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*Assessing the Status of Kenya's Healthcare Infrastructure: Perceptions of the Role of U.S. Foreign Aid and Government Policy in Kenya's Healthcare Infrastructure Development*

# Assessing the Status of Kenya's Healthcare Infrastructure: Perceptions of the Role of U.S. Foreign Aid in Kenya's Healthcare Infrastructure Development

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**Abstract**
Healthcare provision is a key aspect of a country's strength. Global south countries including Kenya have for many years relied heavily on support from developed countries to effectively manage the healthcare sector. Infrastructure development has over the years taken both bilateral and multilateral dimensions with Kenya's development partners like the United States becoming very crucial in the journey for stronger healthcare systems. The current study sought to assess the status of Kenya's healthcare infrastructure. The study was conducted in Nairobi city county with various healthcare stakeholders including officials from various hospitals, government officials and healthcare beneficiaries being part of the study. The study utilised both cross-sectional research designs and descriptive research design, leveraging Resource dependence theory to understand how aid foreign aid contributes to health sector. The sample on the study included 371 head of departments in hospitals which was determined through Yamane (1967) formular and 14 key informants were sampled purposively and 40 FGD participants. Findings of the study revealed that Majority of the respondents, 189 (63%), disagreed with the assertion that the available healthcare infrastructure sufficiently meets the population's needs. The findings further revealed that majority of the respondents, 186 (62%), agreed that healthcare facilities are well-maintained. The study indicated that 243 (81%), strongly agreed that digital systems are widely used in healthcare facilities. The study concludes that the status of healthcare infrastructure in Kenya is in dire need of improvement with the findings pointing towards infrastructure that is not sufficiently meets the population's needs. The study recommends that it is essential for Kenya to prioritize sustained investments, particularly in informal settlements, where healthcare facilities remain insufficient to meet the growing population's needs.

## Introduction
Globally, countries are faced with health system problems which vary from one to the next. According to Oleribe *et al.* (2019) health service delivery challenges are common in countries with high Human Development Index (HDI), however, countries with low HDI tend to get a lot of attention when it

comes to human resource. In Bangladesh, Kabir (2018) noted that foreign aid significantly contributed to poverty reduction and socio-economic progress by improving healthcare, education, and microfinance sectors. These findings by Kabir reveal that foreign aid can be used key in improving various sectors of the that kay to the welfare of people in developing countries. These improvements not only enhance the quality of life but also foster economic development by creating a more educated and healthier workforce (Arndt et al., 2015).

Healthcare systems in Africa have, over the years, suffered from man-made issues which cut across institutional, human resources, financial, technical and political developments. The majority of African countries are unable to meet the basic requirement for good healthcare systems. Poor governance and human resource challenges are linked to ineffective integration of services in resource-limited nations (Oleribe *et al.* 2019).

Estreed & Kigera, (2025) opined that since the 1960s, the United States has been a significant global donor to various African healthcare systems, particularly in Sub-Saharan Africa, through programs such as the United States Agency for International Development (USAID), the President's Emergency Plan for AIDS Relief (PEPFAR), and the President's Malaria Initiative. Investments worth billions of dollars were annually donated to support disease-specific initiatives, healthcare infrastructure, and workforce training and development. Through this aid, African countries have made significant strides in improving their health infrastructure and outcomes. However, with the recent abrupt USAID funding freeze, various healthcare systems in Africa are facing several challenges, including budget constraints, potential re-emergence and relapse of infectious diseases, service delivery disruptions, and unemployment of healthcare personnel (Estreed & Kigera, 2025).

Amref Health Africa (2025) "Kenya is facing a critical shortage of healthcare workers that threatens to derail the country's plan to deliver universal health coverage, according to a recent assessment by the World Health Organization. The country currently produces 7,650 new health workers each year, yet it needs 70,000 more to ensure all Kenyans can access care. The shortage is expected to grow by more than 114,000 by 2030 and could reach 170,000 by 2035 if urgent action is not taken to increase training and hiring. Kenya's rapidly growing population, projected to exceed 63 million by 2030, is contributing to the demand for healthcare services. While the health workforce is growing at an annual rate of 3.4 per cent, demand for services is rising faster, at 4.7 per cent."

In terms of infrastructure, Kenya has an extensive and established healthcare system, reflecting its large economy and population. Kenya boasts several high-level referral hospitals, such as Kenyatta National Hospital and Moi Teaching and Referral Hospital, which provide specialized care (Muga *et al,* 2005). Furthermore, Kenya's private healthcare sector is highly developed, offering advanced medical services, particularly in urban areas like Nairobi, Eldoret and Mombasa. However, disparities persist, as marginalized regions often lack adequate facilities. Moreover, high out-of-pocket expenses hinder access to care for a significant portion of the population (Barasa *et al* 2018).

To make health care access easier for Kenyans the United States government through its bilateral relations and foreign policy with Kenya has been funding health programmes in order to improve accessibility and quality. A study by aid data revealed that Kenya receives an estimated $1 billion in aid annually from the United States of America, the study further adds that large volumes of aid is targeted towards Kenya's health sector (Custer & Patterson, 2020). However, challenges such as aid dependency, donor coordination, and corruption persist, posing obstacles to sustainable development in this sector. Additionally, concerns arise regarding the alignment of aid projects with national priorities and their long-term impact on local economies and institutions (OECD, 2012). Despite these challenges, USA foreign aid remains a critical source of healthcare financing for Kenya.

**Theoretical Review**

The study was anchored on Resource dependence theory (RDT). The key proponents of the theory are Pfeffer and Salancik (1978). This theory suggests that organizations should be dependent and collaborate to seek higher performance gains in the long-run instead of pursuing short-term benefits at the expense of others. This theory applies to the current research in the areas of collaboration for healthcare infrastructure development in Kenya. The status of healthcare infrastructure is determined through collaborative efforts between the Kenyan Government and the US government. According to Custer & Patterson, (2020), the Kenyan healthcare sector is heavily funded by foreign aid from the US government, this shows depends on resources provided through foreign aid which have for years helped to sustain the development of healthcare infrastructure and aided provision of services that support the wellbeing of Kenyan Citizens.

**Literature Review**

The underdevelopment of Global south countries is characterized by several common features: economies that are distorted and heavily reliant on producing primary goods for developed nations while serving as markets for their manufactured products, traditional social structures, high population growth rates, and widespread poverty (Appah & Emeh, 2013). Despite the poverty in urban slums, the elites in most Global south states are extraordinarily wealthy an indication of high levels of inequality in many Global South nations.

Kenya has been one of the Global south states that has been heavily dependent on development assistance from Western Europe and North America specifically the United States. Through its various programmes, the US government has been considered a crucial development partner for Kenya providing social, political and economic support across various areas. Developing countries such as Kenya have become heavily reliant on foreign aid, resulting in significant foreign debt and calls for debt relief and additional assistance. From 1970 to 1999, donor funds to Kenya averaged around 9% of its GDP, making up about 20% of the annual government budget and covering more than 80% of development expenditures. Although the amount of aid to Kenya increased considerably over time from an average of $205 million annually in the 1970s to just over $1 billion in the 1990s before tensions arose with the donor community, the flow of aid has not been consistent (Njeru, 2003). In the financial year 2026/2027, Kenya increased funding for health by KES 37.4 billion (about $289.4 million) and a 27% increase. The move is part of the country's response to severe external funding cuts and declining foreign aid for health (Mwangi, 2026). This was enabled by the Appropriations Act, 2026 which was assented to by President William Ruto in June 2026 alongside the Finance Act, 2026 (Mwangi, 2026). "The overreliance on aid has subsequently led to foreign diminished domestic resources through declined savings, reduced government tax revenue and increased government consumption thereby leading to slow pace of development in the country" (Njeru, 2003).

Fieno *et al* (2016) argue that political will is needed to mobilise both internal and external resources for the health workforce and that donors should not lead. Dependency theory lays a lot of emphasis on external factors namely donor support, global economic system, capitalist world system and Geo-Strategic Interests of Donor states such as the USA. This is done at the expense of internal factors such a Country's GDP and economic strategies, misplaced development priorities, governance structures, lack of proper planning and corruption.

**Materials and methods**

***Research Design***

This study adopted cross-sectional research design and descriptive research design. In cross-sectional studies, the researcher measures the results and the level of exposure in the study participants at the

same time (Setia, 2016). Cross-sectional designs often collect data using survey questionnaires or structured interviews involving human respondents as the primary units of analysis. In these designs, research questions or comparative hypotheses are proposed; however, the primary aim should be to describe a population of interest or compare subgroups of that population across a set of measures. Although the majority of cross-sectional studies is quantitative, cross-sectional designs can be also be qualitative or mixed-method in their design (Cummings, 2017). Descriptive research design depicts a precise profile of situations, events and people (Kothari & Garg, 2014; Leavy, 2017).

***Study area***

The study was conducted in Nairobi City County which is the capital and largest city of Kenya. The city and its surrounding area constitute the Nairobi City County, earmarked as the 47th County in Kenya

***Study Population***

The study targeted various health facilities in Nairobi County. According to the County Government of Nairobi there are 324 healthcare facilities in Nairobi County. The hospitals include 12 faith-based facilities, 208 private hospitals and 104 public hospitals. Among the public hospitals there are Four National and Referral facilities namely National Spinal Injury Referral Hospital, Kenyatta National Hospital and Mathare National Teaching and Referral Hospital and Kenyatta University Teaching and Referral Hospital. The study targeted the following thirteen departments in the healthcare facilities in order to establish how foreign aid has helped the facilities with infrastructural development within the departments. The target departments included: Casualty department, Operating theatre, Intensive care unit (ICU), Gynaecology, Paediatrics department, Oncology department, Orthopaedic department, Psychiatry department, Inpatient Department (IPD), Nephrology department, Comprehensive Care Clinic (CCC), and Outpatient Department (OPD) and Nursing Department.

Table 1 shows the summary of the target population, indicating the type of hospital, number of hospitals and total target heads of various hospital departments in Nairobi County

*Table 1: Summary of Target Population*

| Types of Hospital | Number of Hospitals | Target Heads of Hospital Departments |
|---|---|---|
| Faith based | 12 | 156 |
| Private | 208 | 2,704 |
| Public | 104 | 1,352 |
| **Total** | **324** | **4,212** |

*Source: Researcher, 2025*

***Sampling Strategy***

The sample size for this study was determined using Yamane (1967) formula. Since the study population has been established at 4,212 heads of departments in health care facilities in Nairobi, the researcher determined the sample size based on Yamane (1967). In this regard according to this formula, for a population of 4,212 respondents with a sample precision set at ±5, confidence level set at 95% and the p-value set at 0.05, the recommended sample size is 371.

Stratified proportionate sampling was used to distribute the sample size of 371 across based on the categorization of hospitals as either faith based, public or private. In order to pick specific hospitals for the study, the researcher utilized simple random sampling and systematic sampling techniques for the study.

Table 2 shows the sample distribution for heads of departments in hospitals sampled as well as the corresponding number of hospitals.

*Table 2: Sample size Distribution for Target Heads of Hospital Departments*

| Types of Hospital | Target Heads of Hospital Departments | Proportionate Sample Size |
|---|---|---|
| Faith based | 156 | 13 |
| Private | 2,704 | 238 |
| Public | 1,352 | 119 |
| **Total** | **4,212** | **370** |

*Source: Researcher, 2025*

For Key informants, the study utilized purposive sampling for the following government officials; the Directorate of Medical Services (1), officials in the Ministry of Foreign and Diaspora Affairs(1), The National Assembly Defense, Intelligence and Foreign Relations Committee (1), The Kenya Investment Authority (1), officers from Donor Relations department at Treasury (1) and Directorate of Investor Relations in the National Treasury and Economic Planning (1). Purposive sampling was also used to sample The Officers of the following National Teaching and Referral Hospitals in Nairobi County (National Spinal Injury Referral Hospital (1) Kenyatta National Hospital (1), Mathare National Teaching and Referral Hospital and Kenyatta University Teaching and Referral Hospital(1)), the study purposively sampled an officer from KMTC Nairobi Campus(1), and officer from the Nairobi County health department, Convenience sampling was used to sample a senior officer from the Kenya Medical Practitioners and Dentists Board (1) and a senior officer for donor coordination at the USA Embassy in Kenya (1). In this study, four FGDs of 10 members each made up of beneficiaries of health aid programmes participated in the study. The FGD were conducted in Soweto, Gatwekera, Kiamaiko and Huruma wards within Nairobi County. The FGDs were Homogenous based gender composition with Gatwekera and Kiamaiko being made up of males while the Soweto and Huruma FGDs being made up of males. Participants for the FGDs were selected purposively from beneficiaries of the healthcare programmes, based on their direct experience with the healthcare services. The selection process ensured diversity in terms of gender, age, location, and type of programme benefit received.

Table 3 shows Summary of the distribution of qualitative sample and Sampling Techniques for various categories of respondents who participated in the study as Key Informants and Focus Group Discussions.

*Table 3: Distribution of Qualitative sample and Sampling Techniques*

| Respondent Category | Data Collection Method | Sample size | Sampling technique |
|---|---|---|---|
| Government official (Directorate of Medical Services, Ministry of Foreign and Diaspora Affairs) | KII | 2 | Purposive sampling |
| Member of National Assembly Defence, Intelligence and Foreign Relations Committee | KII | 1 | Purposive sampling |
| Officers from Kenya Investment Authority | KII | 1 | Purposive sampling |
| Officer at Donor Relations Department, National Treasury | KII | 1 | Purposive sampling |
| Officer at the Directorate of Investor Relations, National Treasury and Economic Planning | KII | 1 | Purposive sampling |
| Officers of 4 National Referral hospitals | KII | 4 | Purposive sampling |
| Official of Kenya Medical Training College, Nairobi Campus | KII | 1 | Purposive sampling |
| Officer at Nairobi County Health Department | KII | 1 | Purposive sampling |
| Official of Kenya Medical Practitioners and Dentists Board | KII | 1 | Convenience sampling |
| Official of United States Embassy in Kenya | KII | 1 | Convenience sampling |
| Community members/ Beneficiaries of healthcare Programmes | FGD | 40 | Purposive sampling |
| **Total** | | **54** | |

*Source: Researcher, 2025*

***Data Collection and Study Instruments***

Primary data was obtained through field using various data collection instruments including the use of Questionnaires, FGD Guides and KII schedules.

*Questionnaire for heads of departments in hospitals***:** The study employed structured questionnaires to get information from heads of departments in hospitals. The questionnaires were administered directly to the respondents through face-to-face interviews by the researcher and the research assistants.

*Key Informant Interview Schedule:* The Key Informant Interview Schedule (KII) was used to obtain qualitative data from key informants.

*Focus Group Discussion Guide***:** A Focus Group Discussion Guide was used to collect qualitative data from groups of respondents in Nairobi County

***Data Analysis and Presentation***

Data analysis involved both qualitative and quantitative techniques. The quantitative data was analysed using SPSS version 27 to generate descriptive statistics in the form of frequencies and percentages. Qualitative data analysis was done using content and interpretive analysis and verbatim quotations. Qualitative data were transcribed before coding into categories and then organised into thematic areas related to the research objectives. Quantitative data were presented in the form of tables. Qualitative data from FGDs and KIIs were coded organized into themes of the study, integrated to complement the quantitative data and presented in narrative form and through verbatim quotations of respondents.

### *Ethical Considerations*

To protect privacy, study participants were approached individually and requested to participate voluntarily without publicly disclosing personal information or health-related information. Informed consent was obtained from all participants and the respondents who participated in the study were of consent age of 18 years and above. Participants were assured that their responses will be treated confidentially, that no names or identifying details will be used in reporting, and that participation or refusal to participate would not affect their access to healthcare services. The study was authorized by Masinde Muliro University of Science and technology through the directorate of postgraduate Studies through a letter dated 1st August 2025, Ref Number: MMU/COR/509099. The study was also authorized by NACOSTI via permit license number: NACOSTI/P/25/4178046. The study also obtained clearance from the county commissioner of Nairobi via letter Ref: ED 10/6 VOL.XXXII (57).

## Results and Discussion

### *Questionnaire Response Rate*

The study was conducted in Nairobi County. Researchers administered structured questionnaires were used. The total sample size for household heads was 370. In this regard, the researcher administered 371 questionnaires, out of which 320 were returned. Among those that were returned, 21 questionnaires were not filled correctly and were therefore rejected leaving only 300 valid questionnaires for data analysis. The total number of 300 questionnaires that were analyzed represents 82% of the total questionnaires administered, which is considered to be sufficient for a study of this nature. The return rate is supported by Booker *et al.* (2021) who stated that questionnaire response rate of 80% or higher is considered excellent. Booker further opines that high response rates are an essential attribute of a quality research study for generating valid, reliable and generalizable results for survey and prospective observational studies. This assertion was further supported by paper from Saldivar (2012) which revealed that person-person surveys with a response rate of 80-85% are considered good and thus considered sufficiently informative in a study. In this regard, it is evident that the questionnaire response rate of 82% is sufficiently representative and as such can be used to draw conclusions in this study.

### *Status of Healthcare Infrastructure*

The study sought to establish the Status of Healthcare Infrastructure in Kenya. The findings were as shown in Table 4 which has provides a summary of the findings on the status of healthcare infrastructure.

*Table 4: Status of Healthcare Infrastructure*

| State of Healthcare Infrastructure | SD | D | N | A | SA |
|---|---|---|---|---|---|
| Healthcare facilities have adequate Infrastructure meet the population's needs. | 6 (2%) | 189 (63%) | 48 (16%) | 39(13%) | 18 (6%) |
| Healthcare facilities in are well-maintained. | 24 (8%) | 51 (17%) | 24(8%) | 186 (62%) | 24 (8%) |

*Source: Field Data, 2025*

### The availability of Healthcare Infrastructure and Ability to Meet the Population's needs

The study sought to assess respondents' perceptions on whether the availability of healthcare infrastructure is sufficient to meet the population's needs. The findings in table 4 revealed that a majority of the respondents, 189 (63%), disagreed with the assertion that the available healthcare infrastructure sufficiently meets the population's needs, while 18 (6%) strongly agreed with the statement. However, 39 (13%) of the respondents agreed and 6 (2%) strongly disagreed, indicating

concerns about adequacy. Additionally, 48 (16%) of the respondents neither agreed nor disagreed, suggesting uncertainty or mixed experiences regarding the sufficiency of healthcare infrastructure.

The availability of healthcare infrastructure is a critical determinant of a country's ability to meet the health needs of its population, and this is particularly true for Kenya, a country facing both a rapidly growing population and significant health challenges. Despite progress in expanding healthcare services, Kenya's healthcare infrastructure is still insufficient to meet the needs of its population, especially in various informal settlements. The country's healthcare system is a mixture of both public and private sector facilities, with the public sector being the largest provider of healthcare services. However, the infrastructure in place is often underfunded, unequally distributed, and lacking in essential resources, making it difficult to provide comprehensive healthcare for all

The findings were supported by an official from KNH who stated that:

> *While there have been significant improvements in healthcare infrastructure, it is still not sufficient to meet the needs of the population. National referral hospitals like KNH face capacity challenges, including overcrowding, insufficient specialized equipment, and outdated infrastructure. The increasing demand for healthcare services, driven by population growth and rising non-communicable diseases, far outpaces the expansion of infrastructure. Despite ongoing support from both the government and international partners, including the U.S., the current facilities are overwhelmed. For example, the capacity of emergency care units and specialized wards is often stretched beyond their limits. Additionally, the lack of sufficient primary healthcare facilities in informal settlements exacerbates these issues. While healthcare infrastructure is improving, there is still a large gap between available resources and the healthcare needs of the population, especially in underserved regions (Interview with KNH Official on 20th August 2025).*

An officer from KMTC Nairobi Campus further averred that:

> *From the perspective of healthcare training, it is clear that the availability of healthcare infrastructure in Kenya is not sufficient to meet the population's needs. The demand for trained healthcare professionals, particularly in specialized areas, far exceeds the capacity of existing training institutions. Despite ongoing efforts to expand and improve healthcare infrastructure, including through partnerships with international donors such as the U.S., many regions still lack sufficient healthcare facilities to support an adequate number of trained professionals. While medical training institutions like ours continue to produce skilled healthcare workers, there are not enough healthcare facilities, to provide them with the resources and environments needed for effective practice. Additionally, there is a shortage of advanced medical equipment and diagnostic tools in many training and healthcare institutions, which impacts the quality of both education and service delivery. The infrastructure gap directly affects the healthcare system's ability to meet the growing demands of the population, and more focused investments in infrastructure are needed to close this gap (Interview with KMTC Nairobi Campus official 8th September 2025).*

Kenya's healthcare system is structured into multiple tiers, with the public sector being the largest provider of services. At the primary healthcare level, community health workers and health centers provide essential services such as immunization, maternal and child health care, and treatment for common ailments. The secondary level includes sub-county hospitals and county referral hospitals, which offer more specialized services, while tertiary hospitals like Kenyatta National Hospital provide highly specialized care. This tiered system aims to ensure that healthcare services are accessible at all levels of society (Kenya Ministry of Health, 2023). However, despite this structure, healthcare

infrastructure in Kenya is still insufficient to meet the needs of the population, especially in underserved regions.

A significant challenge is the unequal distribution of healthcare facilities across the country. While urban areas like Nairobi are relatively well-served by healthcare facilities, some informal settlements face severe shortages of healthcare infrastructure. According to the World Health Organization (2023), Kenya has approximately 1.2 hospital beds per 1,000 people, which is far below the global average of 2.5 beds per 1,000 people. The doctor-patient ratio in Kenya is also low, with fewer than 0.2 doctors per 1,000 people in the public sector (World Health Organization, 2023).

In addition to geographic disparities, funding limitations remain a key challenge in expanding and improving healthcare infrastructure. Despite efforts to increase healthcare spending, Kenya's healthcare sector continues to be underfunded. The World Bank (2022) reports that healthcare expenditure in Kenya is below the recommended 5% of GDP for low-income countries. This funding shortfall results in delayed or incomplete healthcare infrastructure projects. According to the Kenya Ministry of Health (2023), budget constraints often prevent the completion of planned projects or the upgrade of existing health centers. Furthermore, financial mismanagement, such as delays in disbursement, often exacerbates the problem, making it harder to construct new facilities or equip existing ones adequately.

The devolution of healthcare services to county governments has brought some improvements in healthcare access, but it has also led to inefficiencies in healthcare infrastructure development. While the decentralization of healthcare was intended to improve service delivery at the local level, county governments often face challenges such as lack of technical expertise, poor resource allocation, and political interference. This has led to uneven healthcare delivery, where some counties have well-developed healthcare systems, while others, particularly those in remote regions, continue to struggle with poorly equipped health centres and understaffed hospitals (Kenya Ministry of Health, 2023). Through media reports office of the auditor general of the republic of Kenya has acknowledged that some counties are still unable to effectively manage healthcare funding, leading to delays in infrastructure projects and an overall lack of consistency in healthcare delivery.

The political environment also plays a crucial role in the availability of healthcare infrastructure. Political instability and shifts in government priorities often disrupt healthcare planning and development. For example, during political transitions, changes in leadership can lead to reallocations of funds and delays in the approval of healthcare infrastructure projects. A report by Tsofa *et al* (2023) highlighted how political factors in Kenya can impact the timeliness of aid disbursements, particularly in healthcare. Political shifts also affect long-term policy consistency, which in turn affects infrastructure development and the ability of health facilities to maintain their services over time (Tsofa *et al*, 2023).

Despite these challenges, efforts are underway to improve the availability of healthcare infrastructure. The Kenyan government has prioritized universal health coverage (UHC) as part of its Kenya Vision 2030 development agenda, which includes expanding healthcare services to underserved regions and improving the quality of care. According to the Kenya Ministry of Health (2023), the government has allocated resources for the construction and renovation of healthcare facilities, particularly in informal settlements. These efforts have been complemented by initiatives such as the Kenya Health Sector Support Project (KHSSP), which aims to improve access to primary health services and build new healthcare infrastructure in remote areas.

International partners, including the World Bank and the United States, have also provided critical financial support for healthcare infrastructure in Kenya. The U.S. government, through programs like

PEPFAR, has funded the construction of healthcare facilities and supported the expansion of HIV treatment programs. This funding has been instrumental in addressing some of the most urgent healthcare needs, particularly in HIV/AIDS care (World Bank, 2022). Additionally, the World Bank has provided loans and grants for the development of health infrastructure, including health centers in informal settlements, and has supported the procurement of medical equipment to ensure that new facilities are well-equipped (World Bank, 2022).

Looking ahead, Kenya's healthcare infrastructure still faces significant challenges. To meet the healthcare needs of its population, Kenya must increase investment in both healthcare infrastructure and human resources. The UHC program provides an opportunity for Kenya to enhance the quality and accessibility of healthcare services, but this requires sustained financial resources. The government must prioritize healthcare spending and ensure that funds are allocated efficiently and equitably, particularly to underserved areas. Additionally, public-private partnerships (PPPs) could play a key role in expanding healthcare infrastructure, enabling the private sector to contribute to the construction and maintenance of healthcare facilities (World Bank, 2022).

**Healthcare facilities are Well-maintained**

The study sought to establish respondents' views on whether healthcare facilities in Nairobi County are well-maintained. The findings in Table 4 revealed that a majority of the respondents, 186 (62%), agreed that healthcare facilities are well maintained. This was complemented by 15 (5%) who strongly agreed with the statement. Conversely, 51 (17%) of the respondents disagreed, while 24 (8%) strongly disagreed, indicating notable concerns regarding maintenance standards. A further 24 (8%) of the respondents neither agreed nor disagreed, suggesting uncertainty or varied experiences with the maintenance of healthcare facilities across the county.

> *The maintenance of healthcare facilities remains a persistent issue. Despite improvements in infrastructure development, the allocation for routine repairs and upkeep is often insufficient. Many facilities, especially in informal settlements and underserved areas, have poorly maintained buildings, inadequate medical equipment, and limited access to essential resources. In urban centers, while there may be newer facilities, these too often face maintenance challenges due to high usage and limited budgets. Healthcare facilities are supposed to be maintained regularly, but the reality is that the funding often goes toward expanding services rather than maintaining existing ones. This neglect not only affects the physical environment but also impacts the overall functionality of healthcare services, leading to delays and inefficiencies that harm patient care (Interview with an officer from Nairobi County Health department on 21st August 2025).*

The findings agreed with Karino *et al*. (2025) who asserted that in "Africa, weak health systems, limited personnel, inadequate infrastructure, and shortages of essential supplies undermine quality of care. Studies from Nigeria, Ethiopia, and Uganda link persistent gaps to fragile leadership, poor accountability, and systemic underfunding. In Kenya, although access to quality healthcare is constitutionally guaranteed, studies highlight serious deficiencies in tertiary hospitals, including poor clinical outcomes, unsafe services, long waiting times, understaffing, and medication shortages. Government reports highlighted infrastructure failures and low-quality scores, with other studies reporting increased facility mortality linked to poor quality. Persistent, underfunding, overreliance on donor aid, and fragmented tax-based revenue have been identified as major drivers of quality challenges. To address this, the government launched reforms under the Kenya Health Public-Private Collaboration Strategy, including adoption of Asset Lease Financing (ALF) for medical equipment."

**Equipment and Technology in Healthcare Facilities**

The study sought to establish whether there was Equipment and Technology in Healthcare Facilities in Nairobi County.

Table 5 shows a summary of findings on the Equipment and Technology in Healthcare Facilities within Nairobi County.

*Table 5: Equipment and Technology in Healthcare Facilities*

| Equipment and Technology | SD | D | N | A | SA |
|---|---|---|---|---|---|
| There are sufficient medical supplies in healthcare facilities. | 6 (2%) | 168 (56%), | 6(2%) | 69(23%) | 51 (17%) |
| The use of digital systems (e.g., electronic health records) is prevalent in Kenya's healthcare facilities. | 6 (2%) | 18 (6%) | 0 | 33 (11%) | 243(81%) |

*Source: Field Data, 2025*

**There are sufficient medical supplies in healthcare Facilities**

The study sought to establish respondents' views on whether there are sufficient medical supplies in healthcare facilities. The findings in Table 5 revealed that a majority of the respondents, 168 (56%), disagreed that healthcare facilities have sufficient medical supplies, while 51 (17%) strongly agreed with the statement. In contrast, 69 (23%) of the respondents agreed and 6 (2%) strongly disagreed, indicating concerns about the adequacy of medical supplies in some facilities. Additionally, 6 (2%) of the respondents were neutral suggesting uncertainty or mixed experiences regarding the availability of medical supplies in healthcare facilities.

The findings were aligned to discussions that emerged during an FGD in Gatwekera, Kibra. One of the FGD participants noted that:

> *One of the biggest issues in our local healthcare facilities is the lack of medical supplies. Even though some health centers have received support through U.S. aid, many of them still run out of essential medicines like painkillers, antibiotics, and other basic supplies.in many cases after vising a hospital, we are told to buy medicines from pharmacies because they are not available in the health center. We also see shortages of items like bandages, gloves, and diagnostic kits, which delays treatment and makes it harder for us to access the care we need. This situation affects the quality of care and forces many people to seek treatment in distant facilities or to go without treatment altogether (FGD Participant in Gatwekera, Kibra on 30th September 2025).*

Similar arguments were echoed by an official from KNH who stated that:

> *Despite substantial improvements in infrastructure, one of the ongoing challenges at national referral hospitals is the insufficient availability of essential medical supplies. Our hospital faces chronic shortages of items like medicines, surgical consumables, personal protective equipment (PPE), and diagnostic reagents. This shortage often disrupts service delivery, with patients either waiting for supplies to be replenished or being referred to other facilities. The procurement and distribution systems sometimes fail to meet the demand, especially during peak periods of illness. While some of these issues have been addressed through donor support, supply chain remains fragile. (Interview with an official from KNH on 20th August 2025).*

A key challenge in ensuring sufficient medical supplies in Kenya is inefficiency in the supply chain. The Kenya Medical Supplies Authority (KEMSA) is the body responsible for procuring and distributing medical supplies to public health facilities across the country. However, KEMSA has faced challenges in meeting demand due to delays in procurement processes, limited storage facilities,

and logistical bottlenecks (Ndungu & Muathe, 2025). These disruptions are particularly problematic in remote areas, where facilities are already under-resourced and unable to manage supply shortages effectively. The World Bank (2022) also highlighted that delays in stock replenishment and poor forecasting contribute to the inconsistent availability of medical supplies across the country.

In addition to logistical challenges, funding constraints also play a significant role in limiting the availability of medical supplies. Despite Kenya's growing healthcare needs, the country's healthcare system continues to face insufficient funding. The World Bank (2022) has acknowledged that the government's allocation for healthcare supplies remains below the required levels, impacting the ability to purchase sufficient quantities of essential medicines and equipment. The World Health Organization (2023) recommends that Kenya spend at least 5% of its GDP on healthcare, but the country's expenditure in this area remains below this threshold. This financial shortfall limits the government's ability to meet the increasing demand for medical supplies, especially for non-communicable diseases and maternal health care.

Another significant challenge is poor distribution of medical supplies. Even when supplies are available at the central level, health facilities in informal settlements areas often face difficulties in receiving their allocations on time. According to Kenya's Ministry of Health (2023), inconsistent delivery schedules, poor road infrastructure, and insufficient transport vehicles often delay the arrival of medical supplies to remote health centers. As a result, healthcare providers in informal settlements facilities are forced to manage without essential medicines and equipment, which affects their ability to provide adequate care to patients.

The Kenyan government, in collaboration with private sector companies, has worked to improve the supply chain management of medical supplies. The private sector has helped to streamline distribution channels, improve procurement processes, and increase storage capacity, particularly in informal settlements. The World Bank (2022) has emphasized the importance of such collaborations in addressing the challenges faced by public healthcare systems, particularly in low-resource settings.

**The use of digital Systems in Kenya's Healthcare facilities**

The study sought to establish respondents' views on whether the use of digital systems, such as electronic health records, were prevalent in Kenya's healthcare facilities. The findings revealed in Table 5 that an overwhelming majority of the respondents, 243 (81%), strongly agreed that digital systems are widely used in healthcare facilities, while 33 (11%) agreed with the statement. In contrast, 18 (6%) of the respondents disagreed and 6 (2%) strongly disagreed, indicating limited skepticism about the prevalence of digital systems. Notably, none of the respondents neither agreed nor disagreed, suggesting clear and definitive perceptions regarding the use of digital health systems in Kenya's healthcare facilities.

In an interview, a senior Ministry of health official indicated that:

> *In many of our government facilities, the use of digital technology is primarily focused on administrative functions such as hospital billing, appointment scheduling, and patient records management. While these applications have significantly improved efficiency in these areas, the use of digital technology for clinical purposes, such as diagnostic support or real-time patient care tracking, is still limited. The systems we have in place for billing and administration work well but are not fully integrated with other clinical management systems. This fragmentation results in gaps in data sharing and communication between departments, which affects the quality of patient care. While we have digital systems for managing patient records, these are not always linked to laboratory systems, pharmacy inventories, or diagnostic equipment, which*

> *leads to inefficiencies. There's a clear need for a more integrated approach to using digital technology across all facets of hospital management, including clinical decision-making (Interview with Ministry of health official on 20th September 2025).*

The findings agreed with a study by Muinga *et al.* (2020) who found that "public hospitals commonly purchased systems for patient administration and hospital billing functions and the same systems were also used to manage the provision of clinical services in the outpatient department. Infrastructure and capacity constraints remain significant barriers". Power instability, limited ICT infrastructure, and inadequate technical support from vendors can hinder system effectiveness. Although mitigation strategies such as backup power systems and alternative energy sources have been implemented in some contexts, these solutions are not uniformly available. Similarly, while users generally express willingness to adopt digital systems, insufficient training and support can lead to frustration and potential system rejection (Ministry of Health, 2023). Ngugi *et al*, (2021) avers that digital health systems in Kenya are increasingly recognized as foundational to the development of learning health systems, such systems can integrate data generation and application to enhance innovation, quality, and efficiency in healthcare delivery.

**Conclusion**

The study concludes that the status of healthcare infrastructure in Kenya is in dire need of improvement with the findings pointing towards infrastructure that is not sufficiently meets the population's needs. The survey reveals that healthcare facilities are well-maintained despite challenges that have been acknowledged by officials such as budget constraints. The study also indicates that healthcare facilities lacking up-to-date medical equipment. While Kenya has made progress in expanding healthcare infrastructure and services, these significant challenges remain. The availability of healthcare facilities, especially in informal settlements, is insufficient to meet the growing needs of the population. Maintenance of existing facilities, the availability of medical supplies, and outdated equipment continue to hamper the effectiveness of the healthcare system. Moreover, despite improvements in digital health systems, their integration into clinical practice remains limited. There is also a critical need for more trained healthcare workers and better distribution. Addressing these challenges will require sustained investment in healthcare infrastructure, better allocation of resources, improved management of the healthcare workforce, and greater transparency and accountability in the disbursement of funds. By addressing these issues, Kenya can strengthen its healthcare system, ensuring that all citizens have access to quality healthcare services, regardless of their location.

The study recommends that it is essential for Kenya to prioritize sustained investments, particularly in informal settlements, where healthcare facilities remain insufficient to meet the growing population's needs. Expanding the number of healthcare facilities, maintaining existing ones, and upgrading medical equipment should be central to these efforts. Alongside infrastructure improvements, ensuring the consistent availability of medical supplies is necessary to prevent disruptions in healthcare delivery. Digital health systems, although showing progress, should be better integrated into clinical practices to optimize their potential. Additionally, to address the critical shortage of trained healthcare workers, Kenya must invest in training programs and develop strategies to ensure that healthcare professionals are distributed more equitably across both Nairobi County including informal settlements. This will ensure that healthcare services are accessible to all citizens, regardless of their location.

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