INFLUENCE OF PROCUREMENT PRACTICES ON SERVICE DELIVERY IN SELECTED PUBLIC HEALTH FACILITIES IN NYERI COUNTY, KENYA

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DECLARATIONS AND APPROVALS

Student's Declaration

This research project thesis is my original work and has not been submitted for the award of a degree in any other university.

Signature……  ……Date ……10/07/2025…….

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Supervisor's approval

This research thesis has been submitted for examination with my approval as the supervisor.

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DEDICATION

This work is dedicated to my cherished family, whose constant love, support, and encouragement have been invaluable throughout this journey. I am sincerely grateful for their financial and material assistance, as well as for the kind words and motivation that have propelled me forward.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA:	Analysis of Variance
AOR:	Adjusted Odds Ratio
COR:	Crude Odds Ratio
HER:	Electronic Health Records
HCT:	Human Capital Theory
ICT:	Information and Communication Technology
NACOSTI:	National Council for Science Technology and Innovation
RBV:	Resource Based View
RDT:	Resource Dependency Theory
SET:	Social Exchange Theory
SPSS:	Statistical Package for Social Sciences

ABSTRACT

Public health facilities are vital in providing healthcare services, offering essential preventive and curative care to communities. It is thus essential for these facilities to efficiently deliver services, as timely access to high-quality healthcare directly impacts public health outcomes. The effectiveness and efficiency of healthcare service delivery are largely dependent on procurement procedures. Public procurement is essential to the effective operation of government agencies, especially the healthcare industry, on a global scale. Purchasing products and services required for the functioning of healthcare facilities, such as prescription drugs, medical equipment, and other healthcare services, is known as procurement in the healthcare industry. To guarantee that healthcare providers can provide timely, high-quality care, efficient procurement procedures are crucial. Poor management, inadequate budget, and bad procurement methods are some of the issues facing the public health system in developing countries. One of the major issues is related to procurement practices, which have led to stockouts of essential medicines and equipment, resulting in delays in treatment and potentially compromising patient care. Despite these insights, there is a paucity of research specifically examining how procurement practices impact service delivery within Nyeri County's public health facilities. Therefore, this study aimed to bridge this knowledge gap by exploring how various aspects of procurement, such as ICT infrastructure, staff training, inventory management, and supplier relationship management, affect service delivery outcomes in selected public health facilities across Nyeri County. The study adopted a descriptive research design and involved 123 staff involved in procurement processes. A researcher-administered questionnaire was used to collect data. Data was coded, cleaned and analyzed using SPSS software version 29 software. Descriptive and inferential analyses, including chi-square tests and logistic regression, were conducted to determine associations between procurement practices and service delivery. The results revealed that ICT availability, staff training, inventory management, supplier relationships, and working duration were significantly associated with service delivery. Facilities with adequate ICT infrastructure were 4.9 times more likely to have good service delivery (AOR = 4.870; CI, 0.859-7.614; P-value = 0.044). Adequate staff training was also a significant determinant, with well-trained staff being 3.2 times more likely to contribute to improved service delivery (AOR = 3.227; CI, 0.576-8.086; P-value = 0.033). Additionally, effective inventory management enhanced service delivery, with well-managed facilities being 7.1 times more likely to perform better (AOR = 7.062; CI, 1.741-18.649; P-value = 0.006). A strong supplier relationship was also positively associated with service delivery, with facilities reporting good supplier relationships being 6.1 times more likely to deliver better services (AOR = 6.079; CI, 1.644-12.477; P-value = 0.007). Furthermore, working duration was a key demographic factor, as staff with 5–10 years of experience were less likely to experience poor service delivery compared to those with more than 10 years of experience (AOR = 0.107; CI, 0.026-0.449; P-value = 0.002). The study concludes that procurement practices significantly influence service delivery in public health facilities. Strengthening ICT infrastructure, enhancing staff training, improving inventory management, fostering strong supplier relationships, and optimizing staffing experience can enhance procurement efficiency and service provision. The study recommends increased investment in ICT systems, regular procurement training, and improved supplier engagement strategies to enhance service delivery in public health facilities.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Public health facilities play a significant role in the delivery of healthcare services, providing crucial preventive and curative care to communities (World Health Organization [WHO]., 2024). It is thus essential for these facilities to efficiently deliver services, as timely access to high-quality healthcare directly impacts public health outcomes. Additionally, the quality of care impacts on the public sector performance (Mbau et al., 2023; World Bank, 2024). Notably, the success of public sectors can be measured by their ability to provide services that meet the needs of community residents (Boselie et al., 2021; Chikophe et al., 2024; Kaondera et al., 2023).

Public procurement is essential in facilitating service delivery and ensuring the efficient functioning of government departments worldwide. It upholds the responsibility of efficiently delivering goods and services to the public (Chikwere et al., 2022; Kariuki & Wabala, 2021). It is also worth noting that procurement strategies play a crucial role in achieving the goals and functioning of any public organization (Bosio et al., 2022). In the healthcare sector, procurement involves the acquisition of goods and services necessary for the operation of healthcare facilities, including medications, medical devices, equipment, and various healthcare services. Efficient procurement practices are essential to ensure that healthcare providers can deliver quality care in a timely manner (Rahmani et al., 2022). This complex process encompasses multiple stages, such as identifying needs, selecting suppliers, managing contracts, and overseeing delivery. Inadequate procurement practices can result in delays, increased costs, and compromised patient care (Sanderson et al., 2015; World Health Organization, 2024).

In many developing countries, including Kenya, public health facilities encounter significant challenges in providing efficient healthcare services. These nations often struggle to meet expected service standards, particularly within the public health sector (Javidi et al., 2020). Many health facilities underperform, with common issues such as understaffing, demotivated staff, drug shortages, and low patient satisfaction (Chikazhe et al., 2023; Kaufmann et al., 2019). Some of the challenges in the public health sector in developing countries stem from inadequate procurement practices, insufficient funding, and poor management (Chikwere et al., 2022; Criado & Villodre, 2021).

One of the major issues is related to procurement practices, which have led to stockouts of essential medicines and equipment, resulting in delays in treatment and potentially compromising patient care (Tefera et al., 2022; Wambui, 2017; Yenet et al., 2023). Furthermore, inefficient procurement processes have contributed to inflated acquisition costs due to inefficiencies, thereby straining already limited budgets and impacting the availability of resources (Casady et al., 2023). Moreover, these procurement inefficiencies can also have an impact on the well-being of the staff. When essential supplies are unavailable or the procurement processes are overly complex and time-consuming, it can lead to staff frustration and burnout (Seyffert et al., 2024), ultimately resulting in higher staff turnover and further impacting service delivery. The delays or inadequate care experienced by patients due to procurement issues can potentially erode the reputation of the facilities, diminishing trust in the healthcare system and discouraging people from seeking care when needed (Begum et al., 2022; Sinyiza et al., 2022).

In addition, inefficient procurement processes can lead to missed opportunities for facilities to benefit from volume discounts and to negotiate favorable prices with suppliers. This can place further strain on budgets and reduce the resources available for patient care and facility enhancements. The complexity and lack of transparency in procurement processes also increase the risk of corruption (Kaspar & Puddephatt, 2012). Without clear guidelines and adequate oversight, there is an elevated possibility of biased supplier selection and the payment of inflated prices for goods and services. Ultimately, these inefficiencies create a barrier to achieving efficient service delivery, negatively impacting patient care, public health outcomes, and the overall efficiency of the healthcare system (Althabatah et al., 2023; National Academies of Sciences et al., 2018).

Nyeri County, located in central Kenya, serves a diverse population through its network of public health facilities. These facilities play a vital role in providing healthcare services to the society, especially in rural and underserved areas. However, they face significant procurement-related challenges that impact their ability to deliver quality healthcare. Understanding the specific procurement practices and their influence on service delivery in these facilities is essential for identifying areas of improvement and implementing effective solutions (Boulding & Hinrichs-Krapels, 2021).

The procurement of health supplies and services in public health facilities faces several interrelated challenges. Inadequate ICT infrastructure, including insufficient hardware, outdated software, and unreliable internet connectivity, hampers the efficiency of procurement processes (Beaulieu & Bentahar, 2021). This issue is exacerbated by the lack of integration and interoperability among various ICT systems, leading to

fragmented operations and delays. Compounding these problems is the insufficient technical expertise among staff, resulting in improper use of ICT tools and frequent system downtimes. Additionally, poor inventory management practices, characterized by inaccurate tracking and untimely replenishment, lead to frequent stock-outs and wastage (Parilla et al., 2022). Weak supplier relationship management further aggravates these issues by disrupting supply chains, causing unreliable deliveries, and increasing procurement costs (Abdulsalam & Schneller, 2021; Avornu, 2023;Mogere et al., 2023).

Despite the recognition of these issues, there is a significant research gap in understanding how these factors collectively influence procurement efficiency and healthcare service delivery. Most of the few existing studies address these issues in isolation rather than examining their combined effects, which limits the development of comprehensive solutions. Furthermore, there is a lack of context-specific research focusing on the unique challenges and conditions of Nyeri County's public health facilities, impeding the formulation of targeted interventions (Oliech & Mwangangi, 2019; Onserio & Kamaara, 2023). Addressing these research gaps is crucial for improving procurement practices and enhancing service delivery in this region.

1.2 Statement of the Problem

Efficient service delivery in public health facilities is crucial for ensuring effective healthcare provision to the population. However, in Nyeri County, Kenya, the influence of procurement practices on service delivery remains inadequately understood. Existing literature underscores the critical role of procurement in healthcare, highlighting challenges such as supply chain disruptions, inadequate resource allocation, and

compromised patient care outcomes (Vian & Richards, 2013; Ochieng et al., 2018). Despite these insights, there is a paucity of research specifically examining how procurement practices impact service delivery within Nyeri County's public health facilities. Transparency International (2019) has identified pervasive issues of corruption and inefficiencies in procurement processes across Kenya's healthcare sector, potentially undermining the quality and accessibility of services. Moreover, studies by Ouma et al. (2016) and Maina & Wanyoike (2015) emphasize the need for localized studies to address regional variations and contextual factors influencing procurement outcomes.

This study aimed to address this gap by investigating the specific procurement practices prevalent in selected public health facilities in Nyeri County, Kenya. By analyzing the procurement procedures, supplier management strategies, budget allocation mechanisms, and regulatory compliance frameworks, this research seeks to uncover the factors influencing service delivery. Ultimately, the findings aim to inform policy reforms and strategic interventions that enhance procurement effectiveness and thereby improve healthcare service delivery in Nyeri County.

Of note, this study addresses inefficiencies in procurement practices within selected public facilities in Nyeri County, Kenya, and how these inefficiencies impact service delivery. Poor procurement processes, which may include delays in acquiring goods and services, lack of transparency, inadequate supplier management, and non-compliance with procurement regulations, can lead to suboptimal service provision in public facilities such as healthcare. These inefficiencies can hinder the ability of public institutions to meet the needs of citizens, ultimately affecting the quality and timeliness

of services. While some studies have examined procurement in general, scanty data is available on how procurement practices influence service delivery in public facilities within Nyeri County, Kenya. The unique challenges faced by these facilities in terms of procurement processes are not well documented

1.3 Purpose of the Study

The purpose of this study was to explore the Influence of Procurement Practices on Service Delivery in selected public health facilities in Nyeri County, Kenya.

1.3.1 Specific Objectives of the Study

The study specifically sought to:

i. To establish the influence of Information Communication Technology (ICT) infrastructure on service delivery in the selected public health facilities in Nyeri County, Kenya.
ii. To establish the influence of Staff Training in Procurement on service delivery in the selected public health facilities in Nyeri County, Kenya
iii. To establish the effect of Inventory Management on Service delivery in the selected public health facilities in Nyeri County, Kenya.
iv. To establish the Influence of Supplier Relationship Management on service delivery in the selected public health facilities in Nyeri County, Kenya.

1.4 Research Questions

The following questions guided the study:

i. What is the influence of Information Communication Technology (ICT) infrastructure on service delivery in the selected public health facilities in Nyeri County?

ii. What is the influence of Staff Training in procurement on service delivery in the selected public health facilities in Nyeri County?

iii. What is the effect of Inventory Management on service delivery in the selected public health facilities in Nyeri County?

iv. What is the influence of Supplier Relationship Management on service delivery in the selected public health facilities in Nyeri County?

1.5 The Scope of the Study

This study aimed to establish the influence of procurement practices on service delivery in the selected public health facilities in Nyeri County, Kenya. Specifically, the study examines various aspects of procurement processes such as procurement procedures, supplier management, inventory management, budget Management, quality assurance, and regulatory compliance practices. The study adopted a descriptive research design.

1.6 Significance of the Study

The findings of the study may be useful to the county governments on issues influencing procurement practices on service delivery in selected public health facilities. The findings of the study will facilitate restructuring of procurement practices such as the ICT infrastructure, training of staff in procurement, inventory management and suppliers' relationship management, enhancing service delivery in Nyeri County and other similar areas. The study findings may also provide information that will assist

the County Governments to better prioritize the practices that influences the service delivery.

1.7 Limitations of the Study

The study depended on self-reported data from participants, which could be influenced by response bias. Participants might have given socially acceptable answers or failed to accurately remember certain details, potentially impacting the validity of the data. Moreover, the data collection was conducted over a specific period, which may not capture variations in procurement practices and service delivery over time. Seasonal factors or periodic changes in procurement policies and practices might not be reflected in the study. Further, uncontrolled external factors such as changes in government policies, economic conditions, or unexpected events (e.g., pandemics) may have affected procurement practices and service delivery during the study period, thereby influencing the results.

1.8 Delimitations of the Study

The study was carried out among employees working in the selected public health facilities in Nyeri County, Kenya and therefore the research findings can only be applied to other areas with similar characteristics. Additionally, the research narrows its focus to key procurement practices, such as supplier selection, and inventory management. This ensures a concentrated analysis on the aspects of procurement most relevant to service delivery.

1.9 Assumptions of the Study

The study presumes that the employees from the selected public health facilities in Nyeri County provided honest and accurate responses to the questions. It also assumes that the selected sample accurately represents the population and that the data collection instruments were valid. It is assumed that the procurement practices observed during the study period are consistent with those typically employed in the public health facilities that were under investigation.

1.10 Operational Definitions of Terms

Budget Management: Assessment of how procurement practices contribute to budget allocation and expenditure management in public health settings.

Inventory Management: Examination of inventory control methods and their impact on the availability and distribution of healthcare resources.

Procurement Procedures: Analysis of the procedures and mechanisms employed in public health facilities for procuring medical supplies, equipment, and pharmaceuticals.

Quality Assurance: Investigation into measures taken to ensure the quality, safety, and reliability of procured healthcare products and services.

Regulatory Compliance: Review of adherence to regulatory requirements and policies governing procurement practices in public health facilities.

Supplier Management: Evaluation of how procurement practices affect the selection, management, and relationships with suppliers/vendors.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter provides an in-depth review of the existing literature concerning the impact of procurement practices on public health service delivery. The review aims to provide a theoretical and empirical foundation for the study by examining previous research findings, identifying knowledge gaps, and establishing the research's significance.

2.1 Theoretical Framework

2.1.1 Resource dependency theory

Resource Dependency Theory (RDT), developed by Pfeffer and Salancik in 1978, explains how the behavior of organizations is influenced by the external resources they have. RDT posits that organizations depend on resources from their environment and, consequently, are influenced by external entities that control those resources (Nienhüser, 2008). In the context of healthcare, RDT can be utilized to analyze how public health facilities manage their relationships with various stakeholders such as funding sources, suppliers, and government agencies. The theory emphasizes that organizations rely on external resources to survive and thrive, highlighting the significance of procurement in obtaining essential resources like medical supplies, equipment, and human resources for public health facilities. Effective procurement practices can reduce dependency on external factors and ensure uninterrupted service delivery. In public health facilities, ICT infrastructure is a crucial resource, and proper procurement can ensure timely acquisition and maintenance of ICT equipment, ultimately impacting service delivery. Additionally, well-trained staff are essential

resources, and proper procurement of training programs and personnel can enhance service delivery.

2.1.2 Human Capital Theory

Human capital theory posits that formal education and training are crucial for enhancing an organization's productivity (Almendarez, 2010). According to this theory, education and training boost workers' productivity by equipping them with knowledge and skills, thereby improving their efficiency (Olaniyan & Okemakinde, 2008). Advocates of human capital theory argue that an educated population is a more productive one, viewing the provision of formal education and training as an investment in human capital, which they consider as valuable as or even more important than physical capital (Woodhall, 1997). Ultimately, Human Capital Theory (HCT) suggests that investing in human capital results in increased economic output. The theory suggests that individuals' skills, knowledge, and competencies are crucial resources that contribute to organizational performance. It emphasizes the importance of investing in employee training and development. Well-trained procurement staff are better equipped to manage procurement processes efficiently, which in turn enhances service delivery in public health facilities. Training improves employees' ability to handle procurement complexities, negotiate with suppliers, and ensure that the right materials and services are available when needed.

2.1.3 Resource-Based View Theory

Resource-Based View (RBV) theory highlights that a firm's competitive advantage arises from its unique and valuable resources and capabilities. This theory suggests that resources that are rare, non-substitutable, and valuable can contribute to a sustained

competitive edge (Agrawal et al., 2024). RBV theory postulates that resources such as human capital, innovation, knowledge sharing, social media, strategy, and culture play a significant role in shaping competitive advantages (Rianawati et al., 2024). Additionally, RBV theory highlights the importance of organizational learning in optimizing resources to attain valuable and rare attributes, ultimately leading to a competitive edge in the industry (Chukwuma et al., 2024). Furthermore, RBV theory is instrumental in understanding how an organizations resources and capabilities influence the competitive landscape and the barriers faced by entrepreneurs in achieving sustainability and fostering innovation (Agrawal et al., 2024).

The Resource-Based View (RBV) theory, as discussed in Kosiol et al. (2023), underscores the strategic importance of resources and capabilities in organizations. When applied to inventory management in public health facilities, as highlighted in Sama &Mdemu (2024), efficient management positively influences service delivery. According to Meena & Mathaiyan (2024), proper inventory control ensures the availability of essential medicines, reducing stockouts and wastage while maintaining quality healthcare services. Moreover, Bhat et al., 2024, proposed that leveraging advanced forecasting techniques and machine learning can further optimize inventory management, leading to improved patient care and cost-effectiveness. By strategically mapping resources and capabilities related to inventory management, public health facilities can enhance service delivery, create a competitive advantage, and achieve superior performance, aligning with the principles of Resource-Based View theory.

2.1.4 Social Exchange Theory

The Social Exchange Theory (SET), developed by sociologists Homans (1958) and further expanded by Blau (1964), is based on the idea that social relationships are formed and maintained through a process of cost-benefit analysis. The theory suggests that individuals or organizations engage in social exchanges when the perceived benefits outweigh the costs. In organizational contexts, this theory can be applied to understand interactions between employees, managers, and external stakeholders such as suppliers (Yamao, 2024). Specifically, in the context of procurement practices in public health facilities, Social Exchange Theory is particularly relevant to understanding the dynamics of supplier relationship management. The theory posits that relationships between public health facilities and their suppliers are maintained based on mutual benefits (Madison et al., 2023; Stone, 2023). For instance, public health facilities rely on suppliers to provide essential medical supplies and services, while suppliers depend on the facilities for ongoing business and revenue. Effective supplier relationship management involves fostering trust, commitment, and reciprocity, which are core concepts of Social Exchange Theory. When public health facilities treat suppliers fairly, honor contracts, and engage in open communication, they build strong, positive relationships that encourage suppliers to provide high-quality products, offer competitive pricing, and ensure timely deliveries. In return, suppliers may prioritize these facilities over others, offer favorable terms, or provide additional services, all of which can significantly enhance service delivery in public health facilities.

Social Exchange Theory also highlights the importance of non-monetary exchanges, such as information sharing, technical support, and collaborative problem-solving,

which can strengthen the relationship between public health facilities and suppliers (Areri & Gekara, 2019). By engaging in these exchanges, both parties can achieve better outcomes, leading to improved procurement processes and better service delivery.

2.2. Empirical Review

2.2.1Influence of Information Communication Technology (ICT) Infrastructure on Service Delivery

The significance of Information and Communication Technology (ICT) in the modernization of healthcare systems is immense (Addo & Agyepong, 2020). Many studies have shown that ICT infrastructure, such as electronic health records (EHRs), telemedicine, and health information systems, is crucial for improving the efficiency, accuracy, and accessibility of healthcare services (Khubone et al., 2020). ICT systems not only facilitate improved data management but also enable seamless communication among healthcare providers and enhance the decision-making process, ultimately leading to enhanced overall service delivery (Alotaibi & Federico, 2017;Khubone et al., 2020;World Health Organization, 2006).

Low- and middle-income countries (LMICs) encounter various challenges in providing healthcare to their populations (Hui et al., 2022). However, many of these challenges can be addressed through the adoption of Information and Communication Technology (ICT) in healthcare service delivery. For instance, digital health solutions have the potential to overcome issues related to distance, inadequate transport infrastructure, limited medical provision in rural areas, and the necessity of providing rural practitioners with specialist support (Hui et al., 2022). Moreover, the escalating rates of

chronic and infectious diseases in developing countries call for the implementation of effective and cost-efficient interventions. The adoption of ICT has proven to be an effective strategy in enhancing service delivery and addressing these pressing healthcare concerns (Beratarrechea et al., 2014). Notably, given the rapid economic and technological advancements in the healthcare industry, leveraging Information and Communication Technology (ICT) has become indispensable (Stephen et al., 2024).

The use of Information and Communication Technology (ICT) in the healthcare sector has the potential to bring about transformative changes across various aspects of the industry. As highlighted by Tegegne&Wubante, (2022), the adoption of ICT resources has played a significant role in enhancing the quality of healthcare services (Addo & Agyepong, 2020). This adoption has effectively addressed crucial challenges related to health data management and has led to improvements in the overall quality of care provided to patients (Tegegne & Wubante, 2022). The integration of Information and Communication Technologies (ICTs) has had a positive impact on the delivery of patient care by healthcare professionals, particularly in developed countries (Ojo et al., 2021).

However, it is essential to recognize that healthcare providers in developing countries encounter many challenges that impede the effective integration of ICT into patient care (Ojo et al., 2021). Thus, it is crucial to identify the factors that influence the adoption and utilization of ICT in these environments. Additionally, the increasing burden of healthcare costs has become a significant contemporary issue impacting healthcare industries globally. Nevertheless, the use of ICT resources in healthcare has allowed

hospitals to significantly reduce operational and related expenses (Addo & Agyepong, 2020).

According to Oshioma and Aimuan (2017), ICT plays a crucial role in ensuring that the public sector serves everyone and has a positive impact on human resource performance, documentation processing, and efficient filing systems. However, it's important to acknowledge that many implementation initiatives encounter obstacles related to technology and personnel. As outlined by Tegegne and Wubante (2022), factors such as lack of ICT training, limited knowledge of ICT, inadequate skills, and insufficient access to computers are frequently mentioned as obstacles to the adoption of ICT in the healthcare systems of many countries. Overcoming these barriers is crucial for encouraging the effective and widespread use of technology in healthcare.

Numerous research studies have emphasized the significant influence of ICT infrastructure on the delivery of healthcare services (Antwi, 2022). Multiple analyses have demonstrated that the introduction of Electronic Health Records (EHRs) has led to enhanced patient management, as well as reduced waiting times. Likewise, other investigations have indicated that employing ICT for health information systems has been associated with improved health outcomes and greater efficiency in providing services (Antwi, 2022;Richemond & Huggins-Jordan, 2023;Stephen et al., 2024).

Despite the potential advantages, the implementation of ICT in healthcare is linked with several significant challenges. In the context of Kenya, there is a lack of comprehensive data regarding the factors related to the implementation and utilization of ICT in healthcare. Moreover, there is a dearth of studies concerning the impact of ICT

infrastructure on service delivery in public health facilities at the county level in Kenya. Additionally, there is an absence of localized research focusing on the specific contextual factors and obstacles related to ICT implementation in Nyeri County, and how they affect service delivery. As a result, the impending study aims to delve into the influence of ICT Infrastructure on Service Delivery in public health facilities in Nyeri County, Kenya.

2.2.2Influence of Staff Training in Procurement on service delivery

Procurement plays a crucial role in the effective management of healthcare facilities, directly impacting the availability of essential medical supplies, equipment, and pharmaceuticals (Arantes et al., 2022; Rahmani et al., 2022). The efficient implementation of procurement practices ensures that healthcare providers can consistently deliver high-quality and timely services to patients (George & Elrashid, 2023). Conversely, inadequate procurement practices can result in stockouts, wastage of resources, and increased operational costs (Seidman & Atun, 2017). Proper training in procurement is essential for equipping healthcare staff with the skills and knowledge required to effectively manage procurement processes. This training encompasses various critical aspects, including understanding procurement laws and regulations, managing supplier relationships, negotiating contracts, and considering ethical considerations in procurement practices (Adera & Senelwa, 2019).

Several empirical studies have shown the positive impact of staff training in procurement on service delivery. For instance, Adera and Senelwa (2019) found that procurement training has a positive effect on service delivery. In Kenya, a study by Oteki et al. (2015) revealed that the effectiveness of supply chain management is

closely linked to the training of procurement employees. Furthermore, research conducted by Kuupiel et al. (2019) demonstrated that well-trained procurement staff in health facilities contributed to fewer stockouts and better inventory management, ultimately leading to improved patient care. Adhikari et al. (2024) highlighted the significance of a well-trained workforce in improving procurement and inventory management processes in low-resource settings. Additionally, other studies have (Dadzie et al., 2024; Jaffu, 2023) reported that procurement training significantly enhances procurement process efficiency and organizational performance (Dadzie et al., 2024; Jaffu, 2023). It was also noted by Mahuwi and Israel (2024) that procurement training promotes transparency, accountability, and anti-corruption efforts within an organization, and policymakers and decision-makers should implement robust mechanisms to support these initiatives.

Despite its vital role, procurement training encounters numerous challenges, such as limited access to training opportunities, insufficient funding, and a lack of standardized training programs (Njeru, 2015). Furthermore, the high turnover rate of trained staff in public health facilities can disrupt procurement processes and have a detrimental effect on service delivery (Hlongwa et al., 2023;Mosadeghrad, 2014). In the context of Kenya, there is a growing recognition within the government of the necessity for capacity building in procurement.

Various initiatives, including the training programs offered by the Public Procurement Regulatory Authority, have been established to bolster the skills of procurement officers (Public Procurement Oversight Authority (PPOA), 2009). Nevertheless, there is a need for further investigation into the implementation and impact of these training

programs in public health facilities, particularly within Nyeri County. Such an investigation would serve to ascertain their effectiveness and pinpoint areas for improvement.

2.2.3 Influence Inventory management practice on Service Delivery in public health facilities

Proper inventory management significantly impacts the availability of essential medical supplies in Kenya's public health facilities. Studies conducted in Rwanda and Kenya emphasize the importance of effective inventory control to prevent stockouts and ensure a balance between demand and expenditure (Abuka et al., 2023; Mfizi et al., 2023). Challenges in inventory management, such as resource limitations, managerial issues, and market mechanisms, contribute to insufficient stocks and excessive quantities of certain drugs in low- and middle-income countries, leading to losses and poor control (Karamshetty et al., 2022). Additionally, the lack of essential medicines in public health facilities may drive patients to purchase substandard and falsified medicines from unlicensed outlets due to increased out-of-pocket expenses, highlighting the critical need for improved medicine availability and regulatory oversight (Toroitich et al., 2022). By optimizing inventory management practices through ABC-VEN analysis and leveraging technologies like deep learning and big data, public health facilities can enhance their supply chain efficiency and ensure the availability of vital medical supplies during emergencies (Liu et al., 2022).

Inventory management is vital for enhancing the efficiency and effectiveness of supply chain management within Kenya's healthcare sector. Research indicates that proper pharmaceutical inventory management is essential for guiding decisions to mitigate

stockouts and balance inventory expenditure with medication demand (Abuka et al., 2023). In low- and middle-income countries like Kenya, healthcare facilities often struggle with insufficient stocks of essential medicines and excessive quantities of certain drugs, leading to losses due to obsolescence, highlighting poor inventory control practices (Karamshetty et al., 2022). By adopting technology-driven supply chain management practices and enhancing organizational readiness, hospitals can significantly improve their financial performance and cost efficiency, emphasizing the importance of efficient inventory management in healthcare supply chains (Bialas et al., 2023; Mittal & Mantri, 2023).

Inventory management significantly impacts cost management in the public healthcare sector in Kenya. Studies in Nairobi and Kisii counties reveal that poor inventory control leads to stock outs and overstocking, resulting in financial losses due to obsolescence and inefficient resource allocation (Mbiriri & Moronge, 2018; Onkundi & Bichanga, 2016). Proper inventory management, such as implementing Vendor Managed Inventory (VMI) systems, Radio Frequency Identification (RFID) systems, and Just-In-Time (JIT) systems, can enhance service delivery by minimizing stock out costs, optimizing stock levels, and improving decision-making processes (Mbiriri & Moronge, 2018). Analyzing drug consumption and expenditure patterns at leading hospitals like Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) underscores the importance of controlling Category I pharmaceuticals to manage costs effectively (Abuka et al., 2023). Therefore, efficient inventory management practices are crucial for cost-effective operations and improved healthcare service delivery in the public sector in Kenya.

Research in Nyeri County public hospitals reveals challenges such as delayed payments, poor revenue control, and lack of clear financial tracking procedures, all contributing to operational inefficiencies (Muturi & John, 2020). Additionally, the study emphasizes the importance of budgeting, internal control systems, financial tracking, and waivers in enhancing financial management practices and growth in government hospitals (Muturi & John, 2020). Furthermore, implementing Total Quality Management (TQM) practices—such as employee involvement, technology adoption, and continuous improvement—has been demonstrated to have a positive effect on service delivery in public hospitals in Kenya. This highlights the significance of effective inventory management in improving the overall quality of care (Achieng & Misuko, 2023; Wandie & Muathe, 2022). However, there are limited studies in Kenya examining how inventory management affects service delivery, particularly in public health facilities across different counties.

2.2.4 Influence of Supplier Relationship Management on Service Delivery in Public Health Facilities

Supplier relationship management is vital for influencing service delivery in public health facilities (Rajab et al., 2021). Research shows that effective supplier management practices—such as forming partnerships, maintaining communication, fostering development, and managing relationships—significantly enhance supply chain performance in public health institutions (Areri & Gekara, 2019). The study also highlights the necessity of ongoing communication and information sharing with suppliers to improve collaboration, resilience, and responsiveness within supply chains, which ultimately affects service delivery (Mbugua & Namada, 2019; Mogere et al., 2023). Additionally, the quality of procurement services in public hospitals is largely

determined by suppliers' ability to meet contract requirements by providing quality goods on time and at reasonable prices (Kratsova, 2020). Overall, building and maintaining strong supplier relationships through effective management practices is crucial for achieving efficient and effective service delivery in public health facilities.

Supplier relationship management plays a crucial role in influencing the reliability and timeliness of supplies in public health facilities (Le Thi & Nguyen, 2020). Studies have shown that effective supplier management practices, such as supplier partnerships, communication, and development, significantly enhance the supply chain performance in healthcare settings (Areri & Gekara, 2019; Rajab et al., 2021). Additionally, research indicates that supplier relationship management is a key factor affecting the performance of supply chain practices in public health facilities, with factors like staff skills and management support being significantly associated with supply chain performance (Kratsova, 2020).

Furthermore, supplier selection based on competitive criteria ensures effective procurement, leading to quality supplies being delivered on time and at affordable prices, ultimately benefiting hospital operations and patient care (Bahiru Tefera & Tilahun Anbessa, 2022). Overall, maintaining strong relationships with suppliers through effective management practices is essential for ensuring the reliability and timeliness of supplies in public health facilities, ultimately impacting the quality of services provided to patients. Notably, there is paucity in local studies on how supplier relationship management affect the service delivery. Moreover, the available studieshave not focused on the public health facilities which provide critical services to the general population.

2.3 Conceptual framework

Procurement practices have been found to influence the service delivery in public health facilities. ICT as one of the procurement practices has been found to revolutionize service delivery in public health facilities by improving efficiency, patient care, data management, communication, and education. It enhances the overall quality of healthcare services, making them more accessible, efficient, and effective. Moreover, staff training in procurement enhances the efficiency, cost-effectiveness, quality, compliance, and reliability of procurement processes in public health facilities. This directly translates to improved service delivery, better patient care, and more effective use of resources (Figure 2.1).

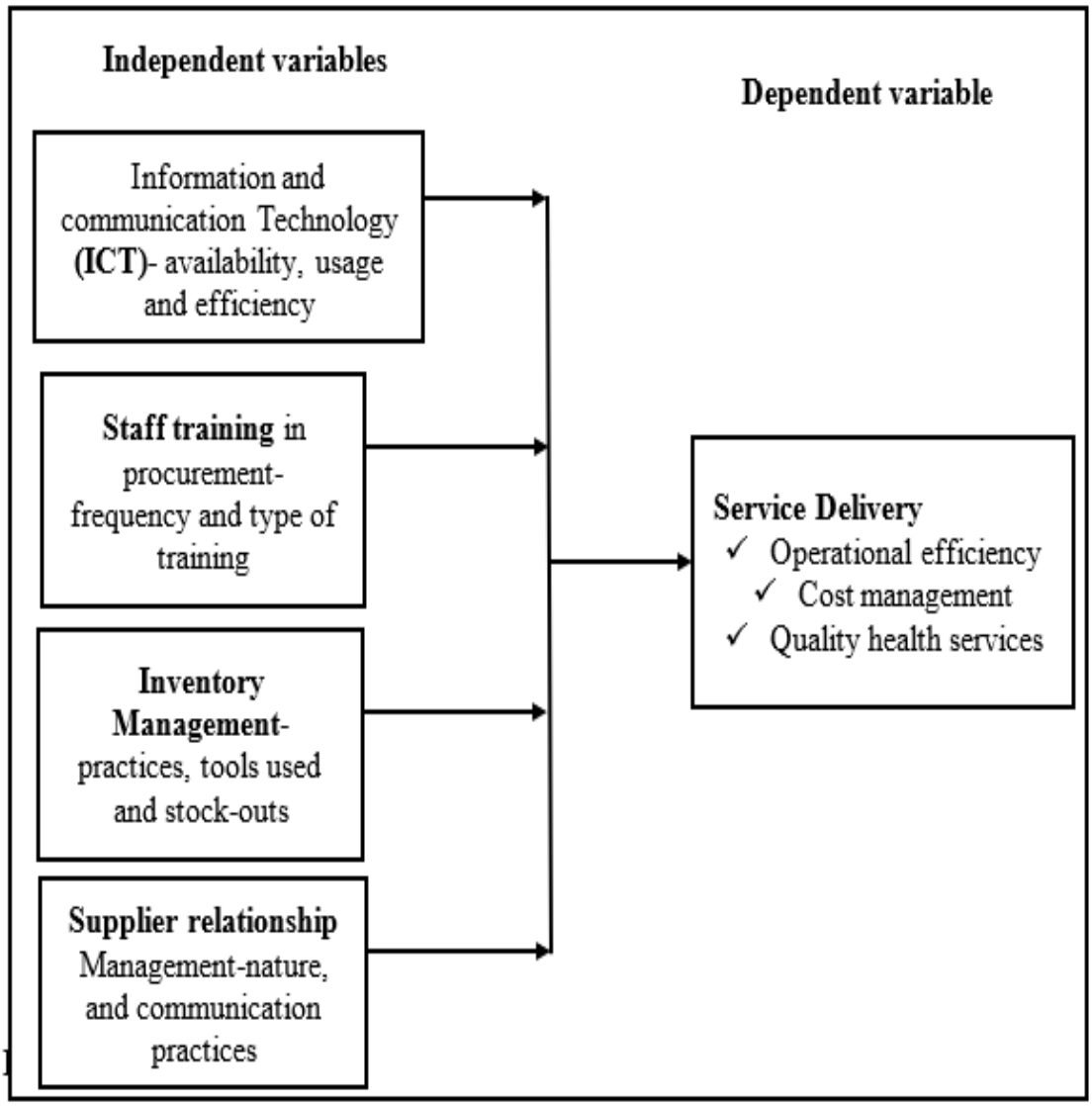


Figure 2.1: Conceptual Framework on the Influence of Procurement Practices on Service Delivery

Effective inventory management enhances the availability, quality, and efficiency of medical supplies and equipment in public health facilities. This directly improves service delivery, patient care, and resource utilization (Figure 2.1). Moreover, effective supplier relationship management enhances the reliability, quality, cost-efficiency, and innovation in the supply of medical goods and services. This directly improves the service delivery, operational efficiency, and patient care in public health facilities.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1Introduction

The study's methodology is described in this chapter. The target population, study site, sampling strategy and sample size, research tools, data gathering methods, data analysis, and ethical issues are all included.

3.2 Research Design

The study employed a descriptive research design, which was chosen because it can give a thorough explanation of procurement procedures and how they affect service delivery. This approach is ideal for identifying patterns, trends, and relationships among variables without altering the study environment.

3.3 Study Location

Nyeri County, located in Kenya, is experiencing a rapidly growing healthcare system characterized by expanding facilities and increasing demand for services. Despite this growth, there is limited data on the factors affecting procurement practices within the county, and how these factors may influence service delivery. The study was conducted across six sub-counties in Nyeri County, Kenya, to capture a diverse range of healthcare settings and procurement practices. The selected sub-counties included Kieni, Mathira, Tetu, Nyeri, Mukurwe-ini, and Othaya. Each sub-county offers unique characteristics, ranging from rural to urban and semi-urban contexts, that provide a comprehensive understanding of how procurement practices influence service delivery. By encompassing these varied locations, the study aimed to gather a representative sample

of data, ensuring that findings reflect the multifaceted nature of healthcare procurement across Nyeri County.

3.4 Target Population

The target population for this study includes individuals directly engaged in the procurement processes and service delivery at selected public health facilities in Nyeri County, Kenya. This includes healthcare workers, procurement officers, and administrative staff. The target population is reflected in Table 3.1.

Table 3.1: Target Population

Population	Number
Procurement Officers	20
Health Care Workers	79
Administrative Staff	36
Total	135

3.5 Sampling Procedure and Sample Size

Purposive sampling technique was used to select public health facilities within Nyeri County. To ensure a representative sample of public health facilities within Nyeri County, one hospital was selected from each of the six sub-counties: Kieni, Mathira, Tetu, Nyeri, Mukurweini, and Othaya. This approach ensured geographic diversity and captured variations in procurement practices and service delivery across different areas. The selection criteria of facilities included facility size.

The study considered both large and small facilities to capture a diverse range of procurement practices. Additionally, the location of the facilities was considered and included urban and rural facilities to understand geographic variations in procurement and service delivery challenges. Furthermore, the service scope was also considered in

the sampling strategy. The study included facilities with different service offerings (e.g., general hospitals, specialized clinics) to understand how procurement practices vary by service type.

A census was conducted, meaning that all procurement officers and staff dealing with procurement in each selected hospital were included in the study. A census is adopted as the number of procurement officers and staff dealing with procurement in the hospitals is small. Approximately 135 staff (procurement and healthcare workers) are available across the six hospitals. Using a census approach for procurement officers and staff dealing with procurement ensures that all relevant insights from this small but critical group are captured, enhancing the reliability and completeness of the study findings.

3.6 Data collection instruments.

The data collection instruments for this study were carefully designed to gather comprehensive and reliable information on procurement practices and their impact on service delivery in selected public health facilities in Nyeri County. The instruments included structured questionnaires. The instruments captured data on demographic characteristics, procurement practices, inventory management, staff training and service delivery.

3.7 Data collection method and procedure

The data collection process involved gathering information from all available sources using various data collection tools to utilize this information in research. A researcher-administered questionnaire was used to collect information on information

communication and technology, supplier relationship management, inventory management, staff training in procurement and service delivery. The questionnaire included both open-ended and closed-ended questions to ensure a thorough coverage of information. Data was entered daily following collection to maintain the accuracy of the gathered information. Utilizing structured questionnaires enabled the study to collect detailed data to effectively address each research objective. The approach ensured a thorough understanding of how ICT infrastructure, staff training in procurement, inventory management, and supplier relationship management influence service delivery in selected public health facilities in Nyeri County, Kenya.

To establish the influence of information and communication technology (ICT) infrastructure on service delivery questions on the availability, usage, and efficiency of ICT infrastructure (e.g., electronic health records, procurement systems), and the impact of ICT on service delivery (e.g., timeliness, accuracy, patient satisfaction) was asked. Similarly, to establish the influence of staff training in procurement on service delivery, questions on the frequency and types of procurement training received, perceived competency levels before and after training, and the impact of training on procurement efficiency and service delivery were explored.

Furthermore, to establish the effect of inventory management on service delivery, questions on inventory management practices, tools used (e.g., inventory management systems), stock out frequencies, and the impact of inventory management on service delivery (e.g., availability of supplies, operational efficiency) were asked. Additionally, to establish the influence of supplier relationship management on service delivery, questions on the nature and quality of supplier relationships, communication and

collaboration practices, and the impact of supplier relationships on procurement efficiency and service delivery (e.g., timely deliveries, quality of supplies) were asked.

The data was collected systematically and ethically. By preparing adequately, coordinating effectively with the selected hospitals, and using a combination of data collection methods, the study aimed to gather comprehensive and reliable data on the influence of ICT infrastructure, staff training in procurement, inventory management, and supplier relationship management on service delivery in public health facilities in Nyeri County, Kenya.

3.7.1 Piloting of the data collection tools

Piloting of the data collection tools was conducted to ensure the effectiveness and clarity of the data collection instruments before full-scale deployment. A pilot study was conducted at Othaya Hospital in Nyeri County, a public health facility that shares characteristics with the selected hospitals for the main study. This location was ideal for piloting as it provides a comparable environment without overlapping with the main study sites, ensuring the integrity of the final research data. The pilot tested the research tools, including questionnaires, interview guides, and observation checklists, to ensure they were clear, reliable, and capable of collecting the intended data. The piloting process involved training research assistants on administering the tools effectively, followed by simulated data collection with a small sample (14) of respondents from Othaya Hospital. The participants included staff directly involved in procurement processes.

During this phase, a draft version of the structured questionnaires, semi-structured interview guides, observation checklists, and document review templates was administered to a sample of participants similar to those in the main study. Feedback was solicited from both the participants and the data collection team regarding the clarity of questions, the appropriateness of the response options, and the overall feasibility of the instruments. Any issues identified, such as ambiguous questions or technical difficulties, were addressed by refining and adjusting the instruments as needed. This iterative process helped enhance the reliability, validity, and overall effectiveness of the data collection tools, ensuring they accurately captured the necessary information for the study objectives. The results of the pilot study were used to make final revisions and to train the research assistants on the improved instruments.

3.8 Reliability and Validity of Research Instrument

3.8.1 Reliability of Research Instrument

The instrument's reliability for the study was achieved through the test-retest method, which involved administering the data collection tools to a sample of respondents at two different points in time. Initially, the tools was administered to establish a baseline measurement. After a set interval, the same tools were re-administered to the same respondents or a similar sample to assess consistency in the responses. By calculating correlation coefficients between the initial and follow-up administrations, the stability and reliability of the measurements was evaluated. The study established a correlation coefficient of above 0.85 in all the study variables. A coefficient of 0.70 or higher will be deemed acceptable (Mugenda & Mugenda, 2012).

Any discrepancies identified were addressed through adjustments and refinements to the tools. This rigorous approach ensured that the data collection tools consistently

measure the intended constructs and provide reliable results, thereby enhancing the overall credibility and dependability of the study's findings.

3.8.2 Validity of Research Instrument

To ensure the validity of the data collection tools, a comprehensive approach was adopted. Content validity was achieved through expert reviews and a thorough literature review to ensure that the instruments adequately cover the relevant constructs related to ICT infrastructure, staff training, inventory management, and supplier relationship management. Construct validity was ensured by grounding the tools in a well-defined theoretical framework and testing them during the pilot phase to confirm they measure the intended variables. Criterion validity was addressed by comparing results from the new instruments with established measures and benchmarks, and through concurrent validation with data from other validated sources.

Face validity was enhanced by obtaining feedback from participants on the clarity and relevance of the questions and ensuring the tools are user-friendly. Additionally, construct and item analysis were conducted using statistical methods to verify that the items accurately measured the intended constructs. Together, these strategies ensured that the data collection tools were valid, reliable, and effective in capturing the necessary information for the study. A pilot study was conducted with 10% of the sample size, and their responses were analyzed to determine if they met the study's objectives and research questions.

3.9 Data Analysis and Presentation

The study used SPSS software version 29 to code, clean, and analyze the data. Descriptive statistics, such as central tendencies, dispersion, and frequency distributions pertaining to ICT infrastructure, staff training, inventory management, and supplier relationship management, were used in the current study to summarize and present the fundamental features of the data. This gave a concise summary of the overall patterns and trends found in the collection. In order to investigate correlations between variables and test hypotheses, inferential statistics were utilized. Inferential analyses, including chi-square tests and logistic regression, were conducted to determine associations between procurement practices and service delivery.

Statistical significance was determined using p-values, with a significance threshold set at $p < 0.05$. By integrating both descriptive and inferential statistics, the study offers a comprehensive analysis of how procurement practices influence service delivery, enabling robust conclusions and actionable insights. Data are presented using tables, charts, and graphs for clear visualization of trends and comparisons, which ensures that the study's outcomes are effectively communicated.

3.10 Ethical Considerations

In conducting the study, strict ethical considerations were prioritized to protect and respect the participants. All participants were given a thorough explanation of the study's goals, methods, and their rights, including the freedom to discontinue participation at any moment without incurring penalties, before giving their informed consent. By anonymizing the data, keeping it securely, and limiting access to authorized personnel only, confidentiality and privacy was guaranteed.

To guarantee adherence to ethical norms, the research was approved by the appropriate institutional review boards, such as the National Council for Science, Technology and Innovation (NACOSTI) and the Mount Kenya University Ethics Review Board. Risks to participants were minimized. The study was conducted with transparency and integrity, with honest reporting of findings and disclosure of any conflicts of interest. Additionally, cultural sensitivity was prioritized, respecting diverse backgrounds and practices.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the findings of the study on the influence of procurement practices on service delivery in selected public health facilities in Nyeri County, Kenya. The results are organized into sections that address the study's specific objectives, which include examining the influence of information communication technology infrastructure, staff training in procurement, inventory management, and supplier relationship management on service delivery.

4.2 Response Rate

The current study achieved a response rate of 91.1%, which is considered highly acceptable for research of this nature. According to Mugenda and Mugenda (2003), a response rate of above 80% is deemed sufficient to ensure the reliability and validity of the study findings.

4.3 Characteristics of the Study Population

4.3.1 Socioeconomic and Demographic Characteristics

The study participants were primarily female, making up 74.8% of the total respondents. Age distribution revealed that 43.9% were aged between 25 and 35 years, with the youngest participant being 27 and the oldest being 67. The mean age of participants was 39.28 years, with a standard deviation of 8.47 years. In terms of educational qualifications, a significant majority (77.2%) held a diploma as their highest level of education. An analysis of marital status showed that most participants (84.2%) were married, while the remainder were single. Regarding departmental

affiliation, the largest group of respondents (32.5%) was from the nursing department, followed by the administration department at 25.2% (Table 4.1).

Table 4.1: Socioeconomic and Demographic Characteristics of the Participants

Characteristic	N=123	
	N	%
Sex		
Female	92	74.8
Male	31	25.2
Age category		
25-35 years	54	43.9
36-45 years	41	33.3
>45 years	28	22.8
Education qualification		
Master's degree	2	1.6
Bachelor degree	22	17.9
Diploma	95	77.2
Certificate	4	3.3
Marital status		
Married	100	81.3
Single	23	18.7
Department		
Outpatient	10	8.1
MCH	12	9.8
Pharmacy	9	7.3
Procurement	4	3.3
Laboratory	4	3.3
Stores	2	1.6
Nursing care	40	32.5
Administration	31	25.2
Medical	11	8.9
Position in the health facility		
Procurement officer	6	4.9
Health worker attached to procurement	87	70.7
ICT staff attached to the procurement	2	1.6
Administration	28	22.8
Years of experience	43	35.0
≤ 5 years	22	17.9
6-10 years	58	47.2
> 10 years		

Furthermore, a considerable majority of the participants (70.7%) were healthcare workers actively involved in procurement processes. Work experience varied among

the respondents, with the largest proportion (47.2%) having over 10 years of professional experience as shown in Table 4.1.

4.3.2 Health Facility Characteristics

The health facilities surveyed in this study varied in their level and structure. A majority (63.2%) were Level 2 facilities, followed by Level 3 facilities at 18.7%. Additionally, more than 78.9% of the facilities included in the current study had only one staff member handling procurement processes,

Table 4.2: Health facility characteristics

Variable	N=123	
	N	%
Health facility level		
Level 2	78	63.4
Level 3	23	18.7
Level 4	22	17.9
Number of staff attached to procurement		
1	97	78.9
2 and above	26	21.1
Mean (SD) 1.23±0.48		

4.4 Service Delivery in the Health Facilities

In terms of overall quality of service, more than two-thirds (65.0%) of participants rated it as good, while 18.7% described it as very good. Additionally, 12.2% considered it average, and 4.1% rated it as poor. Regarding the availability of essential medical supplies and equipment, slightly more than half (50.4%) rated it as good, while approximately 33.3% indicated it was average. When asked about the impact of procurement practices on overall service delivery, the largest proportion (48.8%) responded that it affected service delivery to a large extent, followed by 26.8% who felt it was to a moderate extent. Furthermore, when the participants were asked how much they believed procurement planning influenced service delivery, slightly more than half

(54.5%) indicated it had a significant impact (to a great extent). In rating the supplier selection criteria on service delivery, more than half (55.3%) felt it was good.

Participants were also questioned about how frequently adherence to procurement regulations contributes to transparency and accountability in service delivery. Most (43.1%) indicated it occurs sometimes, followed by 36.6% who noted it happens always. Regarding the extent to which procurement challenges affect service accessibility, most participants (43.1%) indicated this impact is to a great extent. Finally, participants were asked what improvements they would like to see in procurement practices to enhance service delivery. The results, as shown in Table 4.4, indicate that the most common suggestion (26.0%) was digitization and support. This was closely followed by calls for more training from 25.2% of participants, while 21.1% mentioned the need for improvements in communication.

Table 1.3: Service Delivery in the Health Facilities

Characteristic	N=123	
	N	%
Overall quality of service delivery		
Average	15	12.2
Good	80	65.0
Poor	5	4.1
Very good	23	18.7
Availability of essential medical supplies and equipment		
Poor	12	9.8
Average	41	33.3
Good	62	50.4
Very good	8	6.5
Impact of procurement practices on service delivery		
Not at all	2	1.6
To a large extent	60	48.8
To a moderate extent	33	26.8
To a small extent	14	11.4
To a very large extent	14	11.4
Influence of procurement planning on service delivery		
Not at all	4	3.3
To a great extent	67	54.5
To a moderate extent	30	24.4
To a small extent	16	13.0
To a very great extent	6	4.9
Impact of supplier selection criteria on service quality		
Good	68	55.3
Neutral	43	35.0
Poor	2	1.6
Very good	4	3.3
Very poor	6	4.9
Frequency of adherence to procurement regulations		
Always	35	28.5
Never	8	6.5
Often	23	18.7
Rarely	12	9.8
Sometimes	45	36.6
Extent procurement challenges affect the accessibility of services	3	2.4
Not at all	53	43.1
To a great extent	33	26.8
To a moderate extent	23	18.7
To a small extent	11	8.9
To a very great extent		
Suggestion for procurement practices to enhance service delivery	32	26.0
	31	25.2
Digitization and support	26	21.1
More training	20	16.3
Improve communication	6	4.9
Procurement staff recruitment	8	6.5
Timely payment		
Timely and quality delivery		

To categorize service delivery into good and poor, the overall quality of service and the availability of essential medical supplies and equipment were considered. Facilities where respondents rated both the quality of service and availability of medical supplies as good or very good were classified as having good service delivery, while the rest were categorized as having poor service delivery. As shown in Figure 4.1 more than half (56.1%) had good service delivery.

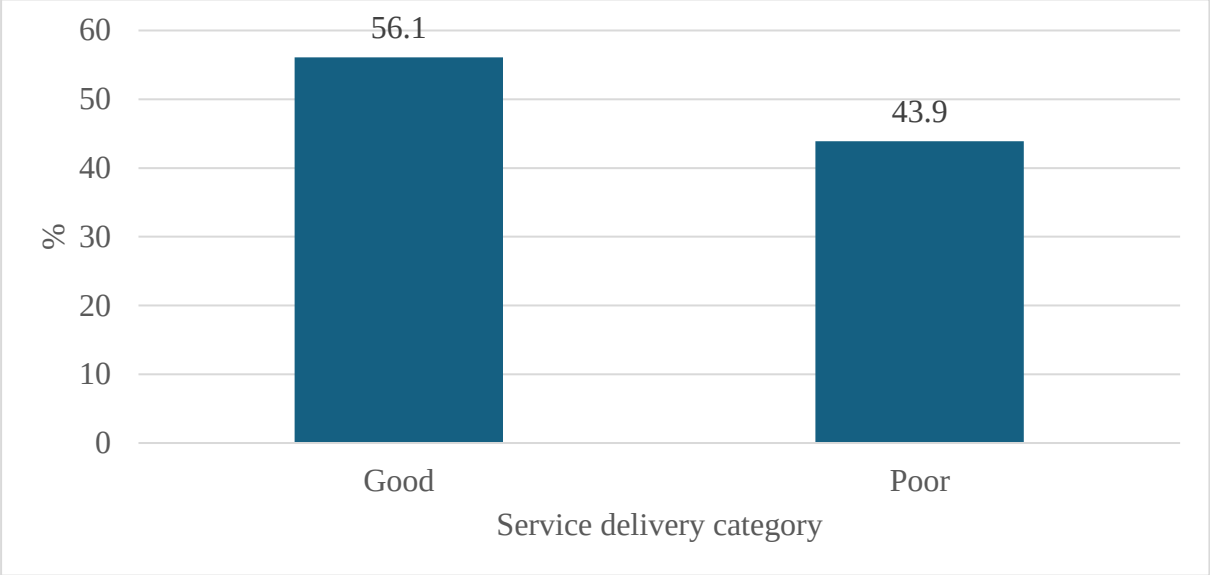


Figure 4.1: Quality of Service Delivery

4.5 Influence of ICT Infrastructure on Service Delivery

Respondents were asked to evaluate the availability of ICT infrastructure in their facilities. Most participants (48.0%) rated it as average, while an equal proportion rated it as poor (22.8%) and good (22.8%). When inquired about the frequency of using ICT systems for procurement processes, the majority (57.7%) indicated that they used the system occasionally, with about 14.6% reporting that they never used it, as shown in Table 4.4. Additionally, when asked about the extent to which they believe ICT infrastructure affected procurement efficiency, slightly more than one-third (37.4%) of the respondents believed that ICT infrastructure affects procurement efficiency to a fair extent. The level of support for ICT issues was also assessed.

Most participants (40.7%) rated the support as average, while 36.6% described it as good. Notably, about 22.8% indicated that the support was either poor or very poor (Table 4.4).

Table 2.4: Influence of ICT Infrastructure on Service Delivery

Characteristic	N=123	
	N	%
Availability of ICT Infrastructure		
Average	15	12.2
Good	80	65.0
Poor	5	4.1
Very good	23	18.7
Frequency of ICT system usage		
Poor	12	9.8
Average	41	33.3
Good	62	50.4
Very good	8	6.5
Extent ICT infrastructure affects procurement efficiency		
Not at all	2	1.6
To a large extent	60	48.8
To a moderate extent	33	26.8
To a small extent	14	11.4
To a very large extent	14	11.4
ICT support rating		
Average	68	55.3
Good	43	35.0
Poor	2	1.6
Very poor	4	3.3
Type of ICT system used (multiple responses)		
Electronic procurement system	35	28.5
Inventory management system	8	6.5
Supplier relationship management system	23	18.7
Combined management system	12	9.8
Effectiveness of the ICT systems		
Effective	3	2.4
Ineffective	53	43.1
Neutral	33	26.8
Very effective	23	18.7
Challenges faced with the current ICT (multiple responses)		
Limited access to computers	32	26.0
Poor internet connectivity	31	25.2
Lack of training in ICT systems	26	21.1
Outdated software	20	16.3
Lack of adequate personnel	6	4.9

The findings regarding the types of ICT systems used for procurement in the selected public health facilities showed that inventory management systems were the most widely adopted, with 74.0% of respondents indicating their use. This was followed by electronic procurement systems, reported by 50.4% of respondents. A smaller proportion of facilities (24.4%) used combined management systems, while supplier relationship management systems were the least utilized, with only 6.5% of respondents reporting their use. In terms of the effectiveness of the ICT systems in streamlining procurement processes, the majority (65.9%) indicated that they were effective. When addressing the main challenges faced while using the current ICT infrastructure, the most frequently mentioned issue was poor internet connectivity, cited by 85.4% of respondents. This was followed by a lack of training on ICT systems, reported by 78.0% of respondents (Table 4.4).

Overall ICT availability in procurement was categorized as either "Available" or "Not Available" based on three key aspects: respondents who rated the availability of ICT infrastructure as good, those who reported using ICT systems frequently or always, and those who rated the support provided for ICT systems as good. Facilities meeting these criteria were classified as having ICT available, while those that did not meet these thresholds were categorized as ICT not available. As shown in Figure 4.2, only 9.8% were found to have ICT at a suitable level.

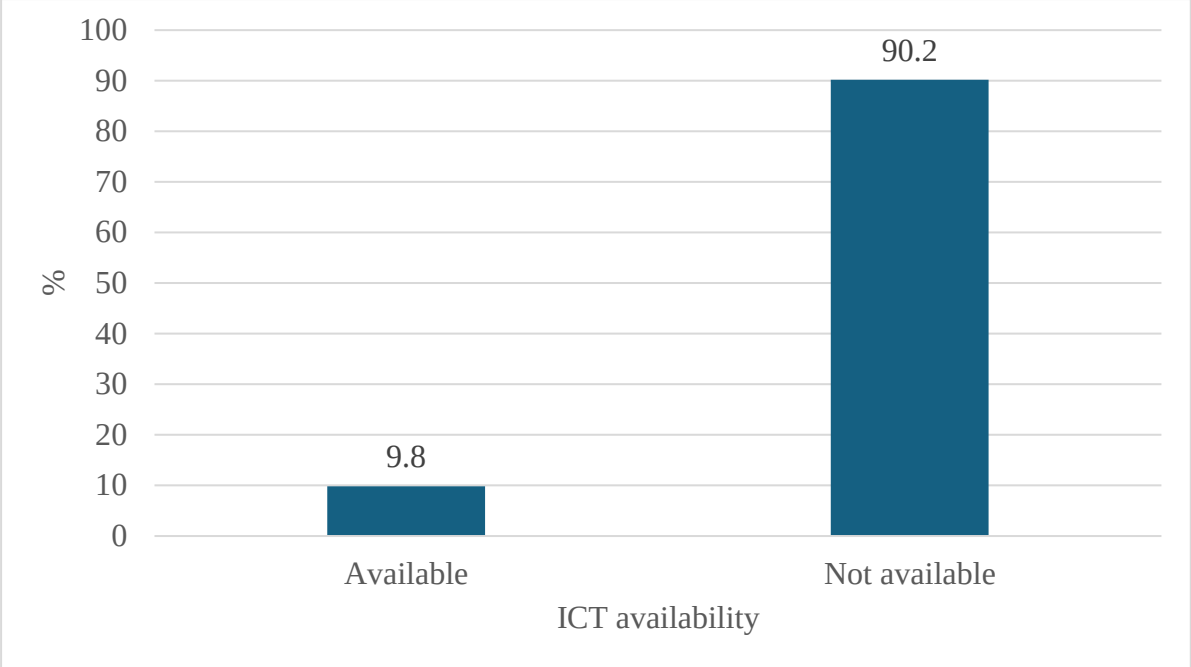


Figure 4.2: ICT Availability in the Health Facilities

The association between ICT availability and quality of service delivery was established using regression analysis. The study found that ICT availability was significantly associated with service delivery, as shown in Table 4.5 (p = 0.043). Facilities that lacked ICT availability were 4.4 times more likely to experience poor service delivery compared to those with ICT available (COR = 4.41, CI: 0.923–11.040, p = 0.043).

Table 3.5: Association Between ICT Availability and Service Delivery

Variable	Service Delivery		COR (95% CI)	p-value
	Poor n (%)	Good n (%)		
ICT Not Available	52 (42.3%)	59 (48.0%)	4.4 (0.923–11.040)	**0.043**
ICT Available	2 (1.6%)	10 (8.1%)	Reference	-

4.6 Influence of Staff Training in Procurement on Service Delivery

The majority (82.1%) of respondents reported having received formal training in procurement. However, when asked about the frequency of training, most respondents (69.1%) stated that training was never offered in their facilities, while 26% indicated that it was conducted once a year, and only 3.3% reported training occurring quarterly (Table 4.6).

Table 4.6: Influence of Staff Training on Service Delivery

Characteristic	N=123 N	%
Ever received formal training in procurement		
Yes	22	17.9
No	101	82.1
Frequency of training		
Never	85	69.1
Once a year	32	26.0
Quarterly	4	3.3
Twice a year	2	1.6
Extent staff training affects procurement practices		
Not at all	38	30.9
To a large extent	39	31.7
To a moderate extent	31	25.2
To a small extent	9	7.3
To a very large extent	6	4.9
Confidence with procurement skills and knowledge		
Not confident at all	33	26.8
Slightly confident	47	38.2
Moderately confident	30	24.4
Very confident	13	10.6
Frequency of refresher courses		
Annually	56	45.5
Bi-annually	8	6.5
Quarterly	2	1.6
Never	57	46.3
Effectiveness of the training program		
Effective	51	41.5
Ineffective	23	18.7
Neutral	28	22.8
Very effective	3	2.4
Very ineffective	18	14.6
Beneficial training for procurement staff (multiple responses)		
ICT training	118	95.9
Inventory management	110	89.4
Supplier relationship management	68	55.3
Procurement regulation and compliance	99	80.5

Regarding the influence of staff training on procurement practices, 31.7% of respondents believed it had an impact to a large extent (Table 4.6). When assessing confidence in procurement skills and knowledge, 38.2% of respondents indicated they were slightly confident, while only 10.6% reported being very confident as reflected in Table 4.6.

In terms of refresher courses, the highest proportion (45.5%) noted that they were conducted annually. Regarding the effectiveness of the training programs, 41.5% of respondents found them effective, while only 2.6% considered them very effective. When asked about the most beneficial type of training for procurement staff, an overwhelming 95.9% highlighted the need for ICT training, followed by inventory management (89.4%) and procurement regulation and compliance (80.5%).

Staff training was categorized as adequate or inadequate based on two key criteria: whether the staff had received formal training in procurement and the frequency of training provided in their facilities. Staff who had received formal training and whose facilities offered at least one training per year were classified as having adequate training. Conversely, those who had not received formal training or whose facilities did not provide training at least once per year were categorized as having inadequate training. The results revealed that only 11.4% had adequate training as shown in Figure 4.3.

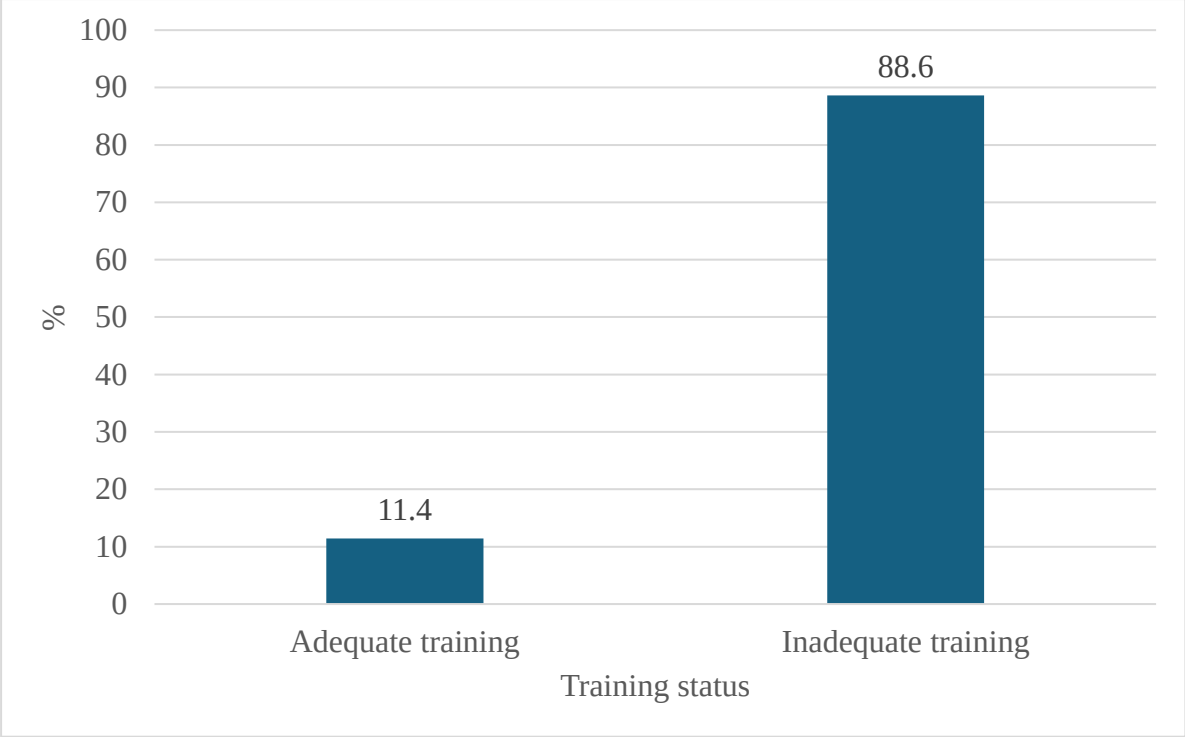


Figure 4.3: Staff Training Status

A regression analysis was conducted to examine the association between staff training and service delivery, revealing a statistically significant relationship (p-value = 0.031). Facilities where staff had inadequate training were found to be 5.5 times more likely to experience poor service delivery compared to those with adequately trained staff (COR = 5.474, CI: 1.169–15.620, p = 0.031). The results of the regression analysis are presented in Table 4.7.

Table 5.7: Association Between Staff Training and Service Delivery

Variable	**Service Delivery**		**COR (95% CI)**	**p-value**
	Poor	**Good**		
	n (%)	**n (%)**		
Inadequate Training	52 (42.3%)	57 (46.3%)	5.5 (1.169–15.620)	**0.031**
Adequate training	2 (1.6%)	12 (9.8%)	Reference	-

4.7 Effect of Inventory Management on Service Delivery

The respondents were asked about the effectiveness of the inventory management system in their facility. The majority (73.2%) indicated that it was effective, while approximately 17.1% chose to remain neutral. Regarding the frequency of stock-outs, nearly half (49.6%) reported that they occurred occasionally, followed by 27.6% who indicated they happened frequently. When asked how inventory management affects service delivery, the largest proportion of respondents (40.7%) believed it had a moderate influence, while 31.7% thought it had a significant impact (a large extent), as illustrated in Table 4.8.

The main challenges faced in inventory management were primarily delayed deliveries, as indicated by 96.7% of respondents. Insufficient storage space was the next most common issue, reported by 71.7% of respondents. In terms of data updates, most respondents (61.0%) stated that inventory data was updated monthly, followed by 36.6% who updated it weekly. Regarding the type of inventory management system used, a significant majority (97.6%) reported using manual records. When asked about the reliability of their inventory system, approximately 73.2% indicated that it was reliable, 7.3% described it as very reliable, and 17.2% remained neutral (Table 4.8).

Table 6.8: Effect of Inventory Management on Service Delivery

Characteristic	N=123	
	N	%
Effectiveness of the inventory management system		
Effective	90	73.2
Ineffective	4	3.3
Neutral	21	17.1
Very effective	3	2.4
Very ineffective	5	4.1
Frequency of stock-out		
Always	2	1.6
Frequently	34	27.6
Occasionally	61	49.6
Rarely	26	21.1
Extent inventory management affects service delivery		
Not at all	8	6.5
To a large extent	39	31.7
To a moderate extent	50	40.7
To a small extent	24	19.5
To a very large extent	2	1.6
Challenges faced with inventory management (multiple responses)	33	26.8
Inaccurate inventory records	119	96.7
Delayed deliveries	39	31.7
Insufficient storage space	21	17.1
Poor forecasting and planning		
Frequency of inventory data update	1	0.8
Bi-weekly	75	61.0
Monthly	2	1.6
Never	45	36.6
Weekly		
Inventory management system or tool used (multiple responses)	120	96.7
	37	30.1
Manual records	7	5.7
Electronic spreadsheets		
Inventory management software	22	17.9
Reliability of the inventory management system	90	73.2
Neutral	2	1.6
Reliable	9	7.3
Unreliable		
Very reliable		

Inventory management was categorized as either effective or ineffective based on three key indicators: the effectiveness rating of the inventory management system, the frequency of stock-outs, and the reliability of the inventory management system. Facilities where the inventory system was rated as effective, where stock-outs never

occurred or occurred rarely, and where the inventory system was reported as reliable were classified as having effective inventory management. Conversely, facilities that did not meet these criteria were categorized as having ineffective inventory management. As presented in Figure 4.4, only 13.8% reported effective inventory management.

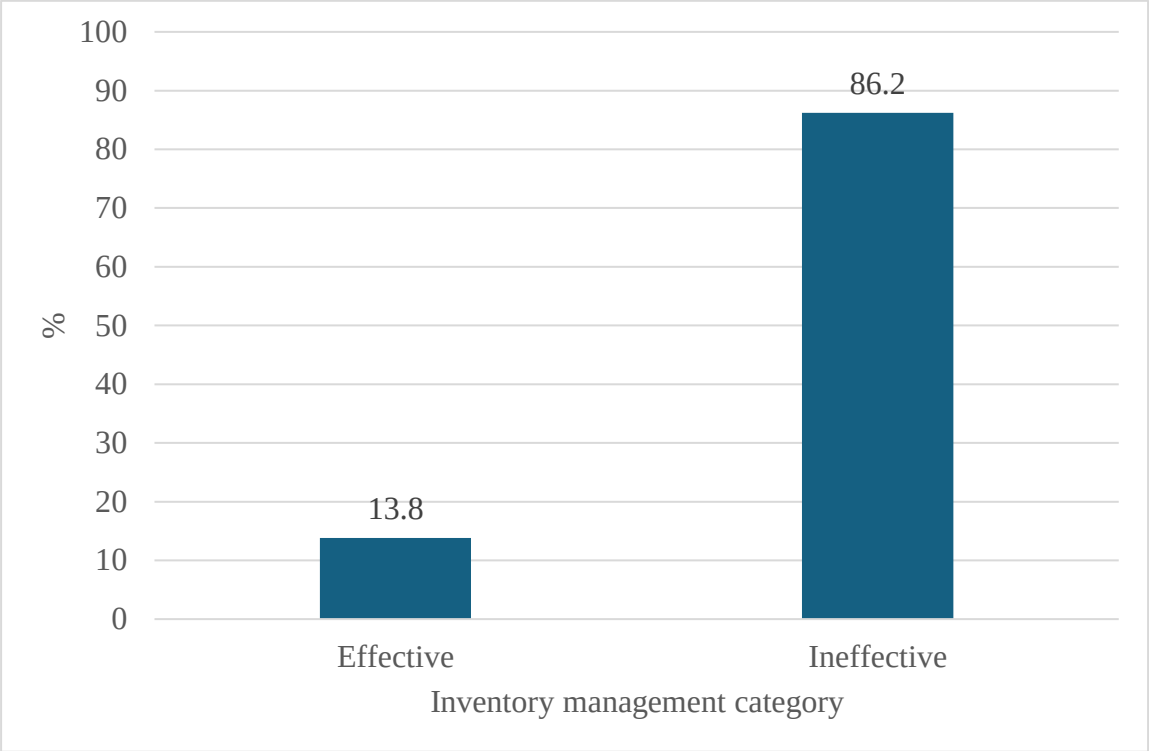


Figure 4.4: Inventory Management Status

A regression analysis was conducted to examine the relationship between inventory management status and service delivery, revealing a statistically significant association, as presented in Table 4.9. Facilities with ineffective inventory management were 4.3 times more likely to experience poor service delivery compared to those with effective inventory management (COR = 4.33; CI: 1.175–15.939; p = 0.028).

Table 7.9: Association Between Inventory Management and Service Delivery

Variable	Service Delivery		COR (95% CI)	p-value
	Poor n (%)	Good n (%)		
Ineffective inventory management	51 (41.5%)	55 (44.7%)	4.3 (1.175–15.939)	**0.028**
Effective inventory management	3 (2.4%)	14 (11.4%)	Reference	-

4.8 Influence of Supplier Relationship Management on Service Delivery

The study revealed that slightly over half of the respondents (51.2%) rated the quality of their relationships with suppliers as good, as shown in Table 4.9. When asked about the frequency of their communication with suppliers regarding procurement needs, most respondents (48.8%) indicated they communicated occasionally, while 20.3% communicated frequently, and 19.5% communicated rarely. Additionally, 43.9% of respondents believed that supplier relationship management has a moderate impact on service delivery (Table 4.10).

Respondents identified key factors that influence supplier relationships in their facilities. The majority noted the importance of communication and feedback (83.7%), followed by the reliability of deliveries (75.6%) and timely payments (56.1%). When asked how often they evaluate the performance of their suppliers, the majority indicated quarterly evaluations, while 32.5% reported that they never evaluate their suppliers. Furthermore, slightly more than half of the respondents (55.3%) expressed satisfaction with the overall performance of their suppliers, while 35.8% chose to remain neutral. Regarding the challenges they face in managing supplier relationships, a significant majority (97.5%) cited delayed deliveries, followed by poor communication (67.2%).

Table 8.10: Effect of Supplier Relationship on Service Delivery

Characteristic	N=123	
	N	%
Quality of relationship with suppliers		
Average	46	37.4
Good	63	51.2
Poor	4	3.3
Very good	8	6.5
Very poor	2	1.6
Frequency of communication with suppliers		
Always	2	1.6
Frequently	25	20.3
Never	12	9.8
Occasionally	60	48.8
Rarely	24	19.5
Extent supplier relationship management affects service delivery	8	6.5
Not at all	36	29.3
To a large extent	54	43.9
To a moderate extent	19	15.4
To a small extent	6	4.9
To a very large extent		
Factors influencing supplier relationship (multiple responses)	69	56.1
Timely payments	39	31.7
Quality of the supplies	93	75.6
Reliability of deliveries	103	83.7
Communication and feedback		
Frequency of performance evaluation	27	22.0
Annually	5	4.1
Bi- annually	40	32.5
Never	50	40.7
Quarterly	1	0.8
When need occurs		
Satisfaction with the overall performance of suppliers	6	4.9
Dissatisfied	44	35.8
Neutral	68	55.3
Satisfied	2	1.6
Very dissatisfied	3	2.4
Very satisfied		
Challenges faced in managing supplier relationships (multiple responses)	82	67.2
	119	97.5
Poor communication	21	17.2
Delayed deliveries	22	18.0
Quality issues		
Payment disputes		
Strategies to improve supplier relationship	72	58.5
Improve communication	21	17.1
Timely payment	2	1.6
More training	9	7.3
Building trust	19	15.4
Timely and quality delivery		

Finally, when asked to suggest strategies for improving supplier relationship management in their facilities, most respondents (58.5%) emphasized the need for better communication, followed by timely payments, as illustrated in Table 4.10.

Supplier relationship was categorized as either good or poor based on three key indicators: the quality of the relationship as rated by the respondents, the frequency of communication with suppliers, and the level of satisfaction with the overall performance of suppliers. Facilities where respondents rated the supplier relationship as good, where communication with suppliers occurred frequently or always, and where satisfaction with supplier performance was high were classified as having a good supplier relationship. Conversely, facilities that did not meet these criteria were categorized as having a poor supplier relationship. The study found that only 15.4% had a good supplier relationship as shown in Figure 4.5

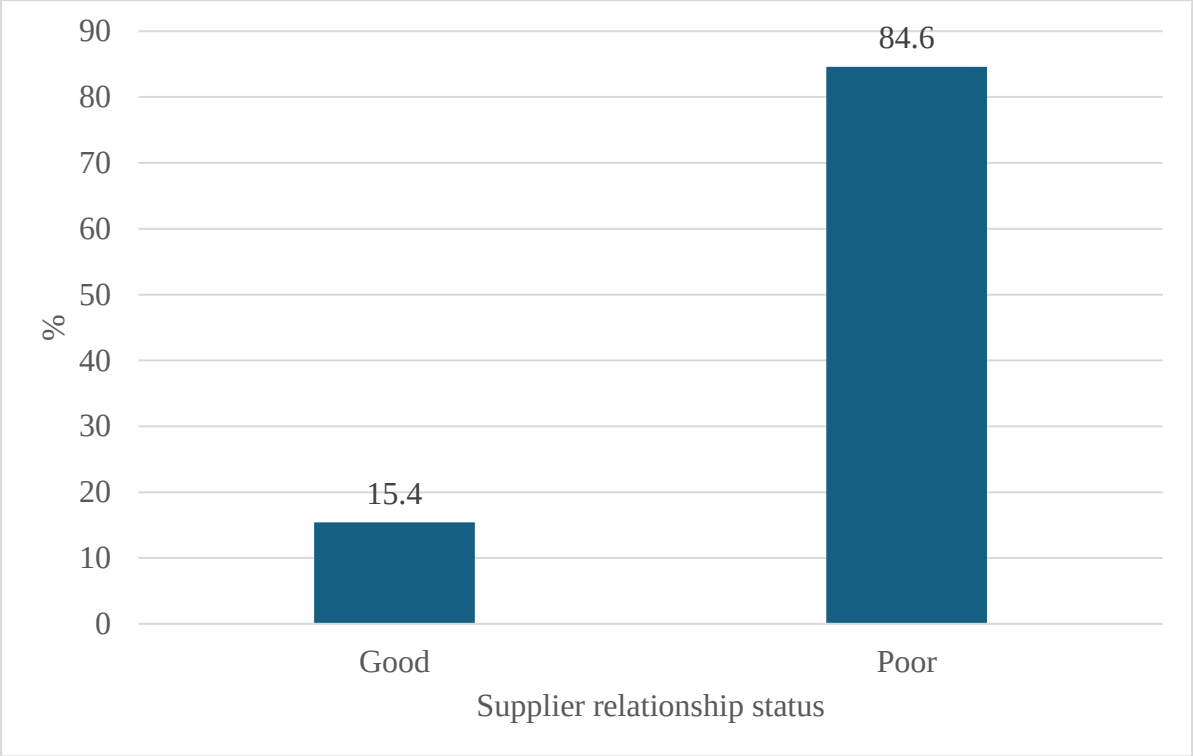


Figure 4.5: Supplier Relationship Status

A regression analysis was also conducted to assess the relationship between supplier relationship and service delivery, revealing a statistically significant association (p = 0.037). Facilities with poor supplier relationships were found to be 3.5 times more likely to experience poor service delivery compared to those with good supplier relationships (COR = 3.5; CI: 1.080–11.166; p = 0.037). The results of the relationship between service delivery and supplier relationship are shown in Table 4.11.

Table 9.11: Association Between Supplier Relationship and Service Delivery

Variable	Service Delivery		COR (95% CI)	p-value
	Poor n (%)	Good n (%)		
Poor supplier relationship	50 (40.7%)	54 (43.9%)	3.5 (1.080–11.166)	**0.037**
Good supplier relationship	4 (3.3%)	15 (12.2%)	Reference	-

4.9 Relationship Between Demographic Factors and Service Delivery

The relationship between demographic factors and service delivery was also established by the present study. Among the factors considered, the duration of working in the facility and the number of staff attached to procurement were found to have a statistically significant association with service delivery, as presented in Table 4.12.

Table 10.12: Association Between Demographic Factors and Service Delivery (Chi-Square Test)

Variable	Chi-Square Value (χ^2)	df	p-value
Department	13.141	8	0.067
Sex	0.454	1	0.537
Marital status	0.786	1	0.485
Age	0.391	2	0.823
Duration of working	11.175	2	**0.002**
Position in the facility	2.002	3	0.529
Type of health facility	5.168	3	0.133
Number of Procurement Staff	3.859	1	**0.045**

The factors that were significantly associated with service delivery through the Chi-Square test were further subjected to regression analysis to establish the direction and strength of their influence on service delivery. The results are reflected in Table 4.13.

Table 11.13: Association Between Demographic Factors and Service Delivery (Regression Analysis)

Variable	Service Delivery		COR (95% CI)	p-value
	Poor n (%)	Good n (%)		
Working Duration				
≤ 5 years	19 (15.4%)	24 (19.5%)	0.6 (0.291–1.423)	0.276
6-10 years	3 (2.4%)	19 (15.4%)	0.1 (0.034–0.482)	**0.002**
> 10 years	32(26.0%)	26(21.1%)	Reference	-
Number of procurement staff				-
	47(38.2%)	50 (40.7%)	2.6 (0.983–6.622)	**0.044**
1 staff	7 (5.7%)	19 (15.4%)	Reference	-
2 and above				

The regression analysis results as shown in Table 4.13 indicated that facilities with staff who had worked for 6–10 years were 0.1 times less likely to experience poor service delivery compared to those whose staff had worked for more than 10 years (COR = 0.1; CI, 0.034–0.482; p-value = 0.002). Additionally, facilities with only one staff member attached to procurement were 2.6 times more likely to have poor service delivery compared to facilities with two or more procurement staff (COR = 2.6; CI, 0.983–6.622; p-value = 0.04).

4.10 Factors Associated with Service Delivery (Multivariate Regression Analysis)

All factors that were statistically significant at the bivariate level were further fitted into a multivariate regression analysis to identify the final factors associated with service delivery in the health facilities. This analysis aimed to control for potential confounders and determine the most influential predictors of service delivery outcomes. The results of the multivariate regression analysis are presented in Table 4.14.

The findings from the multivariate regression analysis indicate that several factors were significantly associated with service delivery in public health facilities (Table 4.14). ICT availability was a key determinant, with facilities that had ICT systems available being 4.870 times more likely to experience improved service delivery compared to those without (AOR = 4.870; CI, 0.859-7.614; P-value = 0.044). Staff training also played a critical role, as facilities where procurement staff received adequate training were 3.227 times more likely to have good service delivery than those with inadequate training (AOR = 3.227; CI, 0.576-8.086; P-value = 0.033). Similarly, inventory management was found to be a significant factor, with facilities that had effective inventory management being 7.062 times more likely to deliver quality services

compared to those with ineffective systems (AOR = 7.062; CI, 1.741-18.649; P-value = 0.06). The quality of supplier relationships also influenced service delivery, as facilities with strong supplier relationships were 6.079 times more likely to provide better services (AOR = 6.079; CI, 1.644-12.477; P-value = 0.07). Additionally, staff experience was found to be relevant, with procurement staff who had worked for 5–10 years being less likely to experience poor service delivery compared to those who had worked for more than 10 years (AOR = 0.107; CI, 0.026-0.449; P-value = 0.02).

Table 12.14: Regression Analysis of Factors Associated with Service Delivery

Variable	Category	COR	AOR	C.I	P-value
ICT availability	Not available	4.407	4.870	0.859-7.614	**0.044**
	Available	Reference	-	-	-
Staff training	Not adequate	5.474	3.227	0.576-8.086	**0.033**
	Adequate	Reference	-	-	-
Inventory management status	Ineffective	4.327	7.062	1.741-18.649	**0.006**
	Effective	Reference	-	-	-
Supplier relationship	Poor	3.472	6.079	1.644-12.477	**0.007**
	Good	Reference			
Duration of working	≤ 5 years	0.276	0.542	0.208-1.407	0.208
	6-10 years	0.128	0.107	0.026-0.449	**0.002**
	> 10 years	Reference	-	-	-
Number of procurement staff	1	2.551	1.262	0.386-4.122	0.700
	2 and above	Reference	-	-	-

Reference category: Good service delivery

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter discusses the findings of the study on the influence of procurement practices on service delivery in selected public health facilities in Nyeri County, Kenya. The results are compared with existing literature to provide a comprehensive understanding of how ICT availability, staff training, inventory management, supplier relationships, and demographic factors affect service delivery.

5.2 Service Delivery

The study found that 56.1 % of the respondents in public health facilities in Nyeri County reported good service delivery, indicating a moderate level of efficiency in meeting healthcare service standards. While this percentage reflects a relatively positive outcome, it also highlights that a significant proportion of facilities still face challenges in delivering quality healthcare services. These challenges are largely attributed to inefficiencies in procurement practices, such as stock-outs, delayed supply of essential commodities, and inadequate procurement training. The study's results are consistent with global findings. For instance, a study by the World Health Organization (WHO, 2020) highlighted that improvements in procurement systems in low- and middle-income countries have led to better service delivery, with 60% of healthcare facilities meeting the required standards. Similarly, Mutai et al. (2019) found that procurement inefficiencies contributed to poor service delivery in public health facilities in Western Kenya, further corroborating the findings of this study. Additionally, Mutangili, (2021) has noted that the causes of poor public service delivery in Kenya are associated with public procurement challenges experienced by the

counties and national governments which revolve around inadequate procurement planning.

5.3 Influence of ICT on Service Delivery

The study established that ICT availability was significantly associated with service delivery (AOR = 4.870; CI, 0.859-7.614; P-value = 0.044). Health facilities with adequate ICT infrastructure had improved procurement efficiency and better service delivery outcomes. This suggests that ICT infrastructure enhances procurement efficiency, leading to better service outcomes. The integration of ICT systems, such as electronic procurement systems, inventory management systems, and supplier relationship management tools, streamlines procurement operations, reducing delays and errors associated with manual processes. For instance, ICT enables real-time tracking of inventory levels, ensuring the availability of essential medical supplies and minimizing stock-outs, which directly impacts the quality of healthcare services. Additionally, ICT facilitates better communication and coordination between healthcare facilities and suppliers, ensuring timely delivery of goods and services. These findings are in line with studies by Tegegne and Wubante, (2022) and Addo & Agyepong (2020) which reported that the adoption of ICT resources plays a significant role in enhancing the quality of healthcare services. Similarly, a study by Antwi (2022) found that ICT infrastructure significantly influenced the delivery of healthcare services. However, contrary to these findings, a study by Muhwezi et al., (2023) in Kenya found that ICT integration in procurement was not a significant predictor of service delivery, primarily due to inadequate technical expertise among procurement officers. This contrast suggests that ICT effectiveness is dependent not only on availability but also on the capacity of personnel to utilize it efficiently.

5.4 Influence of Staff Training on Service Delivery

Staff training was another key determinant of service delivery, with adequately trained personnel being 3.2 times more likely to contribute to better service delivery (AOR = 3.227; CI, 0.576-8.086; P-value = 0.033). This highlights the importance of continuous training programs in improving procurement efficiency and service delivery. These findings align with other studies that have reported that procurement training significantly enhances procurement process efficiency and organizational performance (Dadzie et al., 2024; Jaffu, 2023). Similarly, the study by Kuupiel et al. (2019) demonstrated that well-trained procurement staff in health facilities contributed to fewer stockouts and better inventory management, ultimately leading to improved patient care.

Training plays a critical role in influencing service delivery by equipping procurement staff with the necessary skills, knowledge, and confidence to perform their roles effectively. Well-trained staff are better able to adhere to procurement regulations, manage inventory efficiently, and maintain strong supplier relationships, all of which contribute to the timely availability of essential medical supplies and services. Training also enhances staff competence in using modern procurement tools and technologies, such as ICT systems, further improving efficiency and reducing errors. Additionally, regular refresher courses and targeted training programs help staff stay updated on best practices and emerging challenges, enabling them to adapt to changing demands.

5.5 Effect of Inventory Management on Service Delivery

The study found that effective inventory management significantly influenced service delivery, with facilities having well-managed inventory systems being 7.1 times more

likely to perform better (AOR = 7.062; CI, 1.741-18.649; P-value = 0.006). These findings highlight the crucial role of efficient inventory management systems in ensuring optimal service delivery in public facilities. The current findings align with the study by Balkhi et al., (2022) that reported effective inventory management systems protect organizations from material and financial losses. By maintaining efficient and accurate records of items and supplies, these systems ensure good service delivery. Furthermore, these findings are consistent with a study by Ran (2021), which reported that efficient inventory systems minimize processing time, improve resource utilization, ensure stability, and enhance organizational performance. Similar findings were reported in a study by Mawonde et al. (2024) in Zimbabwe, which found that organizations with robust inventory management practices had a positive direct and positive indirect effect on performance. Effective inventory management directly enhances service delivery in healthcare facilities by ensuring the consistent availability of essential medical supplies and equipment.

When inventory systems function optimally, they prevent stockouts of critical items like medicines and surgical supplies while avoiding costly overstocking. This reliability enables healthcare providers to deliver timely, uninterrupted services to patients. Proper inventory control also improves resource allocation efficiency, allowing facilities to prioritize high-demand items and reduce wastage of perishable or time-sensitive materials. Automated tracking systems further contribute by providing real-time data for decision-making, enabling staff to quickly locate supplies and maintain accurate records. By maintaining optimal stock levels, healthcare facilities can respond effectively to patient needs, emergencies, and seasonal demand fluctuations. This operational stability builds patient trust and satisfaction while supporting clinical staff

in delivering quality care without supply-related interruptions. Ultimately, robust inventory management serves as a foundation for reliable, efficient healthcare service delivery.

5.6 Influence of Supplier Management on Service Delivery

Supplier relationship was found to be significantly associated with service delivery (AOR = 6.079; CI, 1.644-12.477; P-value = 0.07). Facilities that maintained strong relationships with their suppliers reported timely delivery of essential medical supplies, reduced procurement lead times, and overall improved service provision. These findings align with other studies that have shown that effective supplier management practices, such as supplier partnerships, communication, and development, significantly enhance supply chain performance in healthcare settings (Areri & Gekara, 2019; Rajab et al., 2021). Furthermore and consistent with this study, a study by Asa et al., (2023) highlighted that effective supplier engagement strategies enhance efficiency in public procurement and service delivery. In contrast, a study by Opoku et al. (2023) in Ghana found that supplier relationships had a minimal impact on service delivery, arguing that government regulations and funding constraints were the primary determinants. This suggests that while supplier relationships are important, external factors such as budget allocations and procurement policies also play a critical role in influencing service delivery.

Effective supplier relationship management plays a pivotal role in ensuring optimal service delivery within public health facilities. A well-managed supplier network guarantees the timely and consistent provision of essential medical supplies, pharmaceuticals, and equipment, all of which are critical for uninterrupted healthcare

services. When health facilities maintain strong, collaborative relationships with suppliers, they minimize risks such as stockouts, delayed deliveries, and substandard products—issues that directly compromise patient care. Furthermore, strategic supplier partnerships enhance procurement efficiency by fostering transparent communication, enabling bulk purchasing discounts, and facilitating quicker resolution of logistical challenges. Reliable suppliers also contribute to quality assurance by adhering to regulatory standards, ensuring that medicines and medical devices meet safety and efficacy requirements. Conversely, poor supplier relationships often lead to procurement inefficiencies, inflated costs, and inconsistent stock availability, all of which negatively impact service delivery. Therefore, robust supplier relationship management serves as a cornerstone for operational stability in healthcare facilities, directly influencing their ability to provide timely, high-quality, and patient-centered services.

5.7 Influence of Demographic Factors on Service Delivery

The study found that working duration and the number of procurement staff significantly influenced service delivery. Facilities with procurement staff who had worked for 5-10 years were less likely to experience poor service delivery compared to those who had worked for over 10 years (AOR = 0.107; CI, 0.026-0.449; P-value = 0.002). This suggests that staff with moderate experience are more effective in handling procurement processes, thereby improving service delivery. Staff with moderate experience (5-10 years) tend to be more effective in handling procurement processes and improving service delivery due to their balanced expertise and adaptability. Unlike those with over 10 years of experience, who may become resistant to change or overly reliant on traditional procurement methods, moderately experienced staff are more open

to adopting new technologies and best practices. Their knowledge is up-to-date, often reinforced by recent training, making them more efficient in implementing modern procurement strategies. Additionally, they are more motivated and performance-driven, seeking career growth and improvement in procurement efficiency. Unlike long-serving employees who may become complacent, those in the 5-10 year range remain proactive in managing supplier relationships, optimizing inventory control, and mitigating procurement risks.

These findings are consistent with a report by OECD (2017) that reported that procurement experience enhances efficiency, but excessive tenure without professional development may lead to complacency and inefficiencies. This finding suggests that while experience is crucial, prolonged tenure without continuous professional development may hinder efficiency. Therefore, balancing experience with ongoing training and skill enhancement is essential for optimizing procurement functions and ensuring quality service delivery in public health facilities. Additionally, optimal service delivery requires balancing staff experience with continuous skills upgrading and periodic role rotation to maintain both technical proficiency and adaptive capacity in procurement operations.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents a summary of the key findings, conclusions drawn from the study, and recommendations for improving procurement practices to enhance service delivery in public health facilities. Additionally, suggestions for future research are provided.

6.2 Summary of Findings

The study examined the influence of procurement practices on service delivery in selected public health facilities. The key findings are summarized as follows:

- Service delivery: The majority of the respondents (56.1%) reported that their health facilities had a good service delivery
- Influence of ICT on service delivery: ICT availability was found to be significantly associated with service delivery (AOR = 4.870; CI, 0.859-7.614; P-value = 0.044). Health facilities equipped with ICT infrastructure had a better service delivery.
- Influence of staff training on service delivery: Procurement staff training was a significant determinant of service delivery (AOR = 3.227; CI, 0.576-8.086; P-value = 0.033). Facilities with well-trained procurement personnel had improved service delivery.
- Influence of inventory management on service delivery: Effective inventory management significantly influenced service delivery (AOR = 7.062; CI, 1.741-18.649; P-value = 0.006). Facilities with robust inventory systems had better service delivery

- Influence of supplier relationship on service delivery: A strong supplier relationship was positively associated with service delivery (AOR = 6.079; CI, 1.644-12.477; P-value = 0.007).
- Association between demographic factors and service delivery: The study found that procurement staff experience significantly influenced service delivery. Facilities with procurement staff who had worked for 5-10 years were more effective in procurement processes compared to those with over 10 years of experience (AOR = 0.107; CI, 0.026-0.449; P-value = 0.002).

6.3 Conclusion of the Study

The study concluded that procurement practices play a crucial role in enhancing service delivery in public health facilities. ICT availability, staff training, inventory management, and supplier relationships were significant determinants of service delivery. Additionally, procurement staff experience was found to influence service efficiency.

6.3 Recommendations of the Study

Based on the findings, the following recommendations are proposed:

6.3.1 Recommendations of Policy and Practice

1. Enhancing ICT Integration in procurement: The government and healthcare administrators should invest in modern ICT-based procurement systems to improve efficiency, transparency, and accuracy in procurement operations.
2. Continuous staff training and development: Regular training programs should be implemented to enhance the competencies of procurement staff. Emphasis

should be placed on ICT, compliance with regulations, inventory management and supplier negotiation skills.

3. Strengthening inventory management systems: Health facilities should adopt robust inventory management practices, including automated inventory tracking and real-time stock monitoring, to minimize stock-outs and ensure timely service delivery.
4. Improving supplier relationship management: Health facilities should establish strong supplier engagement strategies to foster reliability and accountability among suppliers, thereby improving the procurement process.

6.3.1 Recommendations of Further Research

Future research should explore:

1. The impact of government procurement policies on service delivery in public health facilities.
2. The influence of leadership and organizational culture on procurement practices in the healthcare sector.
3. Replicate this study in other Kenyan counties to identify contextual factors that moderate procurement effectiveness.

REFERENCES

Abdulsalam, Y. J., & Schneller, E. S. (2021). Of barriers and bridges: Buyer-supplier relationships in health care. *Health Care Management Review*, *46*(4), 358–366. https://doi.org/10.1097/HMR.0000000000000278

Abuka, K., Oluka, M., Guantai, E., Okalebo, F., & Okumu, M. O. (2023). An Analysis of Pharmaceutical Inventory Management at a Leading Teaching and Referral Hospital in Kenya. *Qeios*.

Achieng, O. J., & Misuko, N. (2023). Effect of Total Quality Management Practices on Service Delivery in Health Sector in Nairobi County, Kenya. *Journal of Strategic Management*, *7*(1), 74-88.

Addo, K., & Agyepong, P. K. (2020). The Effects of Information and Communication Technology on Health Service Delivery at Tafo Government Hospital. *E-Health Telecommunication Systems and Networks*, *9*(3), Article 3. https://doi.org/10.4236/etsn.2020.93003

Adera, W. O., & Senelwa, A. (2019). Effect of Procurement Training Practices on Implementation Of Procurement Practices In Public Institutions.

Adhikari, B., Ranabhat, K., Khanal, P., Poudel, M., Marahatta, S. B., Khanal, S., Paudyal, V., & Shrestha, S. (2024). Procurement process and shortages of essential medicines in public health facilities: A qualitative study from Nepal. *PLOS Global Public Health*, *4*(5), e0003128. https://doi.org/10.1371/journal.pgph.0003128

Alotaibi, Y. K., & Federico, F. (2017). The impact of health information technology on patient safety. *Saudi Medical Journal*, *38*(12), 1173–1180. https://doi.org/10.15537/smj.2017.12.20631

Althabatah, A., Yaqot, M., Menezes, B., & Kerbache, L. (2023). Transformative Procurement Trends: Integrating Industry 4.0 Technologies for Enhanced Procurement Processes. *Logistics*, *7*(3), Article 3. https://doi.org/10.3390/logistics7030063

Almendarez, L. (2010). Human Capital Theory: Implications for Educational Development. https://global.uwi.edu/sites/default/files/bnccde/belize/conference/papers2010/almendarez.html

Agrawal, R., Samadhiya, A., Banaitis, A., & Kumar, A. (2024). Entrepreneurial barriers in achieving sustainable business and cultivation of innovation: a resource-based view theory perspective. Management Decision.

Antwi, F. M. (2022). *A Case Study on Impact of Electronic Health Records System (EHRS) on Healthcare Quality at Asamankese Government Hospital*. https://doi.org/10.21203/rs.3.rs-2023326/v1

Arantes, A., Alhais, A. F., & Ferreira, L. M. D. F. (2022). Application of a purchasing portfolio model to define medicine purchasing strategies: An empirical study. *Socio-Economic Planning Sciences*, *84*, 101318. https://doi.org/10.1016/j.seps.2022.101318

Areri, J., & Gekara, G. (2019). Influence of supplier management practices on supply chain performance in public health institutions in Nairobi City County, Kenya. *The Strategic Journal of Business & Change Management*, *6*(4), 601-615. Avornu, B. (2023). *Management of Supplier Relationship and Its Effects on Service Delivery*.

Asa, A. R., Naruses, N., Nautwima, J. P., & Tsoy, D. (2023). Supplier Relationship Management and Organizational Performance: A Focus on Public Procurement. International Journal of Management Science and Business Administration, 9(6), 19–28.

Bahiru Tefera, B., & Tilahun Anbessa, G. (2022). Pharmaceutical supply chain practices and its associated factors in public health facilities, West Gojjam Zone, Ethiopia: Cross-Sectional Study. *Hospital Pharmacy*, *57*(5), 622-632.

Balkhi, B., Alshahrani, A., & Khan, A. (2022). Just-in-time approach in healthcare inventory management: Does it really work? Saudi Pharmaceutical Journal : SPJ, 30(12), 1830–1835. https://doi.org/10.1016/j.jsps.2022.10.013

Beaulieu, M., & Bentahar, O. (2021). Digitalization of the healthcare supply chain: A roadmap to generate benefits and effectively support healthcare delivery. *Technological Forecasting and Social Change*, *167*, 120717. https://doi.org/10.1016/j.techfore.2021.120717

Begum, F., Said, J., Hossain, S. Z., & Ali, M. A. (2022). Patient satisfaction level and its determinants after admission in public and private tertiary care hospitals in Bangladesh. *Frontiers in Health Services*, *2*. https://doi.org/10.3389/frhs.2022.952221

Bhat, S. S., Srihari, V. R., Prabhune, A., Satheesh, S. S., & Bidrohi, A. B. (2024). Optimizing Medication Access in Public Healthcare Centers: A Machine Learning Stochastic Model for Inventory Management and Demand Forecasting in Primary Health Services. In 2024 International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE) (pp. 1-5). IEEE.

Blau, P. M. (1964). Exchange and Power in Social Life. Wiley.

Bialas, C., Bechtsis, D., Aivazidou, E., Achillas, C., & Aidonis, D. (2023). A holistic view on the adoption and cost-effectiveness of technology-driven supply chain management practices in healthcare. *Sustainability*, *15*(6), 5541.

Boselie, P., Harten, J. V., & Veld, M. (2021). A human resource management review on public management and public administration research: Stop right there…before we go any further…. *Public Management Review*. https://www.tandfonline.com/doi/abs/10.1080/14719037.2019.1695880

Beratarrechea, A., Lee, A. G., Willner, J. M., Jahangir, E., Ciapponi, A., & Rubinstein, A. (2014). The impact of mobile health interventions on chronic disease outcomes in developing countries: A systematic review. *Telemedicine Journal and E-Health: The Official Journal of the American Telemedicine Association, 20*(1), 75–82. https://doi.org/10.1089/tmj.2012.0328

Bosio, E., Djankov, S., Glaeser, E., & Shleifer, A. (2022). Public Procurement in Law and Practice. *American Economic Review*, *112*(4), 1091–1117. https://doi.org/10.1257/aer.20200738

Boulding, H., & Hinrichs-Krapels, S. (2021). Factors influencing procurement behaviour and decision-making: An exploratory qualitative study in a UK healthcare provider. *BMC Health Services Research*, *21*, 1087. https://doi.org/10.1186/s12913-021-07065-0

Casady, C. B., Petersen, O. H., & Brogaard, L. (2023). Public procurement failure: The role of transaction costs and government capacity in procurement cancellations. *Public Management Review*, *0*(0), 1–28. https://doi.org/10.1080/14719037.2023.2231945

Chikazhe, L., Bhebhe, T., Tukuta, M., Chifamba, O., & Nyagadza, B. (2023). Procurement practices, leadership style and employee-perceived service quality towards the perceived public health sector performance in Zimbabwe. *Cogent Social Sciences*. https://www.tandfonline.com/doi/abs/10.1080/23311886.2023.2198784

Chikophe, R. M., Tenambergen, W. M., & Kyalo, C. K. (2024). Influence of Procurement Process on Availability of Essential Drugs in Public Health Facilities in Mombasa County, Kenya. *International Journal of Health Sciences*, *7*(3), 44–56. https://doi.org/10.47941/ijhs.1916

Chikwere, D., Chikazhe, L., & Tukuta, M. (2022). The Influence Of Public Procurement Practices on Service Delivery: Insights From Zimbabwe's Rural District Councils. https://doi.org/10.17605/OSF.IO/RJC4Q

Chukwuma, I. O., Chukwuma, P. C., & Madu, I. L. (2024). Organisational Learning: A Resource-Based View Analysis. Valley International Journal Digital Library, 6079-6087.

Criado, J. I., & Villodre, J. (2021). Delivering public services through social media in European local governments. An interpretative framework using semantic algorithms. *Local Government Studies*, *47*(2), 253–275. https://doi.org/10.1080/03003930.2020.1729750

Dadzie, E. B., Amoah, J., Egala, S. B., Keelson, S. A., & Bashrisu, A. J. (2024). THE IMPACT OF PROCUREMENT TRAINING ON PROCUREMENT PROCESS EFFICIENCY AND ORGANIZATIONAL PERFORMANCE: A PLS-SEM ANALYSIS. *International Journal of Entrepreneurial Knowledge*, *12*(1), Article 1. https://doi.org/10.37335/ijek.v12i1.228

George, S., & Elrashid, S. (2023). Inventory Management and Pharmaceutical Supply Chain Performance of Hospital Pharmacies in Bahrain: A Structural Equation Modeling Approach. *Sage Open*, *13*(1), 21582440221149717. https://doi.org/10.1177/21582440221149717

GOK Public Procurement Oversight Authority (PPOA). (2009). *Procurement Manual for Works – First Edition*.

Hlongwa, H., Nzimakwe, T. I., & Utete, R. (2023). Factors That Affect The Employee Turnover of Doctors and Nurses in An Emerging Economy: Evidence From South Africa.

Homans, G. C. (1958). "Social Behavior as Exchange." American Journal of Sociology, 63(6), 597-606.

Hui, C. Y., Abdulla, A., Ahmed, Z., Goel, H., Monsur Habib, G. M., Teck Hock, T., Khandakr, P., Mahmood, H., Nautiyal, A., Nurmansyah, M., Panwar, S., Patil, R., Rinawan, F. R., Salim, H., Satav, A., Shah, J. N., Shukla, A., Tanim, C. Z. H., Balharry, D., … the RESPIRE Group. (2022). Mapping national information and communication technology (ICT) infrastructure to the requirements of potential digital health interventions in low- and middle-income countries. *Journal of Global Health*, *12*, 04094. https://doi.org/10.7189/jogh.12.04094

Jaffu, R. (2023). Training and Performance of Public Procurement Professionals in Tanzania: The Mediating Role of Career Development. *Management & Economics Research Journal*, *5*(1), 127–147. https://doi.org/10.48100/merj.2023.303

Javidi, A., Salajegheh, S., Pourkiani, M., & Sayadi, S. (2020). Investigating the Factors Related to Measuring the Public Services Quality in the Public Sector with Service Delivery Processes. *Agricultural Marketing and Commercialization Journal*, *1*(1), 77.

Kaondera, P. R., Chikazhe, L., Munyimi, T. F., & Nyagadza, B. (2023). Buttressing customer relationship management through digital transformation: Perspectives from zimbabwe's commercial banks. *Cogent Social Sciences*, *9*(1), 2191432. https://doi.org/10.1080/23311886.2023.2191432

Karamshetty, V., De Vries, H., Van Wassenhove, L. N., Dewilde, S., Minnaard, W., Ongarora, D., Abuga, K., & Yadav, P. (2022). Inventory management practices in private healthcare facilities in Nairobi county. *Production and Operations Management*, *31*(2), 828-846.

Kariuki, M. C., & Wabala, D. S. (2021). Influence of Procurement Planning on The Procurement Performance Of Selected County Governments In Kenya.

Kaspar, L., & Puddephatt, A. (2012). *Benefits of transparency in public procurement for SMEs*.

Kaufmann, D., Mehrez, G., & Gurgur, T. (2019). Voice or public sector management? An empirical investigation of determinants of public sector performance based on a survey of public officials. *Journal of Applied Economics*. https://www.tandfonline.com/doi/abs/10.1080/15140326.2019.1627718

Khubone, T., Tlou, B., & Mashamba-Thompson, T. P. (2020). Electronic Health Information Systems to Improve Disease Diagnosis and Management at Point-of-Care in Low and Middle Income Countries: A Narrative Review. *Diagnostics*, *10*(5), 327. https://doi.org/10.3390/diagnostics10050327

Kosiol, J., Fraser, L., Fitzgerald, A., & Radford, K. (2023). Resource-based view: A new strategic perspective for public health service managers. Asia Pacific Journal of Health Management, 18(1), 8-19.

Kuupiel, D., Tlou, B., Bawontuo, V., Drain, P. K., & Mashamba-Thompson, T. P. (2019). Poor supply chain management and stock-outs of point-of-care diagnostic tests in Upper East Region's primary healthcare clinics, Ghana. *PLoS ONE*, *14*(2), e0211498. https://doi.org/10.1371/journal.pone.0211498

Le Thi, T. A., & Nguyen, T. H. (2020). Contribution of Supplier Relationship Management to Firm Performance. *VNU JOURNAL OF ECONOMICS AND BUSINESS*, *36*(5E).

Liu, L., Zhu, G., & Zhao, X. (2022). Application of medical supply inventory model based on deep learning and big data. *International Journal of System Assurance Engineering and Management*, *13*(Suppl 3), 1216-1227.

Madison, K., Eva, N., Goh, Z., & De Cieri, H. (2023). Excluded from Exchange: How Social Exchange Theory Privileges Men Leaders. In Academy of Management Proceedings (Vol. 2023, No. 1, p. 16088). Briarcliff Manor, NY 10510: Academy of Management.

Mahuwi, L., & Israel, B. (2024). Promoting transparency and accountability towards anti-corruption in pharmaceutical procurement system: Does e-procurement play a significant role? *Management Matters*, *21*(1), 20–37. https://doi.org/10.1108/MANM-07-2023-0027

Maina, P. M., & Wanyoike, D. M. (2015). The effect of procurement practices on service delivery in government hospitals in Nakuru County. International Journal of Scientific and Research Publications, 5(5), 1-6.

Mawonde, D., Nyoni ,Josphat, Mabwe ,Percy, & and Kamvumbi, L. (2024). An assessment of the effect of inventory control systems on organisational performance in the mining sector in Zimbabwe. Cogent Business & Management, 11(1), 2298535. https://doi.org/10.1080/23311975.2023.2298535

Mbau, R., Musiega, A., Nyawira, L., Tsofa, B., Mulwa, A., Molyneux, S., Maina, I., Jemutai, J., Normand, C., Hanson, K., & Barasa, E. (2023). Analysing the Efficiency of Health Systems: A Systematic Review of the Literature. *Applied Health Economics and Health Policy*, *21*(2), 205–224. https://doi.org/10.1007/s40258-022-00785-2

Mbiriri, E., & Moronge, M. (2018). Influence of Inventory Management Systems on Service Delivery in Public Hospitals in Nairobi City County, Kenya. *Strategic Journal of Business and Change Management*, *5*(2), 1885-1907.

Mbugua, A., & Namada, J. (2019). Supply chain integration and operational performance of Kenya's public health sector. *International Journal of Research in Business and Social Science (2147-4478)*, *8*(5), 01-10.

Meena, D. K., & Mathaiyan, J. (2024). Unveiling supply chain efficiency: exploring ABC-VED analysis studies on drug inventory management in India. International Journal of Basic & Clinical Pharmacology, 13(4), 563.

Mfizi, E., Niragire, F., Bizimana, T., & Mukanyangezi, M. F. (2023). Analysis of pharmaceutical inventory management based on ABC-VEN analysis in Rwanda: A case study of Nyamagabe district. *Journal of Pharmaceutical Policy and Practice*, *16*(1), 30.

Mittal, A., & Mantri, A. (2023). A literature survey on healthcare supply chain management. *F1000Research*, *12*, 759.

Mogere, K. M., Kwendo, E. S., & Fozia, N. (2023). Supply Chain Resilience and Service Delivery of Public Health Care Facilities in Western Region Kenya. *African Journal of Empirical Research*, *4*(1), Article 1. https://doi.org/10.51867/ajernet4.1.18

Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International Journal of Health Policy and Management*, *3*(2), 77–89. https://doi.org/10.15171/ijhpm.2014.65

Mugenda O.M, Mugenda, A.G. (2012). Research Methods: Quantitative and qualitative approaches. Nairobi, Kenya.

Muhwezi, M., Mutebi, H., Mayanja, S. S., Tukamuhabwa, B., Namagembe, S., & Kalema, R. (2023). Information integration, procurement internal controls, material and purchasing procedure standardization and procurement performance in humanitarian organizations. Journal of Humanitarian Logistics and Supply Chain Management, 13(4), 410–432. https://doi.org/10.1108/JHLSCM-11-2021-0115

Mutangili, S. K. (2021). Challenges Influencing Compliance to Public Procurement Regulations in Kenya. Journal of Procurement & Supply Chain, 5(1), Article 1.

Muturi, B. W., & John, M. (2020). *Financial management practices and growth of public hospitals in Nyeri County, Kenya* KENYATTA UNIVERSITY].

National Academies of Sciences, E., Division, H. and M., Services, B. on H. C., & Disabilities, C. on H. C. U. and A. with. (2018). Factors That Affect Health-Care Utilization. In *Health-Care Utilization as a Proxy in Disability Determination*. National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK500097/

Nienhüser, W. (2008). Resource dependence theory: How well does it explain behavior of organizations?

Njeru, S. E. (2015). *Factors affecting effective implementation of Procurement Practices in tertiary public training institutions in Kenya*.

Ochieng, J., Mbeche, I., & Mokua, B. (2018). An evaluation of procurement practices and their impact on service delivery: A case study of public health sector in Kisii County, Kenya. European Scientific Journal, 14(15), 120-136.

OECD. (2017). Public Procurement for Innovation: Good Practices and Strategies, OECD Public Governance Reviews, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264265820

Ojo, I. O., Ololade, R., Odinaka, A., & Adedeji, P. (2021). Factors Influencing Adoption and Use of ICT among Nurses in Selected Hospitals in Ibadan. *Journal of Health Informatics in Developing Countries*, *15*(1), Article 1. https://www.jhidc.org/index.php/jhidc/article/view/266

Olaniyan, D. A., & Okemakinde, T. (2008). Human capital theory: Implications for educational development. European Journal of Scientific Research, 24, 157–162.

Oliech, C. O., & Mwangangi, D. P. (2019). EFFECT OF STRATEGIC PROCUREMENT MANAGEMENT ON PERFORMANCE OF LEVEL FIVE HOSPITALS IN KENYA. *International Journal of Supply Chain Management*, *4*(1), Article 1.

Onkundi, K. E. H., & Bichanga, W. O. (2016). Factors influencing inventory management performance in Public Health Sector: A case study of Public Health Sector in Kisii County. *health*, *8*(12).

Onserio, E. N., & Kamaara, M. (2023). Role of Supplier Relations Management On The Performance of Hospitals in Kiambu County, Kenya.*International Journal of Management and Business Research, 5*(2), Article 2.

Opoku, R., Yeboah Nyamah, E., Yeboah Nyamah, E., Agyapong, G., & Efua Frimpong, S. (2023). Sustainable manufacturing practices and sustainable performance:

Evidence from Ghana's food manufacturing sector. Cleaner Logistics and Supply Chain, 9, 100120. https://doi.org/10.1016/j.clscn.2023.100120

Oteki, E. B., Ondieki, J. N., & Bushuru, J. N. (2015). *Effect of Training on the Effectiveness of Supply Chain Management in the Kenyan Public Sector*. http://repository.mut.ac.ke:8080/xmlui/handle/123456789/4675

Ouma, A. E., Maina, R., Thuranira, P. N., & Muriithi, M. (2016). The effects of procurement practices on performance of public health programs in Kenya: A case study of Mama Lucy Kibaki Hospital. Journal of Public Administration and Governance, 6(3), 134-156.

Parilla, E. S., Evangelista, J., Aurelio, R., & Bullalayao, C. (2022). Inventory Management Practices and Service Delivery of Healthcare Facilities in Ilocos Norte Philippines. *Logistic and Operation Management Research (LOMR), 1*(1), Article 1. https://doi.org/10.31098/lomr.v1i1.919

Pfeffer, J., & Salancik, G. R. (1978). The external control of organisations: A resource dependence perspective. Harper & Row.

Rahmani, K., Karimi, S., Raeisi, A. R., & Rezayatmand, R. (2022). Comparative Study of Medical Equipment Procurement in Selected Countries. *Medical Journal of the Islamic Republic of Iran, 36*, 40. https://doi.org/10.47176/mjiri.36.40

Rajab, F., Ngugi, P., & Kiarie, D. (2021). Influence of supplier relationship management on performance of manufacturing firms in Kenya. *International Journal of Supply Chain and Logistics*, *5*(1), 31-45.

Ran, H. (2021). Construction and optimization of inventory management system via cloud-edge collaborative computing in supply chain environment in the Internet of Things era. PLoS ONE, 16(11), e0259284. https://doi.org/10.1371/journal.pone.0259284

Rianawati, A., Darmasetiawan, N. K., Hadi, F. S., Oktavianus, J., & Utama, C. A. (2024). Enhancement of Indonesia's blue economy sector through innovation and competitive advantage based on Resource-Based View theory. Problems and Perspectives in Management, 22(2), 165-181.

Richemond, D., & Huggins-Jordan, T. D. (2023). The Impact of Health Information Systems on Patient Outcomes. *Open Access Library Journal*, *10*(8), Article 8. https://doi.org/10.4236/oalib.1110518.

Sama, H. K., & Mdemu, R. (2024). Effects of Inventory Management on Service Delivery in Public Sector: A Case of Office of Registrar of Political Parties. International Journal of Business, Economics, and Social Development, 5(2), 271-279.

Sanderson, J., Lonsdale, C., Mannion, R., & Matharu, T. (2015). Theories about procurement and supply chain management. In *Towards a framework for*

enhancing procurement and supply chain management practice in the NHS: lessons for managers and clinicians from a synthesis of the theoretical and empirical literature. NIHR Journals Library. https://www.ncbi.nlm.nih.gov/books/NBK286086/

Seidman, G., & Atun, R. (2017). Do changes to supply chains and procurement processes yield cost savings and improve availability of pharmaceuticals, vaccines or health products? A systematic review of evidence from low-income and middle-income countries. *BMJ Global Health*, *2*(2), e000243. https://doi.org/10.1136/bmjgh-2016-000243

Stephen, M., Jay, D., & Oyeniyi, J. (2024). *The Impact of Electronic Health Records on Healthcare Delivery Transformation and Economic Benefits*.

Seyffert, M., Wu, C., & Özkan-Seely, G. F. (2024). Insights into the Impact of Organizational Factors and Burnout on the Employees of a For-Profit Psychiatric Hospital during the Third Wave of the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *21*(4), 484. https://doi.org/10.3390/ijerph21040484

Sinyiza, F. W., Kaseka, P. U., Chisale, M. R. O., Chimbatata, C. S., Mbakaya, B. C., Kamudumuli, P. S., Wu, T.-S. J., & Kayira, A. B. (2022). Patient satisfaction with health care at a tertiary hospital in Northern Malawi: Results from a triangulated cross-sectional study. *BMC Health Services Research*, *22*(1), 695. https://doi.org/10.1186/s12913-022-08087-y

Stone, B. (2023). The application of social exchange theory by entrepreneurs leading small businesses in appalachia.

Tefera, B. B., Tafere, C., Yehualaw, A., Mebratu, E., Chanie, Y., Ayele, S., & Adane, S. (2022). Availability and stock-out duration of essential medicines in Shegaw Motta general hospital and Motta Health Centre, North West Ethiopia. *PLoS ONE*, *17*(9), e0274776. https://doi.org/10.1371/journal.pone.0274776

Toroitich, A. M., Dunford, L., Armitage, R., & Tanna, S. (2022). Patients Access to Medicines–A critical review of the Healthcare System in Kenya. *Risk Management and Healthcare Policy*, 361-374.

Transparency International. (2019). Corruption in the health sector in Kenya: A review of the literature. Transparency International Kenya.

Tegegne, M. D., & Wubante, S. M. (2022). Identifying Barriers to the Adoption of Information Communication Technology in Ethiopian Healthcare Systems. A Systematic Review. *Advances in Medical Education and Practice*, *13*, 821–828. https://doi.org/10.2147/AMEP.S374207

Vian, T., & Richards, S. C. (2013). Addressing corruption in the health sector: Securing equitable access to healthcare for everyone. Social Science & Medicine, 96, 245-252

Wambui, M. C. (2017). *Factors Influencing Availability of Essential Medicines in Public Health Facilities in Kenya: A Case of Embu County*.

Wandie, R. W., & Muathe, S. M. (2022). What enhances service delivery in public hospitals in Kenya? The role of total quality management practices. *International Journal of Research in Business and Social Science (2147-4478)*, *11*(7), 01-08.

Woodhall, M. (1997). Human capital concepts. Education, culture, economy, and society

World Bank. (2024). *Kenya - The Efficiency of Health Service Delivery in Kenya: Perceptions of Drivers of Poor Performance and Inefficiency at the County Level* [Text/HTML]. World Bank. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099800003222299678/P16296902b2fba09091700a135e735a7e3

World Health Organization. (2024). *Public health and environment*. https://www.who.int/data/gho/data/themes/public-health-and-environment

World Health Organization. (2006). *Electronic health records: Manual for developing countries*. World Health Organization.

Yamao, S. (2024). Social exchange theory. In A guide to key theories for human resource management research (pp. 274-279). Edward Elgar Publishing.

Yenet, A., Nibret, G., & Tegegne, B. A. (2023). Challenges to the Availability and Affordability of Essential Medicines in African Countries: A Scoping Review. *ClinicoEconomics and Outcomes Research: CEOR*, *15*, 443–458. https://doi.org/10.2147/CEOR.S413546

APPENDICES

APPENDIX A: CONSENT FORM

INFLUENCE OF PROCUREMENT PRACTICES ON SERVICE DELIVERY IN SELECTED PUBLIC HEALTH FACILITIES IN NYERI COUNTY, KENYA.

DEAR PARTICIPANT,

Request for Involvement in Research Study

You are cordially invited to take part in the research project named "The Impact of Procurement Practices on Service Delivery in Selected Public Health Facilities in Nyeri County, Kenya." I am currently pursuing a Master of Science Degree in Procurement and Supplies Management at Mount Kenya University. The purpose of this study is to examine how procurement practices affect the efficiency and effectiveness of service delivery in public health facilities, which may provide valuable insights for improving healthcare services in the region.

Participation in this study is entirely voluntary. Without suffering any repercussions, you are free to decline to participate, withdraw at any moment, or skip any questions you choose not to answer. Your relationship with the study team, Mount Kenya University, or any participating healthcare facilities will not be impacted by your choice to participate or not.

Risks and Benefits of Participation

Participating in this study is not expected to carry any hazards beyond those that come with daily living. However, talking about some aspects of service delivery and procurement may be emotionally taxing for some people. If you experience any discomfort or distress during the study, please feel free to stop and seek assistance from a trusted individual or mental health professional.

While there are no direct personal benefits for participating in this research, your insights and experiences may contribute significantly to understanding procurement practices in healthcare. This study aims to generate knowledge that could lead to improvements in public health service delivery, benefiting future clients, healthcare providers, and policymakers.

Confidentiality and Data Protection

Your answers will be kept completely private and anonymous. Only the research team will have secure access to the closed facility where all acquired data will be kept. To ensure that individual responses cannot be recognized, the study's results will be presented in aggregate form. All identifiable information will be removed from the data set before analysis to protect your privacy.

Voluntary Participation and Rights

It is completely voluntary to participate in this research. You are under no obligation to provide an explanation for your decision to withdraw your consent and stop participating at any time. Your data will be deleted and excluded from the analysis if you decide to withdraw. If you have any questions concerning the study or your rights as a participant, you can get in touch with the research team at any time. A copy of this consent form will be given to you for your records.

Please contact the Chairman if you have any questions about your rights as a research participant or if taking part in this study has any negative consequences on you.

Thank you for considering this important research opportunity. Your contribution could make a meaningful difference in the field of public health.

Consent Statement

I had the opportunity to ask any questions, and I have read and comprehended the material supplied. My participation is entirely optional, and I understand that I can stop at any time without having to give a reason or pay anything. This permission form will be forwarded to me for my records. I acknowledge that I accept to participate in this study by signing below.

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Contact Information for Further Questions:

Please get in touch with the Ethics Review Board at Mount Kenya University if you have any questions or concerns regarding this project.

[P.O. Box 342-01000]

[annk@gmail.com]

APPENDIX B: INTRODUCTION LETTER

Dear Respondent……..

RE: Invitation to Take Part in the Research Study

I'm Ann Wanjiru, and I'm presently enrolled at Mount Kenya University to pursue a Master of Science in Procurement and Supplies Management."The Impact of Procurement Practices on Service Delivery in Selected Public Health Facilities in Nyeri County, Kenya" is the title of the research project I'm working on for my degree.The purpose of this study is to examine how procurement practices affect the efficiency and effectiveness of service delivery in public health facilities. Because of your invaluable insights, I would like to extend an invitation to you to participate in this research by answering a questionnaire that will collect your thoughts on procurement practices and how they affect the provision of services.

Your involvement in this study is completely voluntary, and you are free to decline to answer any questions that make you uncomfortable or to leave the study at any moment without facing any repercussions. Your answers will stay private and anonymous since all information will be safely kept and shared only in aggregate.

Completing the questionnaire will take about half an hour and your contributions will significantly enrich the study. This research aims to provide valuable insights that may contribute to improving procurement practices and service delivery in public health facilities.

Do not hesitate to contact me at [0723355918] or [anneekiboi@gmail.com] if you have any queries concerning the study or your rights as a participant. I sincerely hope you will contribute to this significant study, and I appreciate your consideration.

Thank you for your time and support.

Sincerely,

Ann Wanjiru

APPENDIX C: QUESTIONNAIRE

Introduction:

The purpose of this questionnaire is to gather data in order to investigate how procurement procedures affect the service delivery in a few public health facilities located in Nyeri County, Kenya.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

Direction: **Please provide information about yourself. Kindly tick the appropriate option.**

A1. What department are you working in? ……

A2. Sex of the respondent?

1. Male [ ] 2. Female [ ]

A3. Respondent age in completed years? …….

A4. Marital Status?

1. Married [ ] 2. Single [ ] 3. Divorced [ ]
4. Widowed [ ]

A5. Kindly indicate your highest qualification?

1. Certificate [ ] 2. Diploma [ ]
3.Bachelor's Degree [ ] 4. Master's Degree [ ]
5. PhD [ ] others (specify)…….

A5. How long have you worked in this County?.....

A6. Position in the health facility:

☐Procurement Officer

☐Procurement Staff

☐Health worker attached to the procurement office

☐Other (please specify): _____

A7. Years of Experience in Procurement:

☐ Less than 1 year

☐ 1-2 years

☐ 3-4 years

☐ 5-10 years

☐ More than 10 years

A8. Type of health facility:

☐ Hospital

☐ Health Center

☐ Dispensary

☐ Other (please specify): _____

A9. Number of Procurement Staff in Your Facility:

☐ 1-5

☐ 6-10

☐ 11-15

☐ More than 15

SECTION B: ICT INFRASTRUCTURE

B1. How would you rate the availability of ICT infrastructure in your facility?

☐ Very Poor

☐ Poor

☐ Average

☐ Good

☐ Very Good

B2. How often do you use ICT systems for procurement processes?

☐ Never

☐ Rarely

☐ Occasionally

☐ Frequently

☐ Always

B3. To what extent does ICT infrastructure affect procurement efficiency in your facility?

☐ Not at all

☐ To a minor extent

☐ To a fair extent

☐ To a considerable extent

☐ To an extensive extent

B4. How would you rate the support provided for ICT issues in your facility?

☐ Very Poor

☐ Poor

☐ Average

☐ Good

☐ Very Good

B5. What types of ICT systems are used for procurement in your facility? (Check all that apply)

☐ Electronic Procurement System

☐ Inventory Management System

☐ Supplier Relationship Management System

☐ Other (please specify): _____

B6. How effective are the ICT systems in streamlining procurement processes?

☐ Very Ineffective

☐ Ineffective

☐ Neutral

☐ Effective

☐ Very Effective

B7. What are the main challenges you face with the current ICT infrastructure? (Check all that apply)

☐ Limited access to computers

☐ Poor internet connectivity

☐ Lack of training on ICT systems

☐ Outdated software

☐ Other (please specify): _____

SECTION C: STAFF TRAINING IN PROCUREMENT

C1. Have you received any formal training in procurement?

☐ Yes

☐ No

C2. How often does your facility provide training for procurement staff?

☐ Never

☐ Once a year

☐ Twice a year

☐ Quarterly

☐ Other (please specify): _____

C3. To what extent does staff training influence procurement practices in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a large extent

☐ To a very large extent

C4. How confident are you in your procurement skills and knowledge?

☐ Not confident at all

☐ Slightly confident

☐ Moderately confident

☐ Very confident

☐ Extremely confident

C5. What is the frequency of refresher courses provided to procurement staff?

☐ Never

☐ Annually

☐ Bi-annually

☐ Quarterly

☐ Other (please specify): _____

C6. How effective do you find the training programs provided by your facility?

☐ Very Ineffective

☐ Ineffective

☐ Neutral

☐ Effective

☐ Very Effective

C7. What type of training do you think would be most beneficial for procurement staff? (Check all that apply)

☐ ICT training

☐ Inventory management

☐ Supplier relationship management

☐ Procurement regulations and compliance

☐ Other (please specify): _____

C8. What additional training resources or support would enhance your procurement skills? _____

SECTION D: INVENTORY MANAGEMENT

D1. How effective is the inventory management system in your facility?

☐ Very Ineffective

☐ Ineffective

☐ Neutral

☐ Effective

☐ Very Effective

D2. How often do stock-outs occur in your facility?

☐ Never

☐ Rarely

☐ Occasionally

☐ Frequently

☐ Always

D3. To what extent does inventory management affect service delivery in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a large extent

☐ To a very large extent

D4. What are the main challenges you face with inventory management? (Check all that apply)

☐ Inaccurate inventory records

☐ Delayed deliveries

☐ Insufficient storage space

☐ Poor forecasting and planning

☐ Other (please specify): _____

D5. How frequently is inventory data updated in your facility?

☐ Never

☐ Weekly

☐ Bi-weekly

☐ Monthly

☐ Other (please specify): _____

D6. What inventory management systems or tools are used in your facility? (Check all that apply)

☐ Manual records

☐ Electronic spreadsheets

☐ Inventory management software

☐ Other (please specify): _____

D7. How reliable are the inventory management systems in your facility?

☐ Very Unreliable

☐ Unreliable

☐ Neutral

☐ Reliable

☐ Very Reliable

D8. What improvements do you suggest for the inventory management system in your facility? _____

SECTION E: SUPPLIER RELATIONSHIP MANAGEMENT

E1. How would you rate the quality of relationships with suppliers?

☐ Very Poor

☐ Poor

☐ Average

☐ Good

☐ Very Good

E2. How often do you communicate with suppliers regarding procurement needs?

☐ Never

☐ Rarely

☐ Occasionally

☐ Frequently

☐ Always

E3. To what extent does supplier relationship management impact service delivery in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a large extent

☐ To a very large extent

E4. What are the key factors that influence supplier relationships in your facility? (Check all that apply)

☐ Timely payments

☐ Quality of supplies

☐ Reliability of deliveries

☐ Communication and feedback

☐ Other (please specify): _____

E5. How often do you evaluate the performance of your suppliers?

☐ Never

☐ Annually

☐ Bi-annually

☐ Quarterly

☐ Other (please specify): _____

E6. How satisfied are you with the overall performance of your suppliers?

☐ Very Dissatisfied

☐ Dissatisfied

☐ Neutral

☐ Satisfied

☐ Very Satisfied

E7. What challenges do you face in managing supplier relationships? (Check all that apply)

☐ Poor communication

☐ Delayed deliveries

☐ Quality issues

☐ Payment disputes

☐ Other (please specify): _____

E8. What strategies do you think would improve supplier relationship management in your facility? _____

SECTION F: SERVICE DELIVERY

F1. How would you rate the overall service delivery in your facility?

☐ Very Poor

☐ Poor

☐ Average

☐ Good

☐ Very Good

F2. To what extent do you believe procurement practices impact overall service delivery in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a large extent

☐ To a very large extent

F3. To what extent does procurement planning influence timely service delivery in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a great extent

☐ To a very great extent

F4. How would you rate the impact of supplier selection criteria on the quality of services provided in your facility?

☐ Very poor

☐ Poor

☐ Neutral

☐ Good

☐ Very good

F5. How frequently does adherence to procurement regulations contribute to transparency and accountability in service delivery?

☐ Never

☐ Rarely

☐ Sometimes

☐ Often

☐ Always

F6. To what extent do procurement challenges (e.g., delays, corruption, inadequate funding) affect the accessibility of services in your facility?

☐ Not at all

☐ To a small extent

☐ To a moderate extent

☐ To a great extent

☐ To a very great extent

F7. How effective is the use of technology in procurement processes in improving service delivery in your facility?

☐ Not effective at all

☐ Slightly effective

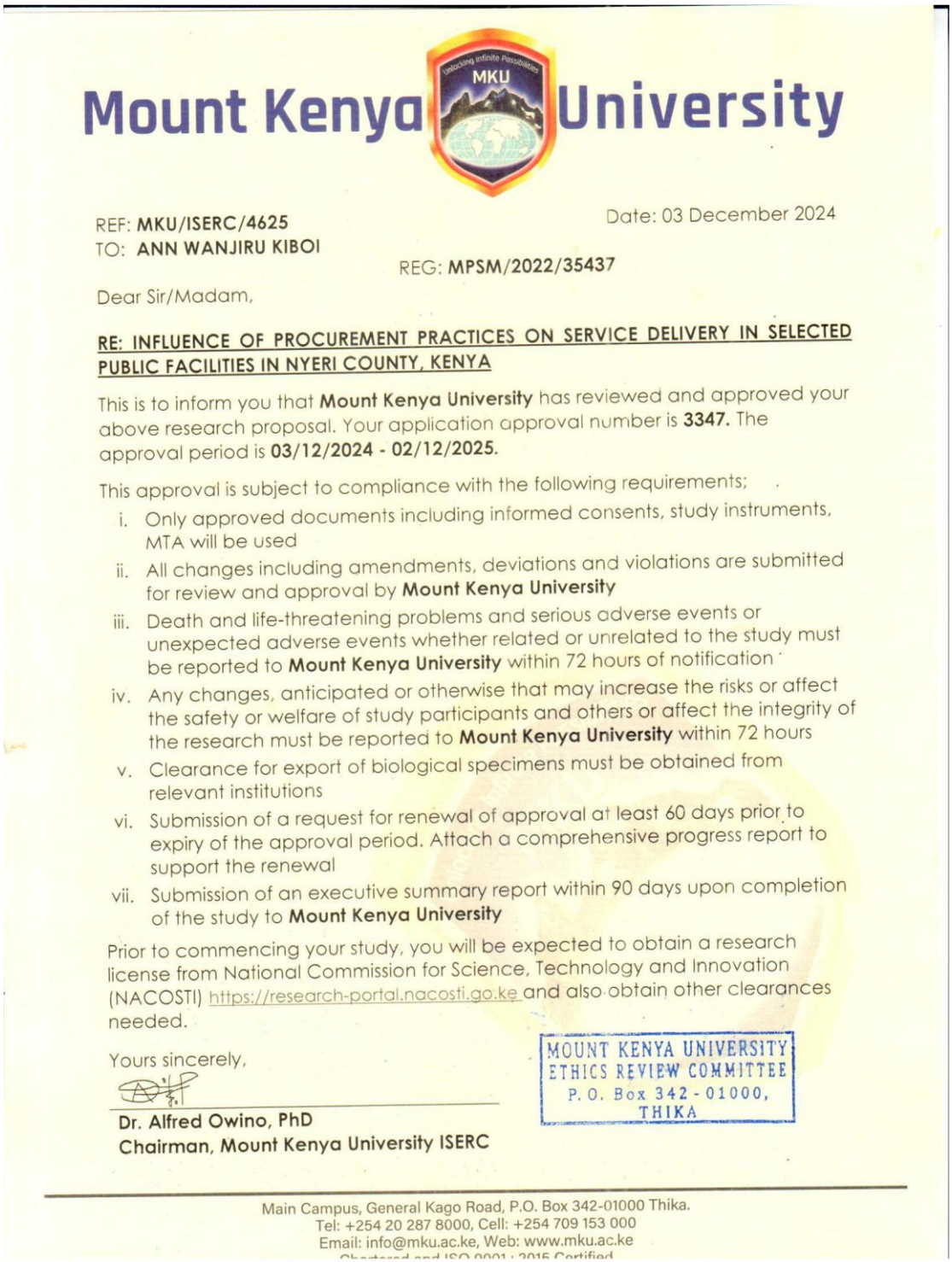
☐ Moderately effective

☐ Very effective

☐ Extremely effective

F8. In your opinion, what improvements can be made to procurement practices to enhance service delivery? _____

APPENDIX D: RESEARCH PERMIT



Mount Kenya University

REF: MKU/ISERC/4625
TO: ANN WANJIRU KIBOI

Date: 03 December 2024

REG: MPSM/2022/35437

Dear Sir/Madam,

RE: INFLUENCE OF PROCUREMENT PRACTICES ON SERVICE DELIVERY IN SELECTED PUBLIC FACILITIES IN NYERI COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3347.** The approval period is **03/12/2024 - 02/12/2025.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

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