project Implementation Committee took part, alongside 8 procurement officers, 6 accounts officers, 12 hospital engineering officers, and 51 MES equipment operators representing various healthcare roles. The target population was purposefully selected to include stakeholders with direct involvement in the planning, implementation, and operation of Managed Equipment Service (MES) projects in Nairobi's public referral hospitals.

Table 2: Target Population

Category of Respondents	Target population
Account Officers	6
AMEK Members	20
Engineering Officers	12
Medical Engineers	30
MES Operators	51
MES Project Managers	8
MoH Implementation Committee	12
Nairobi County MES Committee	25
Procurement Officers	8
TOTAL	172

Source: Ministry of Health Office (2024)

3.5 Sample and Sampling Technique

Sampling is the process of selecting a representative group from a larger population to enable meaningful analysis and generalization (Giedre & Sliogeriene, 2020). This study employed purposive sampling, a non-probability technique that allows the researcher to deliberately select individuals with specific knowledge or roles relevant to the research objectives (Tashakkori & Teddlie, 2022). All 172 participants were chosen based on their direct engagement with Managed Equipment Service (MES) projects in Nairobi City County. This technique ensured that only those with the expertise and firsthand experience in MES implementation, oversight, or operation were included, allowing for the collection of rich, context-specific data crucial for assessing the influence of monitoring and evaluation practices on MES performance.

3.6 Sample Size

The sample size comprised 172 key stakeholders, reflecting a comprehensive cross-section of professionals involved in MES projects in Nairobi. These included members from the Ministry of

Health Implementation Committee, MES service providers, medical engineers, hospital administrators, procurement officers, accounts personnel, and MES equipment operators. Given the study's reliance on purposive sampling, the size was deemed adequate for capturing diverse yet relevant insights, while also maintaining manageability for in-depth analysis. The total number also aligns with qualitative-quantitative research norms, ensuring both statistical rigor and thematic depth.

3.7 Data Collection Instruments

Both structured and unstructured questionnaires were used in the study to obtain data. Two sections made up the structured questionnaire: the first asked respondents about their demographics, and the second asked about the four independent variables and how they affected the dependent variable. A questionnaire, according to Nayak and Singh (2021), is a written document with questions that respondents must respond to in writing. Additionally, 12 members from the Ministry of Health Implementation Committee were interviewed to gain deeper qualitative insights into the study variables.

3.8 Pilot Study

Mugenda and Mugenda (2019) contend that piloting allows researchers to assess their preparedness by identifying potential shortcomings that could impact the actual data collection process. The pilot study assesses the reliability and validity of research instruments, focusing on refining the process rather than collecting data. For this study, 10 respondents from Kenyatta National Hospital and Mbagathi Hospital, will participate in the pilot phase. They will however be excluded from the final research. Following this, the research instrument will be adjusted as needed based on the feedback received.

3.8.1 Instrument Validity

The extent to which sample structures accurately evaluate the study's goals and successfully represent the intended measure is known as validity, according to Creswell (2024). To make sure the questionnaire was valid, a test-retest process was employed. Validity was achieved by employing well-established data collection instruments, piloting them to verify clarity and relevance, and incorporating feedback from field experts to enhance the accuracy of the tools. This approach helped confirm that the questionnaire consistently measured what it intended to assess over time.

3.8.2 Instrument Reliability

To ensure reliability, a pilot study will be conducted to assess the consistency of the data collection tools. Cronbach's alpha was calculated to determine the internal consistency of the instruments, following established data collection and analysis protocols (Field, 2024). The instruments were considered reliable if they achieved a Cronbach's alpha level of 0.7 or higher, indicating stability and consistency of the results over time. This ensured that the measurement tools produced dependable and coherent data throughout the study.

3.9 Data Collection Methods and Procedures

This study employed both quantitative and qualitative data collection methods to capture comprehensive insights into the influence of monitoring and evaluation (M&E) practices on the performance of Managed Equipment Service (MES) projects. Quantitative data were collected using structured questionnaires administered to 172 purposively selected respondents, including project managers, medical engineers, procurement officers, and equipment operators. The questionnaires focused on assessing the four key M&E dimensions: planning, technical expertise, resource allocation, and data management. To complement the quantitative findings,

qualitative data were gathered through key informant interviews with selected officials from the Ministry of Health and MES implementation committees. These interviews provided contextual depth and helped interpret complex patterns underlying MES project performance.

3.10 Data Analysis and Presentation

The study employed both quantitative and qualitative techniques to ensure a comprehensive evaluation of variables. Quantitative data were analyzed using SPSS through descriptive statistics such as means and standard deviations, and results were presented via tables, graphs, and charts for clarity. Inferential analysis involved multiple regression to assess the impact of monitoring and evaluation (M&E) practices—including planning, technical expertise, resource availability, and data management—on Managed Equipment Service (MES) project performance. Statistical tools like correlation coefficients, p-values, and confidence intervals measured the strength and significance of relationships. Qualitative data from interviews and open-ended questions underwent thematic analysis to extract key patterns. The integration of both methods offered richer insights and supported reliable, actionable conclusions and recommendations.

The multiple regression model that was used in the study was as follows:

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + e$$

Where: Y = Performance of MES projects,

X1 = M&E Planning

X2 = M&E Technical expertise

X3 = M&E Resource Allocation

X4 = M&E Data Management

e = error term

β_0 = represents the constant

$\beta=1, 2, 3$ are regression coefficients.

3.11 Ethical Considerations

The researcher assured the respondents that the data obtained would be used solely for academic purposes during the data collection process. Informed consent was obtained from the respondents where necessary to ensure their privacy was respected. This approach protected respondents from psychological, physical, and social harm, enabling them to voluntarily choose to participate in the study. The principle of anonymity was upheld as the researcher did not know the identities of the participants. Information provided by the participants was kept confidential. Additionally, the researcher refrained from using deceitful practices or enticements to collect data and treated respondents with dignity while maintaining integrity throughout the research process.



CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis, presentation, and interpretation of data collected from the key stakeholders involved in Managed Equipment Service (MES) projects.

4.2 Response rate

The response rate summary in Table 3 shows that out of 172 questionnaires issued to respondents comprising members of the Ministry of Health Implementation Committee, project managers, medical engineers, procurement officers, accounts officers, hospital engineering officers, and MES equipment operators involved in MES projects in public referral hospitals in Nairobi City County 131 were returned. Among these, 4 questionnaires were incomplete, resulting in 127 fully completed and usable questionnaires. This yields a valid response rate of approximately 73.8%, which is considered satisfactory for survey-based research. According to Babbie (2015), a response rate above 70% is generally regarded as excellent and reflects strong participant engagement and interest in the study.

Table 3 Response Rate Summary

Total questionnaire out	No of issued	Total No of returned questionnaires	No of Number of incomplete Questionnaires	of Completed questionnaire received	Response Rate
172		131	4	127	73.8%

Source: Researcher (2025)

4.3 Pilot Study Findings

The Cronbach Alpha Coefficients were produced by the researcher using the completed

questionnaire.

Table 4: Reliability Results

	Items	Coefficients
M&E planning	4	.890
M&E technical expertise	4	.873
M&E resource allocation	4	.866
M&E data management	4	.882
Performance of managed equipment service projects	5	.832

The reliability coefficients for the major constructs assessed in the study are shown in Table 4. The four independent variables' Cronbach's alpha values—M&E planning (0.890), M&E technical expertise (0.873), M&E resource allocation (0.866), and M&E data management (0.882)—all surpass the generally recognized cutoff point of 0.70, demonstrating the measurement scales' high internal consistency and dependability. These values imply that each construct's items measure the desired elements of monitoring and evaluation procedures in a consistent manner.

4.3 Demographic Attributes of Respondents

The demographics section presents the background information of the study respondents, including key characteristics such as gender, age, and level of education. This data helps to contextualize the sample and provides insight into the diversity and representativeness of the participants involved in the study.

4.3.1 Percentage Response by Gender

The gender distribution of the respondents involved in this study is crucial for understanding the representation of male and female stakeholders engaged in Managed Equipment Service (MES) projects within public referral hospitals in Nairobi City County.

Table 5: Distribution by gender

Gender	Frequency	Percentage (%)
Female	41	32.3%
Male	86	67.7%
Total	127	100.0%

Source: Researcher (2025)

Table 5 shows the distribution of respondents by gender, with 86 males representing approximately 67.7% of the sample and 41 females making up about 32.3%. This indicates that male stakeholders constituted the majority of participants involved in Managed Equipment Service (MES) projects in public referral hospitals within Nairobi City County. The higher representation of males could reflect the gender composition of professionals and decision-makers in this sector. However, the inclusion of a significant proportion of female respondents ensures that diverse perspectives were captured, supporting a more balanced understanding of how monitoring and evaluation practices influence MES project performance across different gender groups.

4.3.2 Age Distribution

The age distribution of respondents provides important insights into the demographic profile of the study participants. Understanding the age groups represented helps to contextualize the findings, as different age cohorts may have varying levels of experience, familiarity with technology, and

perspectives on ERP system integration. This section examines how respondents are spread across different age categories to better appreciate the diversity within the sample.

Table 6: Respondents by Age

Age	Frequency	Percent %
Below 24	4	3.1%
25-35	28	22%
36-45	34	26.8 %
46-55	41	32.3%
56-60	14	11%
Above 61 Years	6	4.7%
Total	127	100%

Source: Researcher (2025)

Table 6 presents the age distribution of the respondents. The age group with the highest representation was 46-55 years, comprising 41 respondents or approximately 32.3% of the total sample. This suggests that a significant portion of the participants were in the mid to late stages of their careers. The 36-45 age group followed closely with 34 respondents (26.8%), indicating that a substantial number of relatively younger professionals also contributed to the study. The 25-35 age bracket accounted for 28 respondents (22%), representing early to mid-career professionals who might be more involved in day-to-day technical and managerial activities of MES projects. The smaller proportions were observed in the below 24 years group with 4 respondents (3.1%) and the above 61 years group with 6 respondents (4.7%), which likely reflects the lower involvement of very young professionals and retirees in these specialized projects. Lastly, the 56-60 age group made up 14 respondents (11%), suggesting the presence of experienced senior personnel who might hold strategic or supervisory roles. Overall, this age distribution demonstrates a balanced mix of experience levels among respondents, enhancing the richness of the data collected. It also implies

that the findings of the study can reflect insights from a diverse range of career stages, which is critical for understanding the dynamics of M&E practices across different levels of involvement in MES projects.

4.3.3 Highest Level of Education

This section presents the distribution of respondents based on their highest level of education. Understanding the educational background of participants is essential, as it provides insight into their qualifications and capacity to comprehend and engage with monitoring and evaluation practices within MES projects.

Table 7: Distribution of respondents as per academic qualifications

Category	Frequency	Percent %
Certificate	8	6.3%
Diploma	38	29.9%
Degree	76	59.8%
Masters	5	3.9%
Total	127	100%

Source: Researcher (2025)

Table 7 presents the distribution of respondents according to their highest academic qualifications. The majority of respondents, 76 (59.8%), held a degree, indicating a well-educated sample with a solid foundation likely to understand and engage effectively with the monitoring and evaluation (M&E) practices in Managed Equipment Service (MES) projects. Those with diplomas accounted for 38 respondents (29.9%), reflecting a significant portion of participants with practical and technical knowledge relevant to their roles. Only 8 respondents (6.3%) had a certificate qualification, while a small minority of 5 respondents (3.9%) held a

master's degree, suggesting fewer participants with advanced academic training. The high proportion of degree holders enhances the credibility of the study, as it reflects a knowledgeable stakeholder base capable of providing reliable and informed insights on the influence of M&E practices on MES project performance in public referral hospitals in Nairobi City County.

4.4 Descriptive Statistics on Performance of managed equipment service projects.

The section on Descriptive Statistics presents an analysis of the performance of managed equipment service projects, measured using a 5-point Likert scale ranging from strongly disagree to strongly agree. This scale allowed respondents to express the extent of their agreement with various statements.

Table 8: Descriptive Statistics on Performance of managed equipment service projects

Statements	1	2	3	4	5	Mean	SD
The quality of services provided by the managed equipment service projects meets the expectations of our hospital staff and patients	5%	10%	15%	47%	23%	4.24	0.752
Equipment uptime is consistently high in managed equipment service projects, contributing to better healthcare delivery in our hospital	7%	12%	10%	41%	30%	4.28	0.642
The efficiency of managed equipment service projects positively impacts the overall performance of our hospital.	5%	8%	12%	45%	30%	4.44	0.561
Managed equipment service projects are cost-effective, providing good value for the resources invested in our hospital	8%	15%	17%	40%	20%	4.04	0.782
The outcomes achieved by	8%	12%	16%	40%	24%	4.18	0.738

managed equipment service
projects align with the intended
goals of improving healthcare
services in our hospital

4.24 0.695

Composite mean and
composite SD

N=127

Source: Researcher (2025)

The descriptive statistics on the performance of Managed Equipment Service (MES) projects reveal generally positive perceptions among respondents. The statement regarding the quality of services meeting the expectations of hospital staff and patients scored a mean of 4.24 with a standard deviation (SD) of 0.752, indicating that most respondents agree that MES projects deliver satisfactory service quality. Similarly, equipment uptime, which is crucial for uninterrupted healthcare delivery, received a mean score of 4.28 (SD = 0.642), reflecting consistent reliability in equipment availability as perceived by the stakeholders. These findings suggest that MES projects are effectively supporting hospital operations through maintaining service quality and equipment functionality.

Further, the statement about the efficiency of MES projects positively impacting overall hospital performance scored the highest mean of 4.44 with a relatively low SD of 0.561, signifying strong consensus and confidence in the projects' contribution to healthcare delivery efficiency. Cost-effectiveness was rated slightly lower with a mean of 4.04 and SD of 0.782, indicating that while most respondents agree that MES projects provide good value, there is slightly more variation in opinion on this aspect. Lastly, the alignment of project outcomes with intended goals garnered a mean score of 4.18 (SD = 0.738), reinforcing the perception that MES projects are largely successful

in meeting their healthcare improvement objectives. Overall, the composite mean of 4.24 (SD = 0.695) underscores a positive overall performance evaluation of MES projects by the respondents. Qualitative responses regarding recommended improvements for enhancing the performance of Managed Equipment Service (MES) projects in the hospitals highlighted several key areas. Participants consistently emphasized the need for better technical training and capacity-building for medical engineers and equipment operators to ensure timely maintenance and troubleshooting. Several respondents also pointed out the importance of improving communication and coordination between MES service providers and hospital management to streamline service delivery and reduce equipment downtime. Additionally, enhancing resource allocation was frequently mentioned, with calls for increased budgetary support to procure spare parts and upgrade obsolete equipment. Some respondents suggested implementing more rigorous and regular monitoring and evaluation mechanisms to track equipment performance and address issues proactively. These findings are consistent with recent scholarly work on MES projects in healthcare. Giusti et al. (2020) emphasize the importance of planning and managing diagnostic imaging technologies through MES to enhance system sustainability and service quality. Mirithu (2021) highlights how public-private partnerships in MES projects contribute significantly to health service delivery performance in Kenya, reinforcing the positive impact on healthcare efficiency and cost-effectiveness. Furthermore, Njagi et al. (2025) draw lessons from Kenya's MES implementation experience, noting that reliable equipment uptime and alignment with healthcare objectives are crucial for project success in developing countries.

4.5 Descriptive Statistics on M&E planning and Performance of managed equipment service projects.

This section presents the descriptive statistics on M&E planning and its influence on the performance of managed equipment service projects. Data was collected using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Table 9: Descriptive Statistics on M&E planning

Statements	1	2	3	4	5	Mean	SD
The M&E activities for our MES projects are completed within the planned timeframe	13%	19%	20%	30%	16%	3.26	0.873
Our MES projects have well-documented and approved M&E plans.	7%	11%	11%	44%	27%	4.22	0.697
Risk assessment and mitigation strategies are included in our M&E plans	9%	21%	18%	30%	22%	3.40	0.834
The M&E objectives in our MES projects are clearly defined and measurable.	9%	15%	16%	40%	20%	4.16	0.644
Composite mean and composite SD						3.76	0.762

N=127

The descriptive statistics on Monitoring and Evaluation (M&E) planning for Managed Equipment Service (MES) projects reveal a mixed perception among respondents regarding the timeliness and structure of M&E activities. Notably, the statement “The M&E activities for our MES projects are completed within the planned timeframe” received a relatively low mean score of 3.26 (SD = 0.873), indicating some challenges in adhering strictly to scheduled timelines. This suggests that delays or

scheduling inefficiencies may be a concern, which could impact the overall effectiveness of the M&E process and project outcomes.

In contrast, respondents expressed more positive views on the formalization and clarity of M&E planning. The item “Our MES projects have well-documented and approved M&E plans” received a high mean score of 4.22 (SD = 0.697), reflecting a strong agreement that planning documentation exists and is officially recognized. Similarly, the clarity and measurability of M&E objectives were rated favorably, with a mean of 4.16 (SD = 0.644), showing that most respondents agree that goals within M&E plans are explicit and quantifiable. These findings highlight that while documentation and objective setting are strong points, implementation timing remains an area needing improvement.

The inclusion of risk assessment and mitigation strategies in M&E plans showed a moderate mean of 3.40 (SD = 0.834), indicating some variability in how thoroughly risks are incorporated into monitoring frameworks. The overall composite mean of 3.76 (SD = 0.762) reflects an adequate but improvable status of M&E planning in MES projects.

Qualitative responses from participants revealed several recurring challenges hindering effective M&E planning in managed equipment service (MES) projects. A major concern was the lack of adequate stakeholder involvement during the early stages of M&E planning, which led to limited ownership and reduced commitment during implementation. Respondents also cited insufficient training and capacity-building opportunities for hospital staff tasked with executing M&E activities, resulting in poor understanding of key indicators, objectives, and timelines. Inadequate alignment between the planning process and actual project needs was also noted, leading to unrealistic targets and ineffective monitoring frameworks.

Another significant challenge identified was the limited financial and logistical support allocated for M&E functions. Several participants pointed out that M&E was often underfunded or treated as an afterthought, which compromised timely data collection, analysis, and reporting. Delays in the availability of essential tools such as evaluation templates, digital systems, and dedicated personnel were also frequently mentioned. These results align with previous studies such as Giusti et al. (2020), who emphasized the importance of detailed planning and risk management in enhancing MES sustainability, and Njagi et al. (2025), who highlighted that effective M&E planning, including risk mitigation, is critical to overcoming implementation challenges in healthcare projects in developing contexts.

4.6 Descriptive Statistics on M&E technical expertise and Performance of managed equipment service projects

This section presents descriptive statistics on M&E technical expertise and their perceived effect on the Performance of managed equipment service projects. Using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 10: Descriptive Statistics on M&E technical expertise

Statements	1	2	3	4	5	Mean	SD
M&E personnel in our MES projects possess relevant academic or professional certifications	5%	10%	18%	40%	27%	4.33	0.531
M&E staff receive regular training on monitoring and evaluation practices	16%	22%	20%	26%	14%	3.25	0.958
The M&E team has adequate years of experience in handling MES projects.	7%	14%	22%	35%	22%	3.85	0.851
The M&E team demonstrates high technical proficiency in using M&E tools and methodologies	7%	12%	18%	39%	24%	3.98	0.801
Composite mean and composite SD						3.85	0.785

N=127

The descriptive results in Table 10 reveal that the respondents had a generally favorable perception of M&E technical expertise in managed equipment service (MES) projects. The composite mean score was 3.85 with a standard deviation of 0.785, indicating an overall agreement that M&E personnel possessed sufficient expertise, though with moderate variability in responses. The highest-rated item was that M&E personnel possess relevant academic or professional certifications (mean = 4.33), which suggests strong confidence in the formal qualifications of staff. Additionally, many respondents agreed that the M&E team demonstrates

technical proficiency in using M&E tools and methodologies (mean = 3.98), showing that practical capabilities are recognized and appreciated.

However, the findings show concerns regarding continuous capacity development. The item on regular training for M&E staff recorded the lowest mean (3.25) and the highest standard deviation (0.958), indicating inconsistent training efforts and a divergence in opinions. The statement regarding the adequacy of experience within the M&E team had a moderate mean score (3.85), pointing to relatively good—but improvable—experiential depth. These variations imply that while M&E teams are viewed as generally competent, gaps in ongoing training and experience breadth may affect consistent performance in MES project delivery.

Qualitative responses from participants highlighted a strong demand for enhanced technical skills and support to improve monitoring and evaluation (M&E) practices for managed equipment service (MES) projects. Many respondents emphasized the need for advanced data analysis skills, particularly in using software such as SPSS, STATA, or Excel for real-time data interpretation. Others suggested training on emerging health informatics tools and dashboard creation to support timely decision-making and reporting. A recurrent theme was the importance of continuous professional development, including refresher courses and certifications tailored to healthcare M&E. Respondents also called for technical support in areas like risk-based monitoring, results-based management, and the integration of digital health solutions into M&E frameworks.

These findings are consistent with recent empirical studies. Njagi et al. (2025) emphasize that for MES projects to succeed in developing countries like Kenya, technical expertise and regular

capacity-building among M&E staff are essential. Similarly, Giusti et al. (2020) argue that technical qualifications and the use of appropriate M&E tools play a vital role in the sustainable management of diagnostic equipment services. Mirithu (2021) further supports that public-private partnership effectiveness in health service provision significantly relies on experienced and technically skilled M&E teams. These scholarly perspectives underscore the need for robust technical support structures to optimize the performance of MES initiatives.

4.7 Descriptive Statistics on M&E resource allocation and Performance of managed equipment service projects

This section presents descriptive statistics on M&E resource allocation and their influence on the Performance of managed equipment service projects.

Table 11: Descriptive Statistics on M&E resource allocation

Statements	1	2	3	4	5	Mean	SD
A sufficient portion of the MES project budget is allocated to M&E activities.	21%	35%	10%	14%	10%	2.70	0.976
The MES project has access to appropriate M&E technology and data collection tools.	8%	12%	18%	40%	22%	3.96	0.712
The number of M&E personnel assigned to MES projects is adequate.	7%	18%	15%	40%	20%	4.08	0.724
Sufficient logistical support (e.g., transport, office space, data collection materials) is provided for M&E activities.	20%	34%	18%	17%	11%	2.81	0.898

Composite mean and
composite SD

N=127

The findings in Table 11 reveal varying perceptions among respondents regarding the adequacy of resource allocation for monitoring and evaluation (M&E) in Managed Equipment Service (MES) projects. The statement “A sufficient portion of the MES project budget is allocated to M&E activities” recorded the lowest agreement, with a mean of 2.70 (SD = 0.976), indicating that a majority of respondents disagreed or were neutral about sufficient funding for M&E. Similarly, logistical support for M&E activities such as transport and materials received a low mean score of 2.81 (SD = 0.898), showing that many respondents feel constrained by a lack of essential operational resources, which could undermine the effectiveness and sustainability of M&E processes.

On the other hand, there was relatively high agreement with the availability of appropriate M&E technology and tools, which scored a mean of 3.96 (SD = 0.712), and with the adequacy of personnel, which scored the highest at a mean of 4.08 (SD = 0.724). These results indicate that while there is reasonable satisfaction with human and technological resources, financial and logistical aspects are perceived as inadequate. This suggests that MES projects might be facing implementation challenges not due to a lack of expertise or tools, but because of underfunded M&E budgets and poor logistical planning, which are critical for field activities and real-time reporting.

Qualitative findings from respondents revealed several key challenges related to resource allocation for Monitoring and Evaluation (M&E) activities in Managed Equipment Service (MES) projects. A recurring concern was the inconsistent or insufficient funding allocated specifically for M&E components, with some respondents noting that budgeting priorities often favored equipment procurement and operational costs over systematic monitoring efforts. Many also cited limited logistical support, such as inadequate transport, office space, and data collection tools, which hinder timely fieldwork and accurate reporting. Additionally, respondents pointed out that human resource shortages affected M&E performance, with a few highlighting that available personnel were overstretched or not sufficiently trained in M&E methodologies. Others emphasized the bureaucratic delays in accessing allocated resources, which slowed down implementation and compromised data quality.

The composite mean of 3.4 (SD = 0.828) reflects a moderate overall perception of M&E resource allocation, with notable disparities across different resource dimensions. These findings align with Mirithu (2021), who observed that M&E effectiveness in MES projects in Kenya is often hindered by financial constraints and inadequate field facilitation. Similarly, Njagi et al. (2025) emphasized the importance of balanced resource deployment in the Kenyan MES model, noting that while technology and staffing have improved, consistent funding and logistical capacity remain bottlenecks. Giusti et al. (2020) also underscore that sustained performance of MES projects requires strategic and adequately funded M&E frameworks, particularly in developing health systems.

4.8 Descriptive Statistics on M&E data management and Performance of managed equipment service projects

This section presents descriptive statistics on M&E data management and its influence on Performance of managed equipment service projects. The responses were gathered using a 5-point Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree.

Table 12: Descriptive Statistics on M&E data management

Statements	1	2	3	4	5	Mean	SD
M&E data collected for MES projects is accurate and free from errors.	6%	10%	12%	45%	27%	4.20	0.576
M&E reports are prepared and submitted on time	8%	12%	18%	40%	22%	3.96	0.712
The MES project uses secure and accessible data storage systems for M&E records.	7%	18%	13%	42%	20%	4.10	0.614
Decisions and policy adjustments in MES projects are informed by M&E data.	10%	20%	10%	32%	28%	3.59	0.898
Composite mean and composite SD						3.96	0.70

N=127

The findings presented in Table 12 indicate that respondents generally viewed the data management practices within Managed Equipment Service (MES) projects favorably. A significant proportion of participants agreed that M&E data collected was accurate and reliable, reflected by a high mean of 4.20 and a relatively low standard deviation of 0.576, suggesting strong consensus. Respondents also affirmed that secure and accessible data storage systems

were in place for storing M&E records (mean = 4.10, SD = 0.614), highlighting confidence in the technological infrastructure supporting data handling.

However, views were more moderate regarding the timeliness of M&E report submissions, with a mean of 3.96 and a slightly wider standard deviation of 0.712. This implies that while many respondents agreed reports were timely, some experienced delays or inconsistencies. Notably, the lowest-rated statement related to whether M&E data informed decision-making and policy adjustments in MES projects (mean = 3.59, SD = 0.898), indicating a gap between data collection and its practical use in guiding strategic action. This highlights a critical area for improvement — translating insights into actionable policy reforms.

The overall composite mean of 3.96 with a standard deviation of 0.70 suggests that M&E data management in MES projects is generally effective, though variability remains in some areas. These findings align with Nguliki (2024), who emphasized that institutional culture, leadership support, and capacity gaps significantly affect how M&E data is used for decision-making, especially in public healthcare systems in sub-Saharan Africa. Similarly, Sakari et al. (2024) highlighted that sustained mentorship and facility-based surveillance models improve data quality and reliability but that utilization for operational planning remains limited without targeted capacity building. These studies affirm that improving data quality is necessary but not sufficient—active use of that data in strategic hospital functions is key to enhancing performance in MES projects.

4.9 Diagnostic Tests

4.9.1 Test for Autocorrelation

A regression model's residuals can be tested for autocorrelation to see if they defy the premise of independence by becoming correlated with time. Autocorrelation detection is essential since it can compromise the precision of statistical conclusions.

Table 13: Test for Autocorrelation

lags (<i>p</i>)	chi2	df	Prob > chi2
1	3.664	1	0.667

Source: Researcher (2025)

Table 13 presents the results of the autocorrelation test conducted to determine whether residuals from the regression model used in this study on Managed Equipment Service (MES) projects are independent. The chi-square value of 3.664 with 1 degree of freedom and a p-value of 0.667 indicates that the null hypothesis of no autocorrelation cannot be rejected. This suggests that there is no significant autocorrelation in the residuals, confirming that the model's assumptions are valid and the results are reliable for explaining relationships between M&E practices and the performance of MES projects in public referral hospitals in Nairobi City County.

4.9.2 Heteroscedasticity

Heteroscedasticity was identified using the Breusch-Pagan test, which evaluated whether the residuals' variance was constant throughout the model. Since heteroscedasticity can impact the precision of regression estimates and statistical inferences, identifying it is

crucial.

Table 14: Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity	
Chi2 (1)	= 0.602
Prob > chi2	= 0.7821

Table 14 presents the Breusch-Pagan/Cook-Weisberg test results for heteroscedasticity, which assesses whether the variance of the residuals in the regression model is constant (homoscedastic). The test yields a Chi-square value of 0.602 with a p-value of 0.7821. Since the p-value is significantly greater than 0.05, the null hypothesis of homoscedasticity is not rejected. This indicates that the model does not suffer from heteroscedasticity, meaning the error terms have constant variance. Therefore, the regression estimates in this study on the performance of Managed Equipment Service (MES) projects are efficient and reliable.

4.9.3 Multicollinearity

Tolerance tests and the Variance Inflation Factor (VIF) were used to verify the multicollinearity. These tests assess the degree of linearity between a predictor set and the criterion, which may affect the accuracy of the model and the dependability of coefficient estimations.

Table 15: Multicollinearity

Collinearity Statistics		
Variables	Tolerance	VIF
Project performance	0.883	1.332
M&E planning	0.822	1.271
M&E technical expertise	0.717	1.501
M&E resource allocation	0.887	1.442
M&E data management	0.824	1.276

Source: Researcher (2025)

The multicollinearity diagnostics for the study's independent variables utilizing tolerance and variance inflation factor (VIF) values are shown in table 15. All variables have tolerance values between 0.717 and 0.887, and the associated VIF values fall between 1.271 and 1.501. These results show that there is no major multicollinearity among the regression model's predictors, as tolerance values above 0.1 and VIF values below 5 are often regarded as acceptable. In evaluating their impact on project performance in Managed Equipment Service projects in Nairobi's public referral hospitals, this indicates that the independent variables—M&E planning, M&E technical expertise, M&E resource allocation, and M&E data management—do not have a strong correlation with one another, guaranteeing the stability and dependability of the regression coefficients.

4.10 Correlation Results

The correlation results in this study provide insights into the strength and direction of the relationships between the key independent variables—M&E planning, M&E technical expertise, M&E resource allocation, and M&E data management—and the performance of

managed equipment service projects.

Table 16: Correlation Results

		Hotel Performance	M&E planning	M&E technical expertise	M&E resource allocation	M&E data management
Hotel Performance	Pearson Correlation Sig. (2- tailed)	1				
M&E planning	Pearson Correlation Sig. (2- tailed)	.682**	1			
M&E technical expertise	Pearson Correlation Sig. (2- tailed)	.623*	.522	1		
M&E resource allocation	Pearson Correlation Sig. (2- tailed)	.591**	.462	.315	1	
M&E data management	Pearson Correlation Sig. (2- tailed)	.520	.383	.196		1
		.000	.355	.241		
		.000	.398	.228	.4127	

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).
 c. Listwise N=127

Table 16 presents the Pearson correlation results examining the relationships between managed equipment service (MES) project performance and various Monitoring and Evaluation (M&E) factors. The findings indicate a strong and statistically significant positive correlation between M&E planning and project performance ($r = 0.682$, $p < 0.01$), suggesting that well-structured and timely M&E planning is closely associated with better project outcomes. M&E technical expertise also shows a significant positive correlation with project performance ($r = 0.623$, $p < 0.05$), highlighting the importance of skilled personnel in enhancing MES effectiveness. Additionally, M&E resource allocation ($r =$

0.591, $p < 0.01$) and M&E data management ($r = 0.520$, $p < 0.01$) both demonstrate moderate positive correlations with project performance, reinforcing the value of adequate resources and proper data handling in achieving successful MES projects.

These results emphasize the integral role that comprehensive M&E practices play in influencing the success of managed equipment service projects in public referral hospitals. The strong correlation between M&E planning and project performance underlines the necessity for clear, actionable, and well-timed monitoring frameworks. Similarly, the moderate correlations for resource allocation and data management stress that while these components support project success, their impact is slightly less pronounced but nonetheless critical. The correlations among the M&E variables themselves are mostly low to moderate and not statistically significant, indicating that each M&E component independently contributes to project performance.

The correlation results indicate a strong positive relationship between hotel performance and M&E planning ($r = .682$, $p < 0.01$), aligning with findings by Ahtesham (2024) and Yusuf et al. (2024), who emphasized that clear M&E planning significantly enhances project delivery and sustainability. Similarly, Ogunbayo et al. (2024) demonstrated in South Africa that clearly defined objectives and routine monitoring improve project outcomes. Kamau and Muchelule (2024) also found a significant link between participatory M&E planning and development project success, supporting this study's conclusion that M&E planning plays a pivotal role in driving performance in MES-related contexts. The strong correlations observed affirm the relevance of structured M&E planning across sectors and geographical regions.

Additionally, M&E technical expertise showed a strong positive correlation with hotel

performance ($r = .623, p < 0.01$), consistent with Andreas (2024), who linked technical capacity to enhanced data quality and project success in Namibia’s healthcare sector. The positive correlation between resource allocation and performance ($r = .591, p < 0.01$) echoes Mugisha and Osiemo’s (2024) study, where budgetary support for M&E significantly influenced project outcomes. M&E data management also revealed a moderate positive association ($r = .520$), which agrees with Rutikanga and Gachili (2024), who highlighted the crucial role of effective data use in health project decision-making. These parallels reinforce that investment in skilled personnel, resource allocation, and robust data systems are central to M&E effectiveness and improved project performance.

4.11 Regression Results

Table 17 presents the summary statistics for the regression model.

Table 17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661 ^a	.522	.431	.37104

a. Predictors: (Constant), M&E planning, M&E technical expertise, M&E resource allocation, M&E data management

Source: Researcher (2025)

Table 17 presents the model summary for the multiple regression analysis examining the combined effect of M&E planning, M&E technical expertise, M&E resource allocation, and M&E data management on the performance of managed equipment service projects. The model shows an R value of 0.661, indicating a moderately strong positive relationship between the predictors and project performance. The R Square value of 0.522 suggests that approximately 52.2% of the variability in project performance can be explained collectively by these four M&E factors, demonstrating a substantial explanatory power of the model.

The adjusted R Square value of 0.431, which accounts for the number of predictors relative to the sample size, confirms that about 43.1% of the variation in MES project performance is reliably predicted by the M&E variables after adjusting for potential model overfitting. The standard error of the estimate at 0.37104 reflects the average distance between the observed and predicted values, indicating reasonable precision of the model predictions.



CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter Five provides the summary of key findings, conclusions drawn from the study, and practical recommendations based on the results.

5.2 Summary of Findings

This study explored the influence of monitoring and evaluation (M&E) practices on the performance of managed equipment service (MES) projects in public referral hospitals within Nairobi City County, Kenya. Specifically, it aimed to assess how M&E planning, technical expertise, resource allocation, and data management affect the successful implementation and outcomes of MES projects. Through examining these four key M&E components, the study sought to provide a comprehensive understanding of their individual and combined impact on project performance, ultimately offering insights to enhance healthcare service delivery in the public hospital setting.

5.2.1 Performance of managed equipment service projects.

The dependent variable on the performance of managed equipment service (MES) projects indicate generally positive perceptions among hospital staff. Respondents agreed that MES projects meet quality expectations and ensure high equipment uptime, supporting consistent healthcare delivery. The efficiency of these projects was rated highly, reflecting strong confidence in their impact on hospital performance. Although cost-effectiveness received slightly more varied opinions, most respondents still viewed MES projects as providing good value. Overall, the findings show that MES projects effectively contribute to healthcare improvement and operational success.

5.2.2 M&E planning and Performance of managed equipment service projects.

Findings from the first objective revealed that M&E planning in Managed Equipment Service (MES) projects shows strengths in documented plans and clear, measurable objectives, yet struggles with timely completion of activities. While respondents agree that formal M&E plans are well-established, challenges such as delays in execution and inconsistent inclusion of risk assessments indicate gaps in implementation. Qualitative feedback highlights limited stakeholder involvement, inadequate staff training, and insufficient financial and logistical support as key barriers.

5.2.3 M&E technical expertise and Performance of managed equipment service projects.

Findings from the second objective indicated that M&E technical expertise in Managed Equipment Service (MES) projects is generally viewed positively, with respondents affirming that personnel have relevant qualifications and demonstrate proficiency in M&E tools. The composite mean score reflects overall competence, though regular training for staff shows inconsistency, highlighting a need for more continuous capacity development. Experience levels are moderate but could be enhanced. Qualitative feedback underscored the demand for advanced technical skills, ongoing professional development, and support in data analysis, health informatics, and digital tools to improve M&E effectiveness and ultimately strengthen MES project performance.

5.2.4 M&E resource allocation and Performance of managed equipment service projects

Findings from the third objective M&E resource allocation in Managed Equipment Service (MES) projects showed mixed perceptions among respondents. While there was general satisfaction with the availability of M&E technology and personnel, with relatively high mean

scores, significant concerns exist regarding funding and logistical support, which received notably low ratings. Many respondents feel that budget allocations for M&E are insufficient and that logistical resources like transport and data collection materials are inadequate, potentially hindering effective monitoring. Qualitative feedback highlights challenges such as underfunding, limited logistics, personnel shortages, and bureaucratic delays, suggesting resource constraints impact M&E performance despite adequate expertise and tools.

5.2.5 M&E data management and Performance of managed equipment service projects

The descriptive statistics on M&E data management for MES projects showed that respondents generally perceived data accuracy and reliability positively, along with confidence in secure and accessible data storage systems. However, there was some inconsistency regarding the timely submission of M&E reports, indicating occasional delays. Notably, the use of M&E data to inform decision-making and policy adjustments was seen as less effective, revealing a disconnect between data collection and its practical application in guiding project strategies. Overall, while M&E data management was considered effective, there was room for improvement in translating data insights into actionable decisions.

5.2.6 Inferential Statistics

The inferential statistics revealed that all four Monitoring and Evaluation (M&E) variables—M&E planning, M&E technical expertise, M&E resource allocation, and M&E data management—had positive and statistically significant correlations with the performance of managed equipment service projects. Specifically, M&E planning exhibited the strongest positive correlation with project performance ($r = 0.682$, $p < 0.01$), followed by M&E technical expertise ($r = 0.623$, $p < 0.05$), M&E resource allocation ($r = 0.591$, $p < 0.01$), and

M&E data management ($r = 0.520$, $p < 0.01$). These results underscored the significant role each variable played in enhancing project performance. Moreover, the regression analysis confirmed that these four variables collectively accounted for approximately 52.2% of the variance in project performance ($R^2 = 0.522$), with an adjusted R^2 of 0.431, indicating a strong explanatory and predictive power of the model.

5.3 Conclusion

The study concluded that Monitoring and Evaluation (M&E) planning plays a pivotal role in the performance of Managed Equipment Service (MES) projects. While structured M&E plans and measurable objectives were widely acknowledged, delays in implementation and inconsistent risk assessment practices emerged as significant challenges. The findings emphasized that limited stakeholder engagement, inadequate staff training, and insufficient logistical and financial support undermine the effectiveness of M&E planning. Addressing these gaps through inclusive planning processes, capacity building, and better resourcing would enhance the strategic alignment and timely execution of MES activities.

The study further established that M&E technical expertise, resource allocation, and data management are vital determinants of MES project success. Although staff competency in M&E tools and processes was generally rated positively, inconsistencies in ongoing training and capacity development were evident. Additionally, while M&E technologies and personnel were perceived as sufficient, major constraints were reported in funding and logistical support, which hinder monitoring effectiveness. In terms of data management, respondents expressed confidence in the quality and security of data systems but pointed out lapses in timely reporting and limited application of data in decision-making. Enhancing technical skills, increasing M&E budgets, and fostering data-driven decision-making are therefore critical to improving MES project performance.

5.4 Recommendations

The study's recommendations are as follows;

The Ministry of Health (MoH) and County Health Departments should institutionalize participatory M&E planning frameworks that actively engage frontline healthcare workers, M&E officers, and project beneficiaries. This approach would ensure that risk assessments are incorporated, timelines are realistic, and ownership of M&E activities is enhanced, thereby improving the execution of MES project activities.

The Public Service Commission (PSC) and the Kenya School of Government, in collaboration with MoH, should prioritize structured and continuous in-service training programs for M&E personnel. These programs should focus on strengthening competencies in data analysis, digital M&E tools, and health informatics to boost technical expertise and improve the effectiveness of MES monitoring.

The National Treasury and MoH should revise funding guidelines to allocate a specific percentage of MES project budgets to M&E functions. Additionally, health facility managers must be equipped with sufficient transport, data collection tools, and communication infrastructure to facilitate timely and comprehensive monitoring efforts.

The Health Information System (HIS) Directorate under MoH should develop clear data use guidelines and conduct regular data review forums to bridge the gap between data collection and decision-making. Project managers and hospital administrators should be tasked with integrating M&E findings into operational planning and policy adjustments to maximize MES project outcomes.

5.5 Recommendations for Further Studies

More research on the following topics is suggested by the researcher;

Future studies should explore the influence of monitoring and evaluation (M&E) practices on the performance of Managed Equipment Service (MES) projects in other counties across Kenya. This would allow for comparative analysis and provide a national perspective on the implementation of MES projects beyond Nairobi City County.

While this study focused on current project performance, further research should assess the long-term sustainability and impact of M&E practices on healthcare infrastructure, equipment maintenance, and service delivery outcomes over time.

Given the increasing adoption of digital tools in healthcare, future research could examine how digital M&E platforms and real-time data systems enhance monitoring effectiveness, decision-making, and responsiveness in MES project implementation.



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APPENDIX I: Consent Form

Florence Makena

MSCPM/2023/42002

Informed Consent

I am currently pursuing a Master of Science in Project Planning and Management at Mount Kenya University. As part of my studies, I am conducting research on Monitoring and Evaluation Practices and the Performance of Managed Equipment Service Projects in Public Referral Hospitals in Nairobi City County, Kenya. To gather relevant data for this research, I have prepared a questionnaire for participants.

Voluntarism

You are not going to be victimized if you choose not to participate in this study.

Discomforts and Risks

You might find some of the questions awkward or humiliating since they deal with private matters. In the event that this occurs, you have the option to decline to respond to these enquiries.

Confidentiality

The surveys will remain confidential and be utilised exclusively for educational objectives.

Participant's statement

I am aware of the details mentioned above regarding my participation in the research. I received a thorough overview of the study, a chance to ask questions, and thoughtful responses to my enquiries. I voluntarily decide to take part in this study in its entirety. I understand that my records will be kept private and that I can leave the study at any time.

Name of Participant:

Signature or Thumbprint

Date:

APPENDIX II: QUESTIONNAIRE

SECTION 1: Background information

Gender

Male Female

Age

Below 24 [] 25-35 36-45 46-55 56-60 Above 61 []

Level of education

Secondary [] Certificate [] Diploma [] Undergraduate [] Masters [] PHD []

Section B: Influence of M&E Planning on the Performance of MES Projects

The purpose of this part is to collect information on the function of monitoring and evaluation (M&E) planning procedures and how they affect managed equipment service project performance at public referral hospitals in Nairobi City County, Kenya. Using the scale provided, please select the degree to which you agree or disagree with the statements below. Strongly disagree (1), disagree (2), agree (4), and strongly agree (5).

	Statement	1	2	3	4	5
(a)	The M&E activities for our MES projects are completed within the planned timeframe					
(b)	Our MES projects have well-documented and approved M&E plans.					
(c)	Risk assessment and mitigation strategies are included in our M&E plans					

(d)	The M&E objectives in our MES projects are clearly defined and measurable					
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What specific challenges do you believe hinder effective M&E planning in the managed equipment service projects at our hospital?

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Section C: M&E technical expertise and performance of managed equipment service projects

	Statement	5	4	3	2	1
(a)	M&E personnel in our MES projects possess relevant academic or professional certifications.					
(b).	The M&E team has adequate years of experience in handling MES projects.					
(c)	M&E staff receive regular training on monitoring and evaluation practices					
(e)	The M&E team demonstrates high technical proficiency in using M&E tools and methodologies.					

What additional technical skills or support do you believe would enhance M&E practices for managed equipment service projects in our hospital?

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Section D: Resource allocation for M&E and performance of managed equipment

service projects

	Statement	5	4	3	2	1
(a)	A sufficient portion of the MES project budget is allocated to M&E activities.					
(b).	The MES project has access to appropriate M&E technology and data collection tools.					
(c)	The number of M&E personnel assigned to MES projects is adequate.					
(d).	Sufficient logistical support (e.g., transport, office space, data collection materials) is provided for M&E activities.					

In your opinion, what challenges do you face regarding resource allocation for M&E activities in managed equipment service projects at our hospital?

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Section E: M&E Data Management and performance of managed equipment service

projects

	Statement	5	4	3	2	1
(a)	M&E data collected for MES projects is accurate and free from errors.					
(b).	M&E reports are prepared and submitted on time.					
(c)	The MES project uses secure and accessible data storage systems for M&E records.					
(d).	Decisions and policy adjustments in MES projects are informed by M&E data.					

What barriers do you perceive in the management and utilization of M&E data for managed equipment service projects in our hospital?

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Section F: Performance of Managed Equipment Service Projects

	Statement	5	4	3	2	1
(a)	The quality of services provided by the managed equipment service projects meets the expectations of our hospital staff and patients.					
(b).	Equipment uptime is consistently high in managed equipment service projects, contributing to better healthcare delivery in our hospital.					
(c)	The efficiency of managed equipment service projects positively impacts the overall performance of our hospital.					
(d).	Managed equipment service projects are cost-effective, providing good value for the resources invested in our hospital.					
(e)	The outcomes achieved by managed equipment service projects align with the intended goals of improving healthcare services in our hospital.					

What specific improvements would you recommend to enhance the performance of managed equipment service projects in our hospital?

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Thank you for your participation



APPENDIX III: ETHICAL REVIEW COMMITTEE LETTER



Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MSCPM/2023/42002

11th April, 2025

*National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA*

Dear Sir/Madam,


RE: FLORENCE MAKENA MWIRIGI – REGISTRATION NO. MSCPM/2023/42002

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Project Management** in the **Department of Management** in the school of **Business and Economics**.

The title of the research is **“Influence of Monitoring and Evaluation Practices on the Performance of Managed Equipment Service Projects in Public Referral Hospitals in Nairobi City County, Kenya”** It has been cleared by the University’s Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **April, 2025 and June, 2025**.

Any assistance accorded to the student will be highly appreciated.

Thank you.


Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director,
Graduate Studies

APPENDIX V: PLAGIARISM REPORT

Florence Makena Similarity

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