



REPUBLIC OF KENYA

PHARMACY AND POISONS BOARD

Baseline Survey on The Status of Good Pharmacy Practice (GPP) In Kenya

Study Report

Supported by;



Urban Research and Development
Centre for Africa

Imagine. Innovate. Inspire.



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FOREWORD

The Pharmacy and Poisons Board (PPB), established under the Pharmacy and Poisons Act (Cap. 244, Laws of Kenya), is mandated to protect and promote public health by regulating the practice of pharmacy and ensuring the quality, safety, efficacy, and appropriate use of health products and technologies. Central to this mandate is the promotion of Good Pharmacy Practice (GPP), which defines the minimum standards for the delivery of safe, effective, ethical, and patient-centred pharmaceutical services.

This mandate is firmly anchored in Article 43(1)(a) of the Constitution of Kenya (2010), which guarantees every person the right to the highest attainable standard of health, including access to quality healthcare services. As one of the most accessible points of care within the health system, pharmacies play an increasingly important role in advancing primary healthcare, supporting Universal Health Coverage (UHC), and expanding access to essential services, including family planning and reproductive health.

To strengthen evidence-based regulation and policy, the Board, in collaboration with InSupply Health and URADCA, and with support from the Gates Foundation, undertook this national Good Pharmacy Practice Baseline Survey. The survey assessed 605 pharmacy facilities across Kenya's 47 counties to establish baseline information on compliance with GPP standards, workforce capacity, infrastructure, service delivery, and adherence to regulatory and professional requirements, including the provision of family planning services through pharmacy outlets.

The findings presented in this report provide valuable evidence to guide regulatory decision making, strengthen quality improvement initiatives, and inform strategic investments in the pharmaceutical sector. They also identify opportunities to enhance pharmacy practice, improve access to quality pharmaceutical services, and strengthen the contribution of pharmacies to national health priorities, including Universal Health Coverage, the Family Planning 2030 (FP2030) commitments, and the Sustainable Development Goals (SDGs).

The Board appreciates the valuable contributions of county governments, pharmacy practitioners, health facility administrators, professional associations, development partners, and all stakeholders who participated in this survey. We look forward to continued collaboration with the Ministry of Health and our partners in implementing the recommendations of this report and advancing a pharmacy sector that is responsive, resilient, and committed to delivering high-quality, patient-centred care for all Kenyans.



Dr. Ahmed Mohamed

CHIEF EXECUTIVE OFFICER

CITATION AND ADDRESS

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LIST OF ABBREVIATIONS

CPD	Continuing Professional Development
CTAM	Complementary, Traditional and Alternative Medicine
DMPA	Depot Medroxyprogesterone Acetate
FGDs	Focus Group Discussions
FP	Family Planning
GPP	Good Pharmacy Practice
HMIS	Health Management Information System
HPT	Health Products and Technologies
IUCD	Intrauterine Contraceptive Device
KEMSA	Kenya Medical Supplies Authority
KIIs	Key Informant Interviews
LARCs	Long-Acting Reversible Contraceptives
PPB	Pharmacy and Poisons Board
TDM	Therapeutic Drug Monitoring
UHC	Universal Health Coverage

EXECUTIVE SUMMARY

BACKGROUND

Pharmacy services play a critical role in ensuring safe and effective access to medicines and pharmaceutical care within the health system. In Kenya, the Pharmacy and Poisons Board (PPB) has established Standards for Good Pharmacy Practice to promote quality pharmaceutical service delivery across both public and private sectors. However, limited national evidence has been available on the extent to which pharmacy facilities comply with these standards and how pharmacy services are currently delivered across different levels of care.

This study was conducted to assess the state of pharmacy practice in hospital and community pharmacy settings across Kenya, with a focus on service delivery gaps, workforce capacity, infrastructure adequacy, and adherence to professional standards. The findings provide important evidence to inform policy reforms, regulatory oversight, and health system strengthening initiatives aimed at improving pharmaceutical care.

METHODOLOGY

The study employed a cross-sectional mixed-methods design, combining quantitative facility assessments with qualitative interviews and focus group discussions involving pharmacy practitioners, healthcare providers, administrators, and regulators.

A total of 768 facilities were targeted for quantitative assessment, including hospital pharmacies and community pharmacies across Levels 2 to 6 of the Kenyan health system. Data collection was successfully completed in 605 facilities across 43 counties, representing 79% coverage of the targeted sample.

Qualitative data were collected through 33 key informant interviews (KIIs) and 9 focus group discussions (FGDs) involving pharmacists, pharmaceutical technologists, health facility administrators, and regulatory stakeholders.

KEY FINDINGS

1. Pharmacy Workforce Composition

The study found that pharmaceutical technologists constitute the majority of the pharmacy workforce, accounting for approximately 72% of pharmacy personnel, while pharmacists represent about 27% and specialist pharmacists less than 1%. This workforce pattern is particularly pronounced in lower level facilities and community pharmacies, where pharmaceutical technologists often serve as the primary providers of pharmacy services.

Qualitative findings revealed significant human resource shortages, particularly in lower level public facilities and community pharmacies. In many settings, pharmaceutical responsibilities were occasionally performed by non pharmacy personnel such as nurses, clinicians, or administrative staff due to workforce gaps. Participants also reported unclear role delineation between pharmacists and pharmaceutical technologists, which contributes to inefficiencies in service delivery.

2. Infrastructure Availability and Compliance with GPP Standards

Most facilities reported the availability of basic pharmacy infrastructure such as dispensing areas, waiting areas, and storage facilities. However, compliance with minimum GPP space requirements was generally low across facility levels and sectors.

While dispensing areas were widely available, many did not meet the recommended space standards necessary to ensure patient confidentiality and safe pharmaceutical practice. The availability of private consultation or counselling areas was limited, particularly in lower level facilities, undermining the ability of pharmacists to provide confidential counselling and patient education.

Similarly, although storage areas for medicines and health technologies were present in many facilities, compliance with recommended storage standards was inconsistent, particularly in community pharmacies and lower level facilities.

3. Digital Systems and Pharmaceutical Information Management

The study identified significant gaps in digital systems supporting pharmaceutical services. Many facilities lacked electronic systems for documenting patient medication histories, monitoring drug interactions, tracking adverse drug reactions, and conducting pharmacovigilance.

Participants emphasized that the absence of integrated digital systems limits the ability of pharmacy providers to deliver comprehensive medication management and follow-up care.

4. Service Delivery

Across most facilities, core services such as medicine dispensing, patient counselling, treatment of minor ailments, and referral to higher levels of care were consistently available, reaffirming the position of pharmacies as key providers of primary healthcare support and medication-related advice. However, the availability of specialized pharmaceutical services was highly uneven and strongly associated with facility level. Advanced services including therapeutic drug monitoring, cytotoxic drug preparation, aseptic dispensing, and total parenteral nutrition were largely concentrated in higher level referral hospitals where appropriate infrastructure, laboratory support, and specialized personnel are available. In contrast, lower level facilities and community pharmacies generally lacked the capacity to provide these services, limiting the expansion of clinical pharmacy practice across the broader health system. Preventive and public health oriented services such as tobacco cessation and medication safety management were also reported at relatively low levels, suggesting missed opportunities for pharmacies to contribute more actively to preventive care and chronic disease management. Overall, the findings suggest that while pharmacies are fulfilling their foundational role in medicine access and basic pharmaceutical care, substantial investments in workforce development, specialized training, infrastructure, and regulatory oversight will be necessary to expand advanced pharmaceutical services and strengthen the integration of pharmacists into patient-centered healthcare delivery.

5. Provision of Family Planning Services through Pharmacies

The study found that family planning services are widely offered through pharmacy settings, particularly in community pharmacies. Approximately 85.6% of community pharmacies reported providing family planning services, highlighting the important role of pharmacies in expanding access to reproductive health services.

Short-term contraceptive methods such as oral contraceptives and barrier methods were the most commonly provided services. Counselling and information services were nearly universal across facilities offering family planning.

However, access to long-acting reversible contraceptives (LARCs) such as contraceptive implants and intrauterine devices was significantly more limited, particularly in lower level private facilities and community pharmacies.

The study also identified a significant training gap for injectable contraceptive services, with many facilities reporting provision of injectables despite lacking personnel trained to administer them. This mismatch raises potential concerns regarding service quality and client safety.

Encouragingly, a strong majority of pharmacy providers expressed willingness to receive training on contraceptive implant provision, indicating a significant opportunity to expand LARC services through pharmacy channels.

KEY RECOMMENDATIONS

Based on the study findings, several strategic actions are recommended to strengthen pharmacy practice and improve pharmaceutical service delivery in Kenya.

Strengthen Pharmacy Workforce Capacity

National and county governments should prioritize recruitment and deployment of pharmacy personnel, particularly pharmacists and pharmaceutical technologists, to address workforce shortages and reduce reliance on task shifting to non-pharmacy staff.

Improve Compliance with Good Pharmacy Practice Standards

The Pharmacy and Poisons Board should strengthen regulatory oversight and enforcement of GPP standards, particularly in relation to infrastructure requirements for dispensing areas, consultation spaces, and medicine storage facilities.

Invest in Pharmacy Infrastructure Improvements

Targeted investments are needed to upgrade pharmacy infrastructure, particularly in lower level facilities and community pharmacies, to ensure compliance with GPP standards and support patient-centered care.

Strengthen Digital Systems for Pharmaceutical Services

The Ministry of Health should promote the adoption of digital health systems that support medication tracking, pharmacovigilance, patient record management, and clinical decision support.

Expand Training for Family Planning Service Delivery

Competency-based training programs should be implemented to strengthen pharmacy personnel capacity in family planning service provision, particularly for injectable contraceptives and long-acting reversible contraceptives.

Leverage Pharmacies to Expand Access to Public Health Services

Pharmacies should be more formally integrated into national health strategies including family planning and self-care initiatives to improve access to essential health services and support universal health coverage goals.

CONCLUSION

The findings from this national assessment highlight both the strengths and challenges of pharmacy practice in Kenya. While pharmacies serve as accessible and essential entry points for medicines and healthcare services, important gaps remain in workforce capacity, infrastructure adequacy, training, and regulatory compliance.

Addressing these challenges through coordinated policy reforms, targeted investments, and strengthened regulatory oversight will be essential to improving the quality, safety, and effectiveness of pharmaceutical services.

Strengthening Good Pharmacy Practice implementation across both public and private sectors will also enable pharmacies to play a greater role in supporting public health priorities, including expanded access to family planning services and progress toward universal health coverage.

BACKGROUND AND CONTEXT

Pharmacy practice in Kenya plays a crucial role in the healthcare system, operating across both hospital and community settings. In hospital pharmacies, pharmacists are essential members of the healthcare team, responsible for managing the supply of medications, providing pharmaceutical care, and offering counselling services to both inpatients and outpatients (Abuga et al., 2019; Aywak et al., 2017). These pharmacies serve as a pivotal point of interaction between healthcare providers and patients, ensuring that medications are appropriately prescribed, dispensed, and used to optimize therapeutic outcomes (Aywak et al., 2017; Wafula & Goodman, 2010).

Community pharmacies, on the other hand, are more accessible to the general public and provide a wide range of pharmaceutical services. These include the dispensation of prescription medications, over-the-counter drugs, health counselling, and the promotion of rational drug use (Abuga et al., 2019; Aywak et al., 2017). Community Pharmacy Providers are often the first point of contact for individuals seeking healthcare advice, making their role critical in ensuring the proper use of medications and the management of minor health conditions (Aywak et al., 2017; Seidman & Atun, 2017).

The regulation of pharmacy practice in Kenya is under the jurisdiction of the Pharmacy and Poisons Board (PPB), a statutory body established to oversee the profession. The PPB is responsible for licensing pharmacists, ensuring compliance with established guidelines, and maintaining professional standards within the practice (Aywak et al., 2017). This regulatory framework is designed to safeguard public health by ensuring that pharmacy services are delivered competently and ethically (Aywak et al., 2017).

However, despite this regulatory oversight, significant gaps persist in pharmacy practice across Kenya. These gaps manifest in several ways, including disparities in the quality of services provided, inconsistent adherence to professional guidelines, and varying levels of competency among pharmacy practitioners (Aywak et al., 2017; Wafula & Goodman, 2010). Such inconsistencies can have serious implications for patient care, leading to suboptimal health outcomes, medication errors, and, in some cases, jeopardizing patient safety (Aywak et al., 2017; Dovlo, 2004).

The quality of pharmacy services in Kenya is not uniformly distributed, with some regions experiencing higher standards of care than others. This disparity may be attributed to factors such as resource availability, differences in training and education, and varying levels of enforcement of regulatory (Aywak et al., 2017; Wiedenmayer et al., 2015). Moreover, adherence to guidelines set by the PPB is not always consistent, with some practitioners failing to meet the required standards of practice (Aywak et al., 2017; Wafula & Goodman, 2010). This inconsistency not only undermines the credibility of the profession but also poses a risk to public health (Aywak et al., 2017).

In addition to these challenges, there is a noticeable variation in the professional competency of pharmacists across the country. While some pharmacists demonstrate high levels of expertise and commitment to patient care, others may lack the necessary skills or knowledge to perform their duties (Aywak et al., 2017; Seidman & Atun, 2017). This variation in competency is partly due to differences in educational background, ongoing professional development opportunities, and the level of supervision and mentorship available to practitioners (Aywak et al., 2017; Dovlo, 2004).

To address these deficiencies, a comprehensive assessment of the current state of pharmacy practice in Kenya is required. Such an assessment would involve evaluating the quality of services provided, the degree of adherence to professional guidelines, and the competency levels of practitioners (Abuga et al., 2019; Aywak et al., 2017).

The findings from this assessment would be instrumental in informing the development and dissemination of Standards for Good Pharmacy Practice in Kenya, identifying the root causes of any identified practice gaps and developing strategies to address them (Aywak et al., 2017).

Ultimately, the goal is to ensure that pharmacy practice in Kenya meets the highest standards of quality and uniformity, thereby safeguarding public health and enhancing patient outcomes (Aywak et al., 2017; Wafula & Goodman, 2010). This would involve not only strengthening the regulatory framework but also investing in the continuous professional development of pharmacists, improving resource allocation, and ensuring that all regions have access to high quality pharmacy services (Aywak et al., 2017; Wiedenmayer et al., 2015). Through these efforts, Kenya can achieve a more equitable and effective healthcare system where the role of pharmacy is fully optimized (Aywak et al., 2017).

LITERATURE REVIEW AND RATIONALE OF THE STUDY

Pharmacy practice in Kenya is a vital aspect of the healthcare system, encompassing both hospital and community pharmacy settings. The evolution of pharmacy practice has shifted from a focus on product supply to a more patient centered approach that emphasizes pharmaceutical care and medication management (Aywak et al., 2017). This literature review explores the current state of pharmacy practice in Kenya, focusing on the services provided in hospital and community pharmacies, as well as the challenges faced in delivering high quality pharmaceutical care.

Hospital Pharmacy Services



Hospital pharmacies in Kenya are an integral part of the healthcare system, providing a range of essential services that significantly contribute to patient care. One of the core responsibilities of hospital pharmacists is medication management, which involves the procurement, storage, and distribution of medications within the hospital setting. Ensuring that patients receive the correct therapies is crucial for minimizing medication errors and improving patient outcomes. This importance is underscored by research conducted by Aywak et al., (2017) and further highlighted by Toroitich et al., (2022), who emphasize that effective medication management is key to enhancing the overall safety and efficacy of treatment regimens.

In addition to medication management, hospital pharmacists are actively involved in pharmaceutical care, a patient-centered approach that focuses on monitoring drug therapies and providing consultations on medication use. According to Aywak et al., (2017), this role is critical in ensuring that drug therapies are safe, effective, and tailored to the individual needs of patients. Dovlo, (2004) also notes that pharmacist-led interventions can lead to significant improvements in patient safety and therapeutic outcomes, further solidifying the role of pharmacists in patient care. Moreover, patient counselling is another essential service provided by hospital pharmacists. Educating patients about their medications, including potential side effects and drug interactions, is a crucial aspect of promoting adherence to treatment regimens and ensuring optimal therapeutic outcomes. Aywak et al., (2017) and Toroitich et al., (2022) both emphasize the importance of this counselling in achieving positive patient outcomes, as it helps patients better understand their treatment and manage their health more effectively.

Research by Abuga et al., (2019) highlights that hospital pharmacies also play a vital role in pharmacovigilance activities, which include monitoring for adverse drug reactions and ensuring the safe use of medications. This proactive approach is essential in identifying and mitigating risks associated with medication therapy, ultimately contributing to improved patient safety.

In summary, hospital pharmacies in Kenya are pivotal in delivering comprehensive pharmaceutical care through effective medication management, patient counselling, and active participation in pharmacovigilance. These services are essential for enhancing patient outcomes and ensuring the safe and effective use of medications within the healthcare system.

Community Pharmacy Services

Community pharmacies play a crucial role as accessible healthcare providers, offering a range of services that are essential to public health. One of the primary functions of Community Pharmacy Providers is the dispensing of both prescription and over-the-counter medications. This ensures that patients receive the appropriate drugs for their specific conditions. Aywak et al., (2017) highlight the importance of this service, noting that Community Pharmacy Providers are key in ensuring medication accuracy and safety. Furthermore, a review by Toroitich et al., (2022) underscores the critical role of community pharmacies in providing essential medications, particularly in underserved areas where access to healthcare services may be limited.

In addition to dispensing medications, Community Pharmacy Providers are actively involved in health promotion. They engage in health education initiatives aimed at encouraging healthy lifestyles and preventing diseases. Aywak et al., (2017) emphasize the significance of these initiatives, as they help raise public awareness about various health issues. Seidman & Atun, (2017) further support this view, presenting evidence that interventions by Community Pharmacy Providers can lead to improved public health outcomes by increasing awareness and knowledge about health-related matters.

Another important aspect of community pharmacy services is the management of minor ailments. Pharmacists in community settings frequently provide advice and treatment for minor health conditions, thereby reducing the burden on the broader healthcare system. According to Aywak et al., (2017), Community Pharmacy Providers are well positioned to manage conditions such as hypertension and diabetes through patient education and effective medication management. Research by Toroitich et al., (2022) also indicates that Community Pharmacy Providers can play a significant role in managing these chronic conditions, contributing to better health outcomes for patients.



Moreover, community pharmacies in Kenya have been recognized for their potential to enhance access to family planning services.

A study by Aloo et al., (2023) found that community pharmacies are authorized to offer select family planning services, such as female and male condoms, oral contraceptives, emergency contraceptives, and injectable intramuscular and subcutaneous depot medroxyprogesterone acetate (DMPA), which significantly improve access to reproductive health options. This highlights the multifaceted role of Community Pharmacy Providers in addressing various health needs within the community.

Despite their critical role, community pharmacies face challenges such as limited integration into the broader healthcare system and inadequate training for pharmacists in certain areas. A study by Kailong J. M et al., (2021) emphasizes the need for better training and resources to empower Community Pharmacy Providers to provide comprehensive healthcare services effectively.

In summary, community pharmacies in Kenya are pivotal in delivering essential healthcare services, including medication dispensing, health promotion, and management of minor ailments. Their contributions are vital for improving public health outcomes, particularly in underserved populations. However, addressing the challenges they face is crucial for optimizing their role in the healthcare system.

The Role of Pharmacies in Family Planning Services

The capacity of pharmacies to provide family planning (FP) services is a critical area of investigation, particularly as they increasingly enhance access to sexual and reproductive health (SRH) services. This analysis will focus on pharmacies' ability to meet FP needs by evaluating staff preparedness, facility capabilities, and the overall effectiveness of service delivery (Corroon et al., 2016).



Community pharmacies serve as vital access points for reproductive health services, often acting as the primary or even sole healthcare resource for many individuals, especially in underserved areas. Research indicates that a significant number of adolescents in countries like Ghana obtain family planning methods through pharmacies, highlighting their importance in improving access to contraceptives and related health services (Aloo et al., 2023).

Community Pharmacy Providers in Kenya are viewed as the key source for access to contraceptives and services for young people (10–24 years) where the highest unmet need is reported (FP2030).

The effectiveness of pharmacies in delivering FP services largely depends on the training and readiness of pharmacy staff. Evidence shows that pharmacists can effectively provide various SRH services, including contraceptive counseling and emergency contraception. However, challenges such as inadequate training, lack of integration into healthcare systems, and inconsistent service quality can hinder their ability to effectively meet community needs (Corroon et al., 2016).

Pharmacies are linked to improved contraceptive continuation rates and can facilitate referrals to other healthcare providers when necessary. Studies suggest that pharmacists are more likely to prescribe longer supplies of contraceptives than traditional prescribers, which may enhance patient adherence. Innovative pharmacy based services, such as administering injectable contraceptives during refill visits, have also demonstrated high acceptance among users (Aloo et al., 2023; Corroon et al., 2016).

Challenges in Pharmacy Practice

Despite the critical role that hospitals and community pharmacies play in healthcare delivery in Kenya, several challenges impede the effective provision of pharmaceutical care. Some of these challenges are described below.

One significant issue is the inconsistent adherence to professional standards. The implementation of guidelines set by the Pharmacy and Poisons Board (PPB) varies widely, leading to disparities in the quality of care. Aywak et al., (2017) note that this lack of uniformity can contribute to medication errors and insufficient patient counseling. Dovlo, (2004) further emphasizes that these inconsistencies can undermine the effectiveness of pharmaceutical services, potentially compromising patient safety.

Another challenge is the varying levels of professional competency among pharmacists. Differences in skills and knowledge can directly affect the quality of care that patients receive. Aywak et al., (2017) highlight this issue, pointing out that many pharmacists pursue additional training abroad to acquire competencies in clinically oriented practices. This trend underscores the deficiencies in local training programs and the need for more comprehensive education to equip pharmacists with the necessary skills for high quality patient care. Toroitich et al., (2022) also acknowledge this gap, stressing the importance of enhancing local training to ensure that pharmacists can meet the demands of modern healthcare practice.

Limited access to essential medicines is another critical challenge facing pharmacy practice in Kenya. Fragmentation within the healthcare system, coupled with resource constraints, often restricts the availability of necessary medications, particularly in rural areas. Toroitich et al., (2022) discuss this issue extensively, highlighting that access to safe and effective medicines is fundamental to achieving positive health outcomes. The lack of consistent access to these medications not only hampers the delivery of care but also exacerbates health disparities between urban and rural populations (Aloo et al., 2023).

Additionally, the regulatory environment poses challenges, as the PPB's oversight may not always be sufficient to enforce compliance among pharmacy practitioners. A study by Kailong J. M et al., (2021) indicates that the lack of regular inspections and accountability measures can lead to substandard practices in both hospital and community pharmacies. This regulatory gap further complicates efforts to ensure that pharmacists adhere to established standards and provide safe, effective care.

In summary, the pharmacy practice in Kenya faces several challenges including inconsistent adherence to professional standards, varying levels of competency, limited access to essential medicines, and regulatory shortcomings pose significant threats to the quality of healthcare services. Understanding the specific gaps and challenges and addressing them is essential for enhancing the effectiveness of pharmacy practice and improving patient outcomes across the country.

RESEARCH QUESTIONS

To guide the research and ensure it addressed key knowledge gaps, the following primary and secondary learning questions were developed:

- What specific gaps in service delivery, including provision of FP, exist in hospital and community pharmacies in Kenya?
- How well do pharmacy practitioners and pharmacy facilities adhere to the professional standards set by the Pharmacy and Poisons Board (PPB), and what factors influence their adherence?
- What are the competency levels of pharmacy practitioners in both hospital and community settings, and what areas have been identified as needing further training or support?
- What factors contribute to disparities in the quality of pharmaceutical services across different regions and healthcare settings in Kenya?

STUDY OBJECTIVES

Broad Objective

The general objective of this survey was to assess the state of pharmacy practice in both hospital and community settings across Kenya, with the aim of improving the overall quality of pharmaceutical care.

Specific Objectives

- To identify gaps in service delivery including provision of FP in hospital and community pharmacies that may impact the quality of pharmaceutical care.
- To evaluate the level of adherence to professional standards among pharmacy practitioners and pharmacy facilities, as stipulated by the Pharmacy and Poisons Board (PPB).
- To assess the competency levels of pharmacy practitioners in both hospital and community settings, identifying areas where further training or support may be required.
- To determine the factors contributing to disparities in the quality of pharmaceutical services across different regions and settings in Kenya.

METHODOLOGY

Study Design

This was a cross-sectional mixed-methods study that utilized both quantitative and qualitative data collection methods. Qualitative interviews included Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Quantitative interviews were conducted using structured questionnaires.

Study Setting and Period

The study was conducted across a diverse range of health facilities and community pharmacies throughout Kenya. The data collection period lasted ten months, from February 2025 to November 2025. This timeframe facilitated comprehensive data gathering while ensuring that the study remained manageable and focused.

Target Population

The target population for this study consisted of registered pharmacists and enrolled pharmaceutical technologists working in the selected health facilities and community pharmacies. This group was essential for the assessment, as they were directly involved in the delivery of pharmaceutical services and provided valuable insights into the practices and challenges within the sector.

Sample Size Determination for Pharmacies

A total of 768 health facilities and community pharmacies were sampled for this study. The distribution of these locations was detailed in Table 1.

Table 1: Sample Size by Level of Care

Level	Total Population	Total Sample Size	Remark
Level 6	6	6	100% of the total population
Level 5	38	38	100% of the total population
Level 4	1,034	180	17% of the total population
Level 3	2,958	100	3.44% of the total population
Level 2	13,394	94	2 per county
Community Pharmacy – Pharmacist Superintendent	365	119	30% of the total population
Community Pharmacy – Pharm. Tech Superintendent	4,627	231	5% of the total population

Sampling Methodology for Pharmacies

The sampling strategy employed a multi-tiered approach to ensure that the data collected accurately reflected pharmacy practices across different healthcare settings in Kenya. For Level 6 and Level 5 hospital pharmacies, all pharmacies within these categories were included in the study. For Level 4, Level 3, and Level 2 health facilities, as well as community pharmacies, a stratified sampling approach was employed with proportional representation by county and rural/urban distribution. Selection of individual facilities within each category was random.

Sample Size for Qualitative Interviews

The study utilized qualitative data collection methods and engaged a total of 108 participants. Thirty-three individuals were interviewed through KIIs, including hospital pharmacists, Community Pharmacy Providers, health facility administrators, and regulatory officials. Additionally, 75 participants were involved in FGDs across six pharmacist groups and three groups of other healthcare professionals (Table 2).

Table 2: Sampling distribution for the qualitative study

Data Collection Method	Target Group	Number of Participants	Selection Criteria	Geographical Distribution
Key Informant Interviews (KIIs)	Hospital Pharmacists	10	Selected based on experience and roles in pharmacy practice in Level 5 and 6 hospitals	Proportional representation across counties
	Community Pharmacy Providers	10	Selected from community pharmacies	Randomly selected from major urban and rural areas
	Health Facility Administrators	8	Selected from Level 4, 5, and 6 hospitals	Across various counties to ensure regional diversity
	Regulatory Officials	5	Key personnel involved in pharmacy regulation	Selected from the Pharmacy and Poisons Board and relevant county health departments

Data Collection Method	Target Group	Number of Participants	Selection Criteria	Geographical Distribution
Focus Group Discussions (FGDs)	Pharmacists (Hospital and Community)	6 FGDs (8-10 participants per group) 24 from hospital and 24 from community pharmacies	Groups included pharmacists and pharmaceutical technologists from Levels 2, 3, 4, 5, and community pharmacies	FGDs were conducted in 6 different regions (Central, Coastal, Western, Rift Valley, Nyanza, and Nairobi)
	Other Healthcare Professionals Nurses, Doctors, clinical officers	3 FGDs (3 doctors, 3 nurses and 3 clinical officers - per group)	Professionals who frequently collaborated with pharmacists	Across diverse healthcare settings and regions

Study Procedures

Study staff contacted the pharmacy or facility in charge prior to the survey to inform them about the study and agree on interview dates. Each facility nominated one participant with at least six months of experience who was subsequently consented to participate.

Inclusion and Exclusion Criteria

The following respondents were included for interview: (1) Pharmacists and pharmaceutical technologists working in Levels 2–6 and community pharmacies; (2) Policy makers and FP partners; (3) Individuals willing to consent and participate and (4) had at least six months of experience in selected facilities. Respondents were excluded from the study if they were (1) not licensed; (2) interns or students; and (3) support staff.

Ethical Considerations

Ethical approval was obtained from MUERC ref no. MSU/DRPI/MUSERC/01432/24 and NACOSTI ref no. 688652. Confidentiality safeguards included encrypted data systems and anonymized reporting. Participation was voluntary.

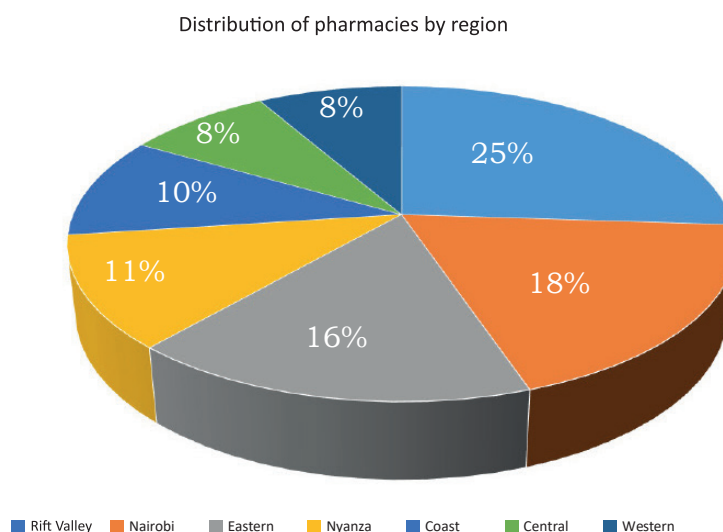
RESULTS

Demographics

Quantitative data collection was conducted in 43 of the 47 targeted counties, with four counties (Murang'a, Kisii, Nyandarua, and Busia) not reached. Overall, the survey achieved 79% coverage of the targeted facilities, reaching 605 out of 768 facilities across the 43 counties.

In terms of regional distribution, majority of selected facilities 148 (25%) were from Rift Valley region followed by Nairobi region with 106 (18%), Eastern region 95 (16%), Nyanza region 67 (11%), Coast region 58 (10%), Central 51 (8%) and Western region 50 (8%). The distribution of facility ownership across the surveyed regions reveals that majority of selected facilities were the private for profit. Overall, out of 605 facilities, majority (67.4%) were privately owned for profit, while public pharmacies account for about a quarter (25.8%). Faith-Based Organizations (FBOs) and private not for profit pharmacies contribute only a small proportion, at 4.6% and 2.2% respectively.

Figure 1: Distribution of pharmacies by region



There were, however, notable regional variations in ownership patterns. Nairobi standing out with an overwhelming 90.6% of selected facilities being private for profit and only a minimal public sector presence accounting for 2.8%. Similarly, over 70% of selected facilities in Coast and Eastern regions were private for-profit basis. Rift Valley and Central regions had a more balanced mix of facilities with a moderate share of public facilities.

In contrast, North Eastern, Nyanza, and Western regions exhibited a different pattern, with majority of the facilities selected from the public sector.

Table 3: Distribution of pharmacies by region and ownership.

Facility Ownership	Central (N=51)	Coast (N=58)	Eastern (N=95)	Nairobi (N=106)	North Eastern (N=29)	Nyanza (N=67)	Rift Valley (N=148)	Western (N=50)	Overall (N=604)
FBO	3 (5.9%)	0 (0%)	6 (6.3%)	3 (2.8%)	0 (0%)	4 (6.0%)	7 (4.7%)	5 (10.0%)	28 (4.6%)
Private for Profit	33 (64.7%)	42 (72.4%)	68 (71.6%)	96 (90.6%)	14 (48.3%)	33 (49.3%)	96 (64.9%)	25 (50.0%)	407 (67.4%)
Private Not For Profit	0 (0%)	2 (3.4%)	3 (3.2%)	4 (3.8%)	0 (0%)	0 (0%)	4 (2.7%)	0 (0%)	13 (2.2%)
Public	15 (29.4%)	14 (24.1%)	18 (18.9%)	3 (2.8%)	15 (51.7%)	30 (44.8%)	41 (27.7%)	20 (40.0%)	156 (25.8%)

Nearly half (48.1%) of the facilities selected for quantitative interviews were concentrated in eight counties. Nairobi accounted for the largest proportion with 107 facilities (17.7%), followed by Nakuru 40 (6.6%) facilities, Uasin Gishu 31 (5.1%) facilities, Mombasa 26 (4.3%) facilities, Meru 25 (4.1%) facilities, Kiambu 21 (3.5%) facilities, Homa Bay 21 (3.5%) facilities, and Machakos 20 (3.3%) facilities. This distribution reflects a higher representation of facilities from major urban and peri urban counties.

Table 4: Distribution of Respondents by Level

Cadre	Level 2		Level 3		Level 4		Level 5		Level 6		Total	
	Public (N = 14)	Private (N = 296)	Public (N = 42)	Private (N = 51)	Public (N = 78)	Private (N = 83)	Public (N = 20)	Private (N = 18)	Public (N = 2)	Private (N = 1)	Public (N = 156)	Private (N = 449)
PharmTech	14 (100%)	221 (74.7%)	39 (92.9%)	47 (92.2%)	56 (71.8%)	49 (59%)	3 (15%)	6 (33.3%)	0 (0%)	0 (0%)	112 (71.8%)	323 (71.9%)
Pharmacists	0 (0%)	74 (25%)	3 (7.1%)	4 (7.8%)	21 (26.9%)	34 (41%)	17 (85%)	12 (66.7%)	1 (50.0%)	1 (100%)	42 (26.9%)	125 (27.8%)
Pharmacist Specialists	0 (0%)	1 (0.3%)	0 (0%)	0 (0%)	1 (1.3%)	0 (0%)	0 (0%)	0 (0%)	1 (50.0%)	0 (0%)	2 (1.3%)	1 (0.3%)

The distribution of respondents showed that majority were pharmaceutical technologists who mainly dominated the lower level facilities (level 2 – 4) while pharmacists were more prominent at higher levels (level 5 and 6).

At Level 2, pharmaceutical technologists' respondents were the primary cadre in both public (100%) and private (74.7%) facilities and pharmacists (25%) in private sector. Only one specialist pharmacist respondent was represented at level 2. At Level 3, pharmaceutical technologists were the majority respondents in both public (92.9%) and private (92.2%) facilities. Pharmacist respondents represented a small proportion of 7 - 8% in both sectors.

At Level 4, the pharmaceutical technologists were the majority respondents (71.8% public; 59.0% private), while the pharmacist respondents were 26.9% in public and 41.0% in private facilities. Specialist pharmacist respondents were very minimal (1.3% public).

At Level 5, pharmacist respondents were the dominant cadre in public facilities (85.0%) and also represented a substantial proportion in private facilities (66.7%). In contrast, pharmaceutical technologist respondents declined sharply at this level, particularly in public facilities (15.0%). At Level 6, although the sample size was small, pharmacists and specialist pharmacists were the main respondents, reflecting the higher specialization expected at tertiary level facilities.

Overall, pharmaceutical technologists accounted for approximately 72% (435/605) of personnel across selected facilities, while pharmacists comprised of about 27% (167/605). Specialist pharmacists representing a very small fraction, less than 1% (3/605).

Table 5: Facility Ownership by Level

Ownership	Level 2	Level 3	Level 4	Level 5	Level 6	Total
	(N=310)	(N=93)	(N=161)	(N=38)	(N=3)	(N=605)
Faith Based Organizations (FBO)	2 (0.6%)	3 (3.2%)	14 (8.7%)	9 (23.7%)	1 (33.3%)	29 (4.8%)
Private for Profit (including community pharmacies at level 2)	291 (93.9%)	45 (48.4%)	63 (39.1%)	8 (21.1%)	0 (0%)	407 (67.3%)
Private Not For Profit	3 (1.0%)	3 (3.2%)	6 (3.7%)	1 (2.6%)	0 (0%)	13 (2.1%)
Public	14 (4.5%)	42 (45.2%)	78 (48.4%)	20 (52.6%)	2 (66.7%)	156 (25.8%)

The distribution of facility ownership varied markedly by level of care, with private for profit facilities dominating lower level facilities and public facilities being more prominent at higher levels.

At Level 2, the sector was overwhelmingly community pharmacies, accounting for 93.9% (291/310) of selected facilities. Public facilities represented only 4.5%, while faith based organizations (FBOs) and private not-for-profit facilities were minimal (0.6% and 1.0%, respectively). This indicates that Level 2 services are largely market-driven.

At Level 3, ownership was more evenly distributed between private for profit (pharmacies in private health facilities) (48.4%) and public facilities (45.2%), suggesting a transition toward greater public sector presence as the level of care increases.

At Level 4, public facilities (48.4%) slightly outnumbered private for-profit facilities (39.1%). FBOs accounted for only 8.7%. At Level 5, public facilities constituted the majority (52.6%), followed by FBOs (23.7%), while private for-profit facilities declined to 21.1%. At Level 6, although the sample size was small (N=3), public facilities dominated (66.7%), with FBOs representing 33.3%.

Overall, across all 605 facilities, private for profit facilities were the majority (67.3%), followed by public facilities (25.8%), FBOs (4.8%) and private not for profit facilities (2.1%).

HUMAN RESOURCES

Staffing by Level of care

Table 6: Full- and Part-Time Pharmacy Personnel by Level of Care

Cadre	Level 2	Level 3	Level 4	Level 5	Level 6
Pharmacy Specialist (Full-time)					
Public (N=113)	0 (0.0%)	2 (1.8%)	46 (40.7%)	48 (42.5%)	17 (15.0%)
Private (N=31)	15 (48.4%)	2 (6.5%)	11 (35.5%)	3 (9.7%)	0 (0.0%)
Pharmacy Specialist (Part-time)					
Public (N=3)	0 (0.0%)	0 (0.0%)	1 (33.3%)	2 (66.7%)	0 (0.0%)
Private (N=15)	4 (26.7%)	4 (26.7%)	7 (46.7%)	0 (0.0%)	0 (0.0%)
Pharmacists (Full-time)					
Public (N=245)	0 (0.0%)	7 (2.9%)	107 (43.7%)	95 (38.8%)	36 (14.7%)
Private (N=200)	103 (51.5%)	13 (6.5%)	68 (34.0%)	16 (8.0%)	0 (0.0%)
Cadre	Level 2	Level 3	Level 4	Level 5	Level 6
Pharmacists (Part-time)					
Public (N=17)	0 (0.0%)	3 (17.6%)	8 (47.1%)	6 (35.3%)	0 (0.0%)
Private (N=62)	28 (45.2%)	4 (6.5%)	29 (46.8%)	1 (1.6%)	0 (0.0%)
Cadre	Level 2	Level 3	Level 4	Level 5	Level 6
Pharm Tech (Full-time)					
Public (N=607)	14 (2.3%)	70 (11.5%)	307 (50.6%)	140 (23.1%)	76 (12.5%)
Private (N=798)	416 (52.1%)	65 (8.1%)	232 (29.1%)	85 (10.7%)	0 (0.0%)
Pharm Tech (Part-time)					
Public (N=34)	2 (5.9%)	2 (5.9%)	24 (70.6%)	6 (17.6%)	0 (0.0%)
Private (N=243)	113 (46.5%)	32 (13.2%)	89 (36.6%)	9 (3.7%)	0 (0.0%)

A total of 144 Pharmacy Specialists were in full time service across all levels of care which represents 7.2% (144/1994) of all the full-time pharmacy personnel. The majority, 78.5%, (113/144) were employed in public health facilities, while 4.5% (31/144) were in private health facilities. Most pharmacy specialists were concentrated at Level 4 and 5 facilities, indicating that higher level facilities relied more heavily on specialized pharmaceutical expertise.

There were 445 pharmacists in full time service across all levels of care which is 22.3% (445/1994) of the total pharmacy personnel, with 55% (245/445) of them based at public facilities while 45% (200/445) based at the private facilities. Most pharmacists were deployed in Level 4 (107) and Level 5 (95) public health facilities, demonstrating that these facility levels carried the greatest pharmaceutical service demands.

Pharmaceutical Technologists (Pharm Tech) represented the largest workforce segment with a total of 1,405 or 70.5% (1405/1994) of the total pharmacy personnel. The highest concentration was observed in level 4 facilities accounting for 38.4% (539/1405) of the total pharmaceutical technologists, 30.6% (430/1405) at level 2, 9.3% (135/1405) at level 3, 16% (125/1405) at level 5 and only 5.4% (76/1405) at level 6 facilities. Majority, 56.8% (798/1405), were in private facilities while 43.2% (607/1405) were in public facilities

This pattern suggests that private lower level facilities relied heavily on pharmaceutical technologists while public higher level facilities utilized pharmacists and pharmacy specialists at Levels 4 and Level 5.

In addition, private health facilities had only 15 pharmacy specialists, 62 pharmacists and 243 pharmaceutical technologists on part-time basis while public health facilities had only three pharmacist specialists, 17 pharmacists and 34 pharmaceutical technologists on part time basis. Private health facilities hired more part time staff compared with public health facilities.

Key observations on human resources

The findings shows that pharmaceutical technologists formed the backbone of pharmacy service providers at all levels. The public facilities dominated specialist pharmacists with public health facilities at level 4 and 5 employing majority of the specialist pharmacists. The qualitative findings revealed a complex interplay of systemic and workforce related challenges affecting pharmacy service delivery, characterized by a paradoxical coexistence of professional overlap, staffing shortages, and underutilization of skilled personnel. Across study settings, participants consistently highlighted human resource constraints as a critical barrier, particularly in lower level public health facilities (levels 2–4) and community pharmacies. Acute shortages of pharmacists and pharmaceutical technologists were reported, often resulting in heavy workloads for available staff and, in some cases, the delegation of pharmaceutical duties to non pharmacy personnel, including nurses, clinicians, and even administrative staff.

Task shifting emerged as a widespread coping mechanism in response to workforce gaps, especially in resource limited settings. Participants noted that dispensing roles were frequently assumed by non qualified cadres, raising concerns about the quality and safety of pharmaceutical services. This practice was particularly prevalent in level 2 and 3 facilities, where staffing limitations were most pronounced:

“In resource-limited settings, you will find employers who will not adhere to the staffing regulations. For example, in a level four facility, you’re supposed to have two pharmacists and work with at least four pharmaceutical technologists... So I feel like there are definitely gaps in the provision of pharmaceutical services in terms of staffing, the right number of staff who are supposed to be available.

”- (FGD 4_Nyanza_pharmacist and pharmtechs)

“In terms of community pharmacy... when you go on the ground, you find most of them are not even run by pharmacists... Most pharmacies are not run by actual pharmacists.”,

- (FGD 4_Nyanza_pharmacist and pharmtechs).

“We are also constrained in terms of HR. If you look at the level twos and threes, we’re limited in terms of the pharm techs or even the pharmacists. So you will find a dispensing area manned by any other cadres, including nurses and even clinicians, or worse still, you can even get just a health facility clerk.”

- (FGD Western 001_Non-Pharms)

“We have so many health facilities like health centers, government health centers level three, where we still have nurses dispensing drugs because the governments are not able to employ pharm techs. We have referral hospitals and you only have one pharmacist. And you have so many units to check.”

-(KII_Homabay_CP_005_TR).

A major theme was the lack of clarity in professional roles between pharmacists and pharmaceutical technologists. Participants described blurred boundaries in scope of practice, exacerbated by dual deployment systems involving both county and national governments. This ambiguity contributes to inefficiencies in service delivery, duplication of responsibilities, and, may led to neglect of critical functions. Furthermore, pharmacists were frequently perceived as underutilized, with their advanced clinical training not fully leveraged within healthcare teams. This underutilization was linked to a broader lack of recognition of the pharmacist’s role in patient care:

“The other challenge is maybe uh underutilization of pharmacists like pharmacist and are just seen like maybe they are the same as pharmaceutical technology. So they are underutilized.”

- (KII_CP_Kericho_01).

“The current scope of pharmacy practice has some gaps, especially in hospital pharmacy. Because you find, uh, other healthcare givers from like IEBO, and consultants ... they [hospital pharmacy] have not really and truly embraced pharmacists. Uh, that is a gap in hospital pharmacy”

- (KII_NRB_HP_003_TR).

Inter-cadre tensions between pharmacists and pharmaceutical technologists also emerged, driven by maybe unclear role delineation, and perceived inequities in responsibilities. This could undermine teamwork and service delivery:

“That is between the pharm tech and the pharmacists. We are both pharmacy professions. I don’t see an issue, but we need to collaborate for the growth of pharmacy practice generally. It has been an issue, the level of practice between the pharm techs and the pharmacists.”

– (KII_Regulator_004).

Financial constraints were identified as a key determinant of workforce composition, particularly in community pharmacy settings. Due to higher salary expectations for pharmacists, employers often opted to hire pharmaceutical technologists, further contributing to the shortage and underrepresentation of pharmacists in practice:

“The first place you will find for community pharmacy, you will find they are more in need of the pharma techs than pharmacists. So, for the pharma techs, it will be easier for them to be employed in community pharmacy. But before the PPB making it a requirement that for hospitals to have pharmacists, it was also the pharma techs, because of financial issues. They feel they can’t employ a pharmacist because the salary is a bit high. So, they opt for pharmtechs. So financial barriers, I think is one of the factors that makes it different.”

–(KII_Lamu_HP_004_TR)

Gaps in pre service training, especially among diploma level graduates, were also reported. Participants noted inconsistencies in the quality of training institutions, with some graduates lacking essential practical skills and requiring significant on the job training. Although workplace learning was common, the absence of structured mentorship, largely due to the shortage or limited availability of senior pharmacists, left many junior staff to operate without adequate professional guidance. This “functional absenteeism,” driven by high workloads, further constrained opportunities for supervision and skills development:

“When it comes to the diploma ones, that is where I find very large disparities because there are some that come out and you really wonder whether they have been to any pharmacy schools, but there are those that come out and they are really uh skilled and they just need a little upscaling and they are able to do well. So in the diploma training is where I have seen a lot of disparities. There are some colleges that bring out very good graduates. They just need to go through the internship and they’re good to go. But there are others thatcurriculum really needs to be checked because sometimes someone comes out and you wonder did you go to any pharmacy school really because you have to teach them like from scratch on what to do how to practice what is required of them knowledge about medicines.”

– (FGD 2_North Rift_pharmacist and pharmtechs)

“The number of months that they give us for training, I think it should be allocated more for both the community and the hospital one rather than for the dispensary because there is nothing much to be done in the dispensary. So, the months for hospital pharmacy should be more than those for community. Because the more we practice, the better.”

– (KII_Lamu_HP_004_TR)

“And then maybe human resource. They should improve on the side of human resource to boost more personnel here and to improve their skills. Give more training. Give more CMEs about the drugs, how it works, and their components. “

– (KII_Hospital Admin_Garissa)

Human resource shortages and, infrastructure and equipment constraints were highlighted as gaps in service delivery. To address these gaps, participants advocated for increased investment in human resources, improved infrastructure, and enhanced training systems. Recommendations included structured continuous professional development, greater emphasis on hands-on training, particularly in hospital settings and the adoption of digital innovations such as telemedicine to strengthen service delivery:

“Need hiring of more pharmacist and pharmacy technologist and even uh yeah so human resource is the key that we really need and also infrastructure and equipment that can support the uh let’s say in the pharmacy you need um cold chain uh”.

– (FGD 2_North Rift_pharmacist and pharm techs)

“Yes, it needs to be expanded. And my pharmacists are supposed to be trained because technology and a lot of innovation, new innovation, are coming in day by day. Things are changing, so at least you go back so that you relate to the people who are more advanced. I think there’s a need for expansion in terms of infrastructure and in terms of innovation.”

– (KII_Hospital Admin_Garissa)

“We need more equipped, more stocked level four facilities. Which also makes me want to say that we need um the country to have a sense of uh allocating funds that are equivalent to their expectation in the outcomes in healthcare.”

– (KII_CP_Elgeyo Marakwet 01).

Overall, the findings underscore systemic inefficiencies in workforce planning and deployment, where critical shortages coexist with the underutilization of available expertise, ultimately affecting the quality and accessibility of pharmacy services.

INFRASTRUCTURE

Availability of Adequate Waiting area

Table 7: Waiting Area by Facility Type and Level

Availability of Waiting Area												
	Level 2				Level 3		Level 4		Level 5		Level 6	
Response	FBO (n = 2)	Community Pharmacies (n = 291)	Private Not For Profit (n = 3)	Public (n = 14)	Public (n = 42)	Private (n = 51)	Public (n = 78)	Private (n = 83)	Public (n = 20)	Private (n = 18)	Public (n = 2)	Private (n = 1)
No	1 (50.0%)	42 (14.4%)	0 (0.0%)	2 (14.3%)	7 (16.7%)	5 (9.8%)	12 (15.4%)	4 (4.8%)	1 (5.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)
Yes	1 (50.0%)	249 (85.6%)	3 (100.0%)	12 (85.7%)	35 (83.3%)	46 (90.2%)	66 (84.6%)	79 (95.2%)	19 (95.0%)	17 (94.4%)	2 (100.0%)	1 (100.0%)
Meets GPP minimum (among those who gave size)	0/1 (0.0%) [≥ 14 sq m]	50/247* (20.1%) [≥ 14 sq m]	1/3 (33.3%) [≥ 14 sq m]	6/12 (50.0%) [≥ 14 sq m]	8/35 (22.9%) [≥ 28 sq m]	8/46 (17.4%) [≥ 28 sq m]	15/66 (22.7%) [≥ 28 sq m]	22/79 (27.8%) [≥ 28 sq m]	8/19 (42.1%) [≥ 42 sq m]	1/17 (5.9%) [≥ 42 sq m]	0/2 (0.0%) [≥ 60 sq m]	No response

*Two community pharmacies did not report the size of the waiting area

Across both public and private health facilities, majority reported having adequate waiting areas that protect clients from sun and other weather elements. In public facilities, availability was consistently high across all levels: 85.7% (Level 2), 83.3% (Level 3), 84.6% (Level 4), 95.0% (Level 5), and 100% (Level 6). Only a small proportion: 14.2% (level 2), 16.7% (level 3), 15.4% (level 4), 5.0% (level 5) reported lacking adequate waiting areas. Similarly, private facilities demonstrated high availability: 50% (level 2 – FBO), 85.6% (level 2 – community pharmacies), 100% (level 2 – private not for profit) with relatively few facilities 50% (level 2 – FBO), 14.4% (level 2 – community pharmacies), 9.8% (level 3), 4.8% (level 4), 5.6% (level 5) reporting inadequate waiting spaces

Compliance with Good Pharmacy Practice (GPP) minimum space requirements varied by facility level and type but remained generally low, particularly at higher levels. Among public facilities, compliance was highest at Level 2 (50.0%) and Level 5 (42.1%). However, Levels 3 and 4 showed lower compliance at 22.9% and 22.7%, respectively, while no Level 6 facility met the ≥60 sq m requirement. In private facilities, compliance was lower overall. Only 20.1% of Level 2 (community pharmacies) and 33.3% (private not for profit) facilities met the ≥14 sq m requirement. Compliance at Levels 3 and 4 was 17.4% and 27.8%, respectively, and dropped to 5.9% at Level 5. Like the public facilities, no Level 6 private facility met the ≥60 sq m requirement.

Overall, fewer than half of facilities across most levels met the recommended minimum space standards, with particularly low compliance in private and higher level facilities.

Availability of Adequate Dispensing Area

Table 8: Dispensing Area by Facility Type and Level

Availability of Dispensing Area												
	Level 2				Level 3		Level 4		Level 5		Level 6	
Response	Public (n = 14)	FBO (n = 2)	Community Pharmacies (n = 291)	Private Not For Profit (n = 3)	Public (n = 42)	Private (n = 51)	Public (n = 78)	Private (n = 83)	Public (n = 20)	Private (n = 18)	Public (n = 2)	Private (n = 1)
No	1 (7.1%)		3 (1.0%)		1 (2.4%)		1 (1.3%)	1 (1.2%)				0 (0.0%)
Yes	13 (92.9%)	2 (100.0%)	288 (99.0%)	3 (100.0%)	41 (97.6%)	51 (100.0%)	77 (98.7%)	82 (98.8%)	20 (100.0%)	18 (100.0%)	2 (100.0%)	1 (100.0%)
Meets GPP minimum (among those who gave size)	3/13 (23.1%) [≥ 14 sq m]	0/2 (0.0%) [≥ 14 sq m]	53/285* (18.6%) [≥ 14 sq m]	0/3 (0.0%) [≥ 14 sq m]	7/41 (17.1%) [≥ 28 sq m]	3/51 (5.9%) [≥ 28 sq m]	25/77 (32.5%) [≥ 28 sq m]	8/81** (9.9%) [≥ 28 sq m]	5/20 (25.0%) [≥ 42 sq m]	3/18 (16.7%) [≥ 42 sq m]	0/2 (0.0%) [≥ 60 sq m]	0/1 (0.0%) [≥ 60 sq m]

*Three of the community pharmacies did not report the dispensing area size

**One of private level 4 pharmacies did not report the dispensing area size

Availability of dispensing areas were nearly universal across both public and private facilities at all levels. In public facilities, availability ranged from 92.9% at Level 2 to 100% at Levels 5 and 6, with only 7.1% (level 2), 2.4% (level 3) and 1.3% (level 4) reporting absence. Similarly, private facilities reported very high availability, ranging from 100% (level 2 – FBO), 99% (level 2 – community pharmacies), 100% (level 2 – private not for profit), 100% (level 3), 98.8% (level 4), 100% (level 5 and 6). However, despite the high availability of dispensing areas, compliance with Good Pharmacy Practice (GPP) with minimum space requirements was low across both sectors.

In public facilities, compliance ranged from 0% (Level 6) to 32.5% (Level 4), with most levels below one-third compliance. In private facilities, compliance was generally lower, ranging from 0% (level 2 – FBO and private for profit), 18.6% (level 2 – community pharmacies), 5.9% (level 3), 9.9% (level 4) to 16.7% (level 5) and 0% (level 6).

Overall, while dispensing areas were widely available, majority did not meet the recommended minimum space standards, particularly in private facilities. This compromises patient confidentiality and privacy.

Availability of Consulting / Counselling Area

Table 9: Consultation / Counselling Area by Facility Type and Level

Availability of Private/Semi-Private Consultation Area												
	Level 2				Level 3			Level 4	Level 5		Level 6	
Response	Public	FBO	Community Pharmacies	Private Not For Profit	Public	Private	Public	Private	Public	Private	Public	Private
	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n
=1	=	=	=	=	=	=	=	=	=	=	=	=
4)	2)	291)	3)	42)	51)	78)	83)	20)	18)	2)	1)	
No	11 (78.6%)	1 (50.0%)	104 (35.7%)	0 (0.0%)	21 (50.0%)	21 (41.2%)	27 (34.6%)	40 (48.2%)	6 (30.0%)	8 (44.4%)	1 (50.0%)	1 (100.0%)
Yes	3 (21.4%)	1 (50.0%)	187 (64.3%)	3 (100.0%)	21 (50.0%)	30 (58.8%)	51 (65.4%)	43 (51.8%)	14 (70.0%)	10 (55.6%)	1 (50.0%)	0 (0.0%)
Meets GPP minimum (among those who gave size)	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area	No standard defined for this level/ area

Availability of consultation or counselling areas varied considerably by facility type and level. In public facilities, availability improved with increasing level of the facility. Only 21.4% of Level 2 facilities had a consultation/counselling area, rising to 50.0% at Level 3, 65.4% at Level 4, 70.0% at Level 5, and 50% at Level 6.

In private facilities, availability was moderate at lower levels but less consistent at higher levels. There were remarkable differences within the various categories of level 2 private pharmacies with 50% level 2 FBOs, 64.5% of Level 2 community pharmacies and 100% level 2 private not for profit, having a consultation / counselling area. Availability of consultation and counseling area was 58.8% at Level 3, 51.8% at Level 4, and 55.6% at Level 5. The sole Level 6 private facility did not have a consultation/counselling area.

GPP does not have minimum space requirement for consultation and counseling area and as such data was not collected on this. The absence of a PPB standard for counselling space directly contributes to the privacy violations reported by providers in the qualitative interviews.

Availability of Health Products and Technology (HPT) Storage Area

Table 10: Health Products and Technology Storage Area by Facility Type and Level

Availability of Health Products & Technologies (HPT) Storage Area												
	Level 2				Level 3		Level 4		Level 5			Level 6
Response	Public	FBO	Community Pharmacies	Private Not For Profit	Public	Private	Public	Private	Public	Private	Public	Private
	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n	(n
	=	=	=	=	=	=	=	=	=	=	=	=
	14)	2)	291)	3)	42)	51)	78)	83)	20)	18)	2)	1)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.4%)	3 (5.9%)	4 (5.1%)	0 (0.0%)	0 (0.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)
No	3 (21.4%)	1 (50.0%)	119 (40.9%)	0 (0.0%)	4 (9.5%)	10 (19.6%)	4 (5.1%)	10 (12.0%)	0 (0.0%)	2 (11.1%)	0 (0.0%)	0 (0.0%)
Yes	11 (78.6%)	1 (50.0%)	172 (59.1%)	3 (100.0%)	37 (88.1%)	38 (74.5%)	70 (89.7%)	73 (88.0%)	20 (100.0%)	15 (83.3%)	2 (100.0%)	1 (100%)
Meets GPP minimum (among those who gave size)	2/11 (18.2%) ≥ 28 sq m]	0/1 (0.0%) ≥ 28 sq m]	29/169* (17.2%) ≥ 28 sq m]	1/3 (33.3%) ≥ 28 sq m]	10/37 (27.0%) ≥ 28 sq m]	7/38 (18.4%) ≥ 28 sq m]	68/70 (97.1%) ≥ 5 sq m]	65/73 (89.0%) ≥ 5 sq m]	11/20 (55.0%) ≥ 60 sq m]	5/14** (35.7%) ≥ 60 sq m]	2/2 (100.0%) ≥ 84 sq m]	1/1 (100.0%) ≥ 84 sq m]

*Three of the community pharmacies did not report the HPT storage size.

**One of the private level 5 pharmacies did not report HPT storage size.

Availability of adequate Health Products and Technologies (HPT) storage areas was generally high in public facilities and improved with level of care. This ranged from 78.6% at Level 2 to 100% at Levels 5 and 6.

In private facilities, availability was lower at Level 2 (50% - FBOs, 59.5% - community pharmacies and 100% private not for profit) but increased at higher levels—74.5% (Level 3), 88.0% (Level 4), 83.3% (Level 5), and 100% (Level 6).

Compliance with GPP minimum storage space requirements varied by level. In public facilities, compliance was low at Level 2 (18.2%) but very high at Level 4 (97.1%) and Level 6 (100%). Moderate compliance was observed at Level 5 (55.0%).

Private facilities showed a similar pattern: low compliance of 17.3% at Level 2 community pharmacies and 33.3% at private not for profit, no compliance at FBO facility, moderate at Level 3 (56.2%), high at Level 4 (89.0%), lower at Level 5 (35.7%), and full compliance at Level 6 (100%).

Overall, while availability of storage areas was relatively high, compliance with minimum space standards was inconsistent, particularly at lower level facilities. This is corroborated by the qualitative data where participants reported poor state of storage space and infrastructure and inability to maintain cold chain risking quality and potency of the drugs:

“The installation, we have two main stores for the drugs. One which is just near the pharmacy and the other one a bit further. Though we have a challenge of space, it’s still not enough, yes, yes, yes, it’s still not enough. And we had a challenge with one of our stores having a leaking roof, of which we approached KEMSA. In reply that they would support us in repairing the roof.”

- (KII_Mombasa_HA_001_TR)

“The space is there but the infrastructure like the outpatient pharmacies is not. You remember when you visited it? The roof is asbestos and you see the asbestos are the ones causing cancer. So that one is something which is not even good for use. The inpatient pharmacy space is not big, it’s small. So we still need it. It is only the stock that is okay, the rest is small. We need a good stock and good dispensing areas.”

(KII_Hospital_Admin_Kiambu)

“The equipment are not enough, like the fridges. Some are broken down. We need extra. So we also need, if we require another extra pharmacy, we also need extra computers.”

- (KII_Hospital_Admin_Kiambu).

Participants raised concerns about the inadequacy of digital systems and lack of training. There is a critical lack of digital “soft infrastructure” (systems) necessary for core GPP functions. This deficit prevents crucial patient safety practices, such as pharmacovigilance, detailed monitoring of medical history, refill tracking, and inputting non-allergies and drug reactins.

“My biggest concern is on the soft infrastructure, the digital systems to actually follow up on things like pharmacovigilance and just following up on detailed monitoring of patients’ medical history, refill, drug reactions, and follow-up. Most of our systems, an example in my system, we do not have a system to actually input the patient’s history, diagnosis, non-allergies, drugs, and refill dates.”

- (FGD Rift velly 002_Non Pharms)

Availability of Well-defined and Adequate Quarantine Area by Facility Type and Level

Table 11: Availability of Adequate Quarantine Area

Availability of a Quarantine Area												
	Level 2				Level 3		Level 4		Level 5		Level 6	
Response	Public (n = 14)	Community Pharmacies (n = 291)	Private Not For Profit (n = 3)	FBO (n = 2)	Public (n = 42)	Private (n = 51)	Public (n = 78)	Private (n = 83)	Public (n = 20)	Private (n = 18)	Public (n = 2)	Private (n = 1)
Missing	14 (100.0%)	291 (100.0%)	3 (100.0%)	2 (100.0%)	42 (100.0%)	50 (98.0%)	4 (5.1%)	0 (0.0%)	0 (0.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	21 (26.9%)	27 (32.5%)	6 (30.0%)	3 (16.7%)	0 (0.0%)	0 (0.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	53 (67.9%)	56 (67.5%)	14 (70.0%)	14 (77.8%)	2 (100%)	1 (100%)
Meets GPP minimum (among those who gave size)	No response	No response	No response	No response	No response	No response	18/53 (34.0%) ≥ 15 sq m]	12/56 (21.4%) ≥ 15 sq m]	5/14 (35.7%) ≥ 15 sq m]	3/14 (21.4%) ≥ 15 sq m]	1/2 (50.0%) ≥ 15 sq m]	1/1 (100.0%) ≥ 15 sq m]

0No response was obtained from Level 2 and 3 pharmacies to the question on availability of a well - defined quarantine area. However, 67.9% (53) of public facilities and 67.5% (56) of private facilities reported having a quarantine area at Level 4.

Availability of quarantine area was higher at Level 5, with 70.0% (14) of public and 77.8% (14) of private facilities reporting the presence of a quarantine area. At Level 6, all facilities reported having a quarantine area (100% in public; 100% in private).

Regarding adequacy of space (minimum recommended size), compliance was generally low. Among public facilities with quarantine areas, only 34.0% at level 4, 35.7% at level 5 and 50% at level 6 met the minimum GPP size.

In private facilities, only 21.4% of the facilities at both level 4 and level 5 facilities met the required size. However, the Level 6 facility met the required size standard (100%).

Availability of Medicines and Poisons Information Area

Table 12: Availability of Adequate Medicine and Poisons Information Area

Availability of a Medicines and Poisons Information Centre											
	Level 2				Level 3		Level 4		Level 5		Level 6
Response	Public (n = 14)	Community Pharmacies (n = 291)	Private Not For Profit (n = 3)	FBO (n = 2)	Public (n = 42)	Private (n = 51)	Public (n = 78)	Private (n = 83)	Public (n = 20)	Private (n = 18)	Public (n = 2)
Missing	14 (100.0%)	291 (100.0%)	3 (100.0%)	2 (100.0%)	42 (100.0%)	50 (98.0%)	4 (5.1%)	0 (0.0%)	0 (0.0%)	1 (5.6%)	0 (0.0%)
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.0%)	58 (74.4%)	61 (73.5%)	15 (75.0%)	12 (66.7%)	2 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	16 (20.5%)	22 (26.5%)	5 (25.0%)	5 (27.8%)	0 (0.0%)
Meets GPP minimum (among those with information Centre)	No response	No response	No response	No response	No response	No response	No response	1/22 (4.5%) [≥ 75 sq m]	3/5 (60.0%) [≥ 28 sq m]	0/5 (0.0%) [≥ 28 sq m]	No response

Pharmacies at levels 2 to 3 did not report availability of areas for medicines and poisons in both sectors. At Level 4 facilities, availability of a medicines and poisons information area was generally low. Among public facilities, only 20.5% (16) reported having one while 74.4% (58) reported not having the area. Similarly, in private Level 4 facilities, 26.5% (22) reported availability and 73.5% (61) did not have the area. At Level 5, Only 25.0% (5) of public and 27.8% (5) of private facilities reported having a medicines and poisons information area. At Level 6, all public facilities 100% (2) reported having the area, while none of the private facilities had a medicines and poisons area .

Assessment of compliance with Good Pharmacy Practice (GPP) minimum space requirements for medicines and poisons information area revealed very low adherence. Among public Level 4 facilities with the area, none (0/16; 0.0%) met the ≥75 sq ft requirement. At Level 5, 60.0% (3/5) of public facilities met the ≥28 sq m threshold, while none of the level 6 facilities met the ≥42 sq m requirement. In private facilities, compliance was minimal. Only 4.5% (1/22) of Level 4 facilities met the ≥75 sq ft requirement, and none (0/5; 0.0%) of Level 5 facilities met the ≥28 sq m threshold. Overall, the findings indicate limited availability of medicines and poisons information areas across facilities, with particularly low compliance to minimum GPP space standards in both public and private sectors.

Key Observations regarding Infrastructure

These findings showed high availability of basic infrastructure, but of uneven quality. Most facilities reported availability of space (waiting areas, dispensing areas, storage) across both public and private sectors. However, this does not equate to adequacy, as many spaces failed to meet the required Good Pharmacy Practice minimum standards with private facilities consistently having lower compliance compared to public facilities. Higher level facilities (especially Level 6) often had zero compliance despite having the required infrastructure.

The qualitative data corroborated quantitative findings regarding the availability of physical rooms for pharmacies. Some pharmacies demonstrate strong safety standards including burglar-proof doors and fire extinguishers.

“I’ve been to some drug stores and in terms of security, a good number have burglar-proof doors... In terms of firefighting, we have either a fire extinguisher or innovations in terms of a sand bucket just around the storage area.”

- (FGD Western 001_Non-Pharms).

The findings also showed variation by level of care across the both public and private facilities. Some improvements were noted in infrastructure (e.g., storage, counselling areas) with increasing level of care in public sector. However, compliance did not consistently improve with level, and worsened in some instances at higher levels. The patterns were less consistent in private sector, especially at lower levels and across facility types (FBO, community pharmacies, PNFP).

Limited availability of counselling/consultation areas was observed especially in at lower level public facilities (e.g., ~21% at Level 2) which improved at higher levels while the private facilities showed moderate but inconsistent availability. This indicates potential gaps in patient-centered pharmaceutical care.

This was corroborated by the qualitative data where respondents reported that physical infrastructure capacity remains insufficient to support operational needs. Even in those with spacious rooms, respondents highlighted shortage of space or room for pharmaceutical care such as the absence of private consultation or counselling rooms. The widespread use of “window-style” dispensing prevents private conversations and compromises confidentiality, and limits the pharmacist’s ability to provide Good Pharmacy Practice expectations:

“Well, in terms of infrastructure, you will find for pharmacists, when you are dispensing the drugs, there is no patient confidentiality. Most of the times, you find it on a window. You are dispensing a drug to a patient, and everybody else is a patient or whoever they need it in. So, if pharmacists could have a specific type of infrastructure on how it should be. Yeah. To be also included an area for privacy, a patient to be called and explained without feeling either discriminated or everyone will hear about the secret.”

- (KII_Lamu_HP_004_TR)

Participants also raised concerns on the current physical layout and the location are misaligned with patient-centered GPP care. The fact that the “pharmacy room should be near to the patient, but most of the pharmacy it’s not patient-reachable” confirms that infrastructure acts as a direct barrier to achieving accessibility and effective counseling standards.

Lack of privacy was reported to interfere with patient management. Some other respondents reported limited pharmacy rooms, especially in the inpatient pharmacies. Speaking on limited pharmacy space, a key informant in Kiambu explained:

“[...] the inpatient pharmacy space is not big, it’s small. So we still need it. It is only the stock that is okay, the rest is small. We need a good stock and good dispensing areas.”

- (KII_Hospital_Admin_Kiambu).

The storage capacity and quarantine areas improved with level but compliance varied with improvement at mid to high levels (notably Level 4 and Level 6), but remained low at lower levels, especially in private facilities.

There were major gaps in medicines and poisons information areas with very limited availability across both sectors, especially at Levels 2–4 however compliance with GPP standards was extremely low or nonexistent. This represents a critical gap in access to drug information services.

While health facilities reported that they have space to store drugs at the right temperatures, participants reported inability to store drugs as required due to harsh weather conditions and erratic power supplies which could interfere with the potency of the drugs:

“Other issues like storage again in Turkana County, apart from the harsh weather conditions, at times we will have erratic power supplies on and off and that will affect drugs that are refrigerated like the insulins and vaccines. That will interfere with the quality of these medicines.”

- (FGD Rift valley 002_Non-Pharms)

On the maintenance or improvement of the pharmacy space, participants reported the absence of a clear regulatory standard for pharmacy layout within hospitals. Concerns were raised on the current physical layout and the location are misaligned with patient-centered GPP care. The fact that the “pharmacy room should be near to the patient, but most of the pharmacy it’s not patient-reachable” confirms that infrastructure acts as a direct barrier to achieving accessibility and effective counseling standards. They specifically call for mandated designs that enable patient seating, structured workflow, and proper pharmaceutical care:

“Now can regulatory body come up with, you know if it comes from them it will be implemented. Like open the pharmacy within the hospital should come up with this design where a patient gets space to sit and a pharmacist to give pharmaceutical care. It will be so good.”

- (KII_Kisumu_HP_ 005_T4R).

Participants confirm the availability of equipment and utilities, including refrigerators, icebags, thermometers, generators, Acs, and power back-ups. Some refrigerators were operating at maximum. Participants also confirm having reliable backup systems to protect cold chain integrity during power outages. This includes generator backup and procedural steps like activating and placing ice packs from deep freezers into fridges immediately upon a blackout:

“Our refrigerators, our fridges, um, they are, they are up to date. We normally ensure they are maintained well. We have enough of them. So, in terms of cold chain management, we are okay. Mm-hmm. And whenever there’s a blackout, the fridges, the deep fridges, each of the, uh, uh, ice packs, normally are activated. They are just removed on place, on the other side, and the blackout. We also have a generator backup.”

- (KII_Baringo_ HA_ 004_TR)

Participants reported that facilities demonstrated a high level of process adherence by regularly measuring and recording temperatures daily. Specific tools like thermometers and temperature charts are utilized, allowing staff to easily detect when temperatures are “not okay” and raise an alarm, explained by a key informant in Garissa:

“They have a system. That’s why I was saying we have several sub-stores. So that at least they ensure that the drugs cannot be heated by the hot sun. The drugs which are supposed to be under the fridge, they are put in the fridge, and the temperature is monitored by the fridge. I think they have categorized in the pharmacy system.”

- (KII_Hospital Admin_Garissa)

Despite general adequacy, participants also reported a shortage of essential ICT for close patients monitoring. Specific assets like fridges are “broken down,” and some facilities explicitly state they “need extra” equipment, reported a key informant in Kiambu:

“My biggest concern is on the soft infrastructure, the digital systems to actually follow up on things like pharmacovigilance and just following up on detail monitoring of patients’ medical history, refill, drug reactions, and follow-up. Most of our systems, an example in my system, we do not have a system to actually input the patient’s history, diagnosis, non-allergies, drugs, and refill dates.”

– (FGD Rift valley 002_Non Pharms)

“The equipment are not enough, like the fridges. Some are broken down. We need extra. So we also need, if we require another extra pharmacy, we also need extra computers.”

– (KII_Hospital_Admin_Kiambu)

The quality of pharmaceutical systems remains inconsistent, with certain regions failing to meet even basic operational standards. For instance, Turkana County infrastructure faces power and digital deficits. The region struggles with chronic and erratic power outages compounded by a total lack of reliable backup systems. Furthermore, it lacks a digital system to track patients on refills and monitor adverse drug reactions, affecting comprehensive pharmaceutical care and patient management. This creates significant gaps in pharmacovigilance:

“You will find that maybe some of these patients, once they leave, they will fail to return for refills and even monitoring. Other issues like storage again in Turkana County, apart from the harsh weather conditions, at times we will have erratic power supplies on and off and that will affect drugs that are refrigerated like the insulins and vaccines.”

– (FGD Rift Valley 002_Non Pharms).

There is a strong and active digitalization momentum across government hospitals, with facilities (e.g., in Kirinyaga) reporting a definitive move towards digital record keeping, health informatics, and electronic inventory management. This shift is seen as a necessary modernization to move beyond manual, error-prone processes:

“I know Kenya we are moving towards digitalizing the entire practice in the government hospitals. I know Kirinyaga, all facilities have moved towards digital record keeping, and that opens something like health informatics. So we have a wide range of scope which we can utilize and move away from what we are calling the one times two guys.”

– (FGD 1_Cental region_pharmacist and pharmtechs)

While the Health Management Information System (HMIS) is applauded for its capacity to monitor drug availability and expiry, participants highlighted inconsistencies in its actual implementation. There is a lack of uniformity in access and usage of HMIS. Some health facilities run a parallel fully automated inventory system (e.g., facility HMIS alongside pharmacy specific software), a unified approach to patient and stock management, and others remain entirely reliant on a manual system.

There is a notable uneven ground; some facilities have trained personnel and strong internet connectivity to implement HMIS, while others, like Turkana, lack stable connectivity or trained personnel. Such uneven resources undermine technology and automation. The uneven ground is exemplified in the excerpts below:

A participant representing those who have successfully implemented HMIS noted:

"In our facility, I've noted a good practice by our pharmacist, that is we are purely using the HMIS system whereby a clinician is actually given options, and you'll be able to see which drugs are available in the facility. So that you choose, you prescribe what is available and this one helps our clients actually to get the drugs that are available in the facility."

- (FGD Rift valley 002_Non Pharms).

A participant in Baringo Country, representing those who have not but in anticipation, shared:

"I don't have it, but others do have that inventory management system. That is electronic. So, when you go to the hospital, it doesn't have. So, there's a training next week. We are even taking our pharmacist, our pharmtech, to go and, uh, to do the training."

- (KII_Baringo_ HA_ 004_TR).

A manual user, but waiting in Mombasa, reported:

"At the moment, we are using a manual system. We are still waiting for it. We are told there is a TAIFA care coming. Yes, we are still waiting for that. It will be the automated system that will support, yeah. But at the moment, it's just manual."

- (KII_Mombasa_ HA_ 001_TR)

The transition is also hampered by foundational limitations, including a need for upgraded ICT infrastructure (slow and outdated hardware) and explicit reports of insufficient computers and other essential ICT tools necessary to fully leverage automation.

While some participants applaud and advocate for a centralized HMIS, others propose parallel systems, the HMIS and institutional system:

"But still, you must have your own institutional way to account for the drugs, track availability of drugs, and to know the short expiry drugs and all these issues about the pharmacy",

noted a key informant in Garissa.

The rapid adoption of new models (telepharmacy, online prescribing) has outpaced the regulatory framework. Pharmacists express an urgent need for the PPB to provide clear standards, guidelines, and necessary training to govern and standardize these virtual practices, ensuring they are delivered safely and effectively:

"We need to have more advanced, not only this system alone, in terms of even when drugs are coming from the main supplier. Everybody will know that this drug is coming. And it has come. And they can even relocate the drug very fast and see that this drug is not efficient so that you know, somebody can, if you have a system, you can adapt a lot of things. And even you will identify very quick. It makes decision-making very fast."

- (KII_Hospital Admin_Garissa)

Another key informant added:

"Also moving into electronic recording, that book where you balance your math electronically. You can also save us. Ordering online, maybe where you integrate a point-of-sale system in your community pharmacy or even in the hospital. If we embrace the digital space in pharmacy, it's going to be mind-blowing."

-(KII_Kwale_CP_ 004)

General Pharmacy Performance

This section presents a comparative analysis of General Pharmacy performance across Levels 2 to 6 facilities. The findings demonstrated progressive strengthening of systems, compliance, and institutional capacity as facility level increased.

Waste Segregation – Availability of Bins (% Yes)

Table 13: Availability of bins

Level	Public (%)	Private (%)
Level 2	85.7	59.8
Level 3	83.3	94.1
Level 4	82.1	89.2
Level 5	95.0	88.9
Level 6	100.0	100.0

Waste Segregation Compliance (% Items Met)

Table 14: Compliance to waste segregation

Level	Public (%)	Private (%)
Level 2	58.3	44.6
Level 3	57.1	56.2
Level 4	56.2	60.8
Level 5	63.2	56.2
Level 6	100.0	0.0*

*Did not have all the bins (the facility had only black and yellow bins)

Overall, 74.1% of facilities reported availability of waste segregation bins. However, full compliance with recommended bin types rarely exceeded 60–65%, indicating partial implementation of standards.

Medical Waste Disposal Compliance (% Items Met)

Table 15: Compliance to medical waste disposal

Level	Public (%)	Private (%)
Level 2	21.4	20.3
Level 3	21.4	23.5
Level 4	25.6	25.3
Level 5	30.0	27.8
Level 6	100.0	100.0

Compliance with medical waste disposal standards remained low across facility levels. In level 6 facilities, incineration is the main method of waste disposal making it safe to dispose medical waste. However, unsafe practices such as open burning and sewage dilution were still reported in lower health facilities.

Waste Management Documentation Compliance (% Items Met)

Table 16: Compliance to waste management documentation

Level	Public (%)	Private (%)
Level 2	28.6	32.1
Level 3	42.9	47.1
Level 4	47.4	48.2
Level 5	65.0	55.6
Level 6	100.0	0.0

Documentation completeness improved with facility level and emerged as a proxy indicator of governance maturity.

Standard Prescription Format (% Yes)

Table 17: Type of standard prescription format

Prescription Format	Level 2		Level 3		Level 4		Level 5		Level 6	
	Private (N=111)	Public (N=12)	Private (N=45)	Public (N=24)	Private (N=76)	Public (N=71)	Private (N=16)	Public (N=16)	Private (N=1)	Public (N=2)
Both	27 (24.3%)	2 (16.7%)	22 (48.2%)	5 (20.8%)	43 (56.6%)	31 (43.7%)	12 (75.0%)	7 (43.8%)	1 (100%)	2 (100%)
Electronic	18 (16.2%)	0 (0%)	11 (24.4%)	0 (0.0%)	26 (34.2%)	7 (9.9%)	4 (25.0%)	4 (25.0%)	0 (0.0%)	0 (0.0%)
Manual	66 (59.5%)	10 (83.3%)	12 (26.7%)	19 (79.2%)	7 (9.2%)	33 (46.5%)	0 (0%)	5 (31.3%)	0 (0.0%)	0 (0.0%)

Health systems are in transition from paper-based to digital prescribing. Facility level and ownership strongly influence adoption, with: Higher level and private facilities leading digital uptake and lower level facilities lagging behind. The persistence of hybrid systems suggests structural and operational barriers to full digitization and not just access.

Dispensing Compliance (% Items Met)

Table 18: Dispensing compliance

Level	Public (%)	Private (%)
Level 2	50.0	49.3
Level 3	57.1	66.7
Level 4	73.1	74.7
Level 5	60.0	72.2
Level 6	50.0	100.0

The overall pattern shows that private facilities generally outperform public facilities at most levels. In addition, performance improves with level (from Level 2 → Level 4), then becomes more variable at higher levels. Private facilities show more consistent and often higher performance across levels. Public facilities improve up to Level 4 but decline at higher levels. Both sectors peak around Level 4. Level 6 results (especially 100% private) may not be reliable due to small numbers (one facility). There is a clear advantage for private facilities, particularly from Level 3 upwards, though differences are minimal at Level 2 and Level 4. Strengthening performance in public Level 5 and 6 facilities could significantly reduce this gap.

Staff Trained in Vaccination Services (% Yes)

Table 19: Staff trained in vaccination services

Level	Public (%)	Private (%)
Level 2	7.1	7.8
Level 3	16.7	5.9
Level 4	7.7	15.7
Level 5	10.0	22.2
Level 6	0.0	100.0

Across Levels 2–5, more than 80% of facilities reported that staff were not trained in vaccination services, highlighting a significant service readiness gap.

Availability of Vaccines / Immunoglobulins by Facility Level

Table 20: Availability of vaccines / immunoglobulins by level of facility

Vaccines/ immunoglobulins (among facilities providing vaccination services)	Level 3		Level 4		Level 5		Level 6	
	Public n=42	Private n=51	Public n=78	Private n=83	Public n=20	Private n=18	Public n=2	Private n=1
BCG	18 (100.0%)	11 (73.3%)	33 (91.7%)	29 (82.9%)	5 (83.3%)	11 (100.0%)	2 (100.0%)	1 (100.0%)
Polio	18 (100.0%)	10 (66.7%)	33 (91.7%)	28 (80.0%)	5 (83.3%)	11 (100.0%)	2 (100.0%)	1 (100.0%)
Chicken pox	7 (38.9%)	2 (13.3%)	17 (47.2%)	12 (34.3%)	3 (50.0%)	5 (45.5%)	1 (50.0%)	0 (0.0%)
DPT	16 (88.9%)	9 (60.0%)	29 (80.6%)	20 (57.1%)	3 (50.0%)	10 (90.9%)	2 (100.0%)	0 (0.0%)
Pneumococcal	7 (38.9%)	6 (40.0%)	20 (55.6%)	17 (48.6%)	2 (33.3%)	9 (81.8%)	2 (100.0%)	1 (100.0%)
Hepatitis B	7 (38.9%)	8 (53.3%)	25 (69.4%)	29 (82.9%)	3 (50.0%)	11 (100.0%)	1 (50.0%)	1 (100.0%)
Rota virus	13 (72.2%)	9 (60.0%)	25 (69.4%)	17 (48.6%)	3 (50.0%)	9 (81.8%)	2 (100.0%)	1 (100.0%)
Influenza	4 (22.2%)	6 (40.0%)	22 (61.1%)	18 (51.4%)	4 (66.7%)	7 (63.6%)	1 (50.0%)	1 (100.0%)
Rabies & anti- rabies Ig	11 (61.1%)	13 (86.7%)	31 (86.1%)	26 (74.3%)	6 (100.0%)	11 (100.0%)	2 (100.0%)	1 (100.0%)
Snakebite antivenom	8 (44.4%)	4 (26.7%)	27 (75.0%)	17 (48.6%)	6 (100.0%)	8 (72.7%)	2 (100.0%)	0 (0.0%)
Tetanus toxoid	16 (88.9%)	13 (86.7%)	32 (88.9%)	31 (88.6%)	6 (100.0%)	11 (100.0%)	2 (100.0%)	1 (100.0%)
Tetanus anti-toxin (TAT)	7 (38.9%)	5 (33.3%)	13 (36.1%)	6 (17.1%)	4 (66.7%)	3 (27.3%)	1 (50.0%)	0 (0.0%)
Measles	16 (88.9%)	7 (46.7%)	30 (83.3%)	24 (68.6%)	3 (50.0%)	11 (100.0%)	2 (100.0%)	1 (100.0%)
Malaria	3 (16.7%)	4 (26.7%)	8 (22.2%)	7 (20.0%)	4 (66.7%)	4 (36.4%)	0 (0.0%)	0 (0.0%)
Human papilloma vaccine	9 (50.0%)	6 (40.0%)	24 (66.7%)	18 (51.4%)	0 (0.0%)	6 (54.5%)	2 (100.0%)	0 (0.0%)
Other (specified)	0 (0.0%)	1 (6.7%)	0 (0.0%)	2 (5.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
% items met	10 (55.6%)	7 (46.7%)	23 (63.9%)	18 (51.4%)	4 (66.7%)	8 (72.7%)	2 (100.0%)	1 (100.0%)

Availability of vaccines improves as facility level increases. Level 5 and level 6 facilities show the strongest coverage across items. Level 2 and level 3 facilities demonstrate more variability, especially in private facilities. BCG, Polio, tetanus toxoid, rabies and anti-rabies immunoglobulin and measles are widely available across most levels

Disease Control & Prevention Compliance (% Items Met)

Table 21: Disease control and prevention compliance

Level	Public (%)	Private (%)
Level 2	71.4	79.1
Level 3	81.0	88.2
Level 4	89.7	96.4
Level 5	85.0	94.4
Level 6	100.0	100.0

Environmental and infection prevention measures demonstrated strong performance, particularly at higher level facilities in both private and public facilities.

Training & Research Engagement (% Yes)

Table 22: Training and research engagement

Level	Public (%)	Private (%)
Level 2	0.0	1.7
Level 3	0.0	3.9
Level 4	47.4	34.9
Level 5	85.0	55.6
Level 6	100.0	100.0

Training and research engagement was concentrated in higher level facilities, though research dissemination remained limited.

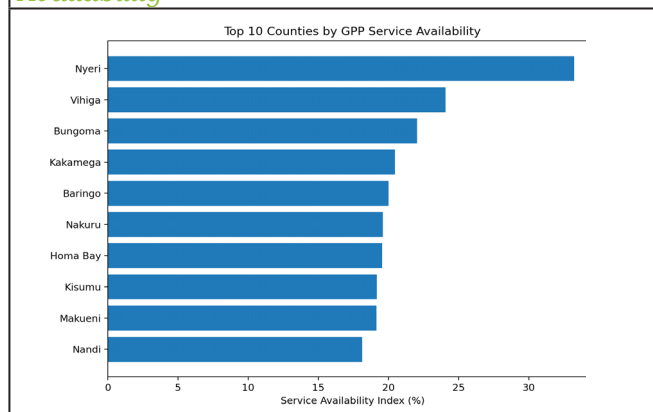
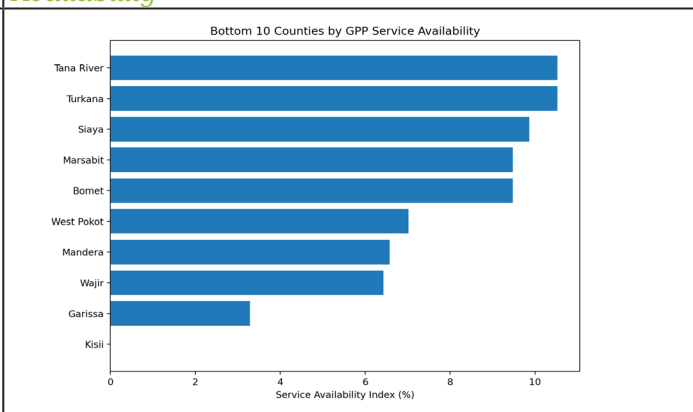
Overall Interpretation on general pharmacy performance

The assessment demonstrated a clear performance gradient across facility levels. Higher level facilities consistently exhibited stronger infrastructure, governance systems, documentation, and service capacity. However, systemic weaknesses persisted across all levels, particularly in medical waste disposal compliance, vaccination staff training, advanced regulatory documentation, and research dissemination.

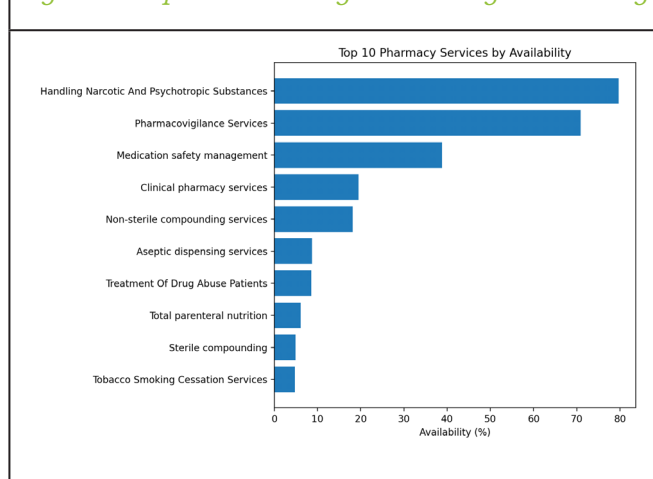
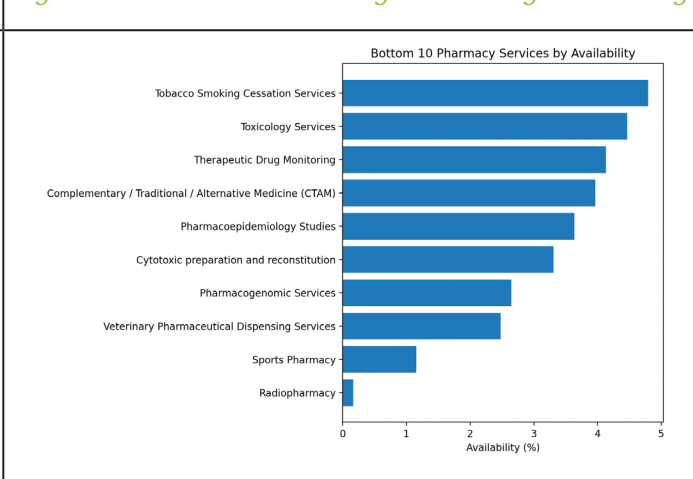
TASK ANALYSIS

Overview of Pharmacy Service Delivery

The assessment examined the range of pharmaceutical and clinical services provided across community pharmacies and health facility pharmacies in participating counties. Overall, the findings indicate that pharmacies continue to serve as an important first point of care for a wide range of health needs, providing both medicines dispensing and several clinical and advisory services. However, the availability and consistency of these services varied across counties and facility ownership categories. Nyeri, Vihiga and Bungoma were among the top counties with regard to availability of GPP services while Wajir, Garissa and Kisii were the least counties in terms of availability of GPP services. See attached, detailed tables (Annex 1).

Figure 2: Top 10 Counties by GPP Service Availability*Figure 3: Bottom 10 Counties by GPP Service Availability*

The most commonly reported services across pharmacies included medication dispensing, patient counselling, treatment of minor ailments, and referral to higher levels of care. These services were consistently reported across most pharmacy outlets, reflecting their central role in routine pharmaceutical care and primary health service delivery. While the top 3 most commonly available pharmacy services were Handling narcotic and psychotropic substances, pharmacovigilance and medication safety management. The least available 3 pharmacy services were veterinary pharmaceutical dispensing, sports pharmacy and radio pharmacy services.

Figure 4: Top 10 Pharmacy Services by Availability*Figure 5: Bottom 10 Pharmacy Services by Availability*

Pharmaceutical Services

Dispensing of prescription and over the counter medicines remained the core service provided by nearly all pharmacies assessed. In addition to dispensing, many pharmacies reported providing counselling on medication use, dosage, side effects, and adherence. Pharmacists and pharmaceutical technologists also reported offering guidance on drug interactions and safe medicine use, particularly for clients with chronic conditions.

Compounding services were less frequently reported, particularly non-sterile compounding. The tables indicate that this service is available in only a limited proportion of facilities, suggesting that compounding capacity remains concentrated in a small number of pharmacies with specialized equipment and trained personnel.

Clinical and Preventive Health Services

A number of pharmacies reported offering additional clinical services that extend beyond traditional dispensing functions. These services included screening for common conditions such as hypertension, diabetes, and malaria. In several counties, pharmacies also reported providing health promotion and preventive services, including counselling on reproductive health, family planning, and disease prevention.

Public Health Services

The assessment also identified pharmacies that contribute to broader public health activities, including health education and referral for specialized services. Pharmacists frequently serve as an accessible source of health information and are often consulted by clients before seeking care at hospitals or clinics.

In several counties, pharmacies reported referring clients for diagnostic testing, specialized treatment, or emergency care. This referral function underscores the important role pharmacies play in linking communities with the broader health system.

Variations by Ownership and Facility Level

Service availability varied by ownership category and level of facility. Pharmacies operating within larger health facilities or hospital settings tended to offer a wider range of services, including more advanced pharmaceutical services and clinical screening. Community pharmacies, particularly privately owned outlets, primarily focused on dispensing, counselling, and treatment of minor ailments.

Facilities operated by faith-based or Non-Governmental Organizations showed mixed patterns of service provision, often influenced by available infrastructure, staffing levels, and local health priorities.

Service Delivery in Pharmacy Practice

The assessment examined the availability of specialized pharmaceutical services across multiple counties and facility levels. The findings reveal considerable variation in service availability, with advanced clinical pharmacy services concentrated primarily in higher level facilities, while several specialized services were rarely available across the assessed sites.

Compounding Services

Non-sterile compounding services were generally limited across all facility levels. The majority of facilities reported not providing non-sterile compounding services, ranging from 50.0% of Level 5 facilities to 86.6% of community pharmacies. Service availability was lowest in community pharmacies (13.4%) and public Level 2 facilities (14.3%), but increased slightly in higher level facilities, reaching 21.1% in Level 4 facilities, 50.0% in Level 5 facilities, and 66.7% in Level 6 facilities.

Among facilities that reported offering non-sterile compounding services, verification of service requirements was generally good. Compliance ranged from 50.0% in public Level 2 facilities to 100.0% in Level 6 facilities, with verification rates above 70% in Levels 4, 5, and 6 facilities. This suggests that although non-sterile compounding services are not widely available, facilities that provide them generally maintain acceptable standards.

Sterile compounding services were rare and largely concentrated in higher level health facilities. Community pharmacies and public Level 2 facilities did not provide information on sterile compounding services, with 100% recorded as no response. Among facilities that responded, only 7.5% of Level 3 facilities, 9.3% of Level 4 facilities, 18.4% of Level 5 facilities, and 33.3% of Level 6 facilities reported offering sterile compounding services.

Verification of sterile compounding standards among facilities providing the service was moderate to high. Compliance increased with facility level, from 57.1% in Level 3 facilities and 60.0% in Level 4 facilities to 71.4% in Level 5 facilities and 100.0% in Level 6 facilities. These findings indicate that sterile compounding services remain highly specialized and are primarily available in higher level facilities, where adherence to quality standards is generally stronger.

Both non-sterile and sterile compounding services were uncommon across the health system, with sterile compounding being particularly limited and largely restricted to higher level hospitals. However, facilities that offered these services generally demonstrated moderate to high compliance with verification standards, suggesting that service quality is maintained where compounding services are available.

Aseptic Dispensing and Clinical Preparation Services

Aseptic dispensing services were available only in higher level health facilities and were absent in lower level facilities and pharmacies. All Level 2 facilities, community pharmacies, public Level 2 facilities, and nearly all Level 3 facilities recorded no response regarding the service, indicating that aseptic dispensing is generally not offered at these levels.

Among facilities that provided information, 23.6% of Level 4 facilities, 34.2% of Level 5 facilities, and 66.7% of Level 6 facilities reported offering aseptic dispensing services. The majority of Level 4 and Level 5 facilities, however, did not provide the service, with 76.4% and 65.8%, respectively, reporting its absence.

Verification of quality standards among facilities offering aseptic dispensing services was relatively high. Compliance rates were 78.9% in Level 4 facilities and 84.6% in Level 5 facilities, indicating strong adherence to required standards where the service was available. Although two-thirds of Level 6 facilities reported providing aseptic dispensing services, only 50.0% of the verification criteria were met.

Aseptic dispensing services are highly specialized and largely confined to higher level hospitals, particularly Levels 4, 5, and 6. Availability increases with facility level, reflecting the greater infrastructure and technical capacity required to provide such services. Among facilities offering aseptic dispensing, compliance with verification standards was generally good, particularly in Levels 4 and 5 facilities, suggesting that quality is maintained where the service exists. However, the limited availability of the service highlights significant gaps in access at lower levels of care.

Clinical Pharmacy Services

Clinical pharmacy services were primarily available in higher level health facilities and were largely absent from community pharmacies and lower level facilities. All community pharmacies and public Level 2 facilities recorded no response regarding the service, while 92.5% of Level 3 facilities also did not provide information on its availability.

Among facilities that responded, the availability of clinical pharmacy services increased with facility level. Only 4.3% of Level 3 facilities reported offering clinical pharmacy services, compared with 51.6% of Level 4 facilities, 73.7% of Level 5 facilities, and 100% of Level 6 facilities. Nearly half (48.4%) of Level 4 facilities and about one-quarter (26.3%) of Level 5 facilities reported not providing the service.

Verification of service requirements among facilities offering clinical pharmacy services was generally strong. Compliance with verification criteria was 50.0% in Level 3 facilities, 77.1% in Level 4 facilities, and 85.7% in Level 5 facilities, indicating good adherence to standards where services were available. Although all Level 6 facilities reported offering clinical pharmacy services, only 66.7% of verification items were met.

Clinical pharmacy services are concentrated in higher level hospitals, with availability increasing substantially from Level 4 through Level 6 facilities. The service is uncommon in lower level facilities and community pharmacies. Among facilities providing clinical pharmacy services, adherence to verification standards was generally high, particularly in Levels 4 and 5 facilities, suggesting that service quality is maintained where clinical pharmacy practice has been established.

Therapeutic Drug Monitoring

Therapeutic drug monitoring (TDM) services showed relatively strong availability in higher level facilities, with multiple facilities reporting 100% availability. This suggests that laboratory and clinical infrastructure required for TDM is present in referral facilities.

However, lower level facilities generally lacked the capacity to provide such services, reflecting limitations in laboratory infrastructure and specialist expertise.

Pharmacogenomics and Toxicology Services

Pharmacogenomic services were largely unavailable across all categories of health facilities and pharmacies. Community pharmacies, public Level 2 facilities, and most Level 3 facilities did not provide information on the availability of these services, with 93.1% of community pharmacies, 100% of public Level 2 facilities, and 92.5% of Level 3 facilities recording no response.

Among facilities that reported on service availability, pharmacogenomic services were offered by only 6.8% of Level 4 facilities (11 of 161) and 13.2% of Level 5 facilities (5 of 38). No Level 6 facilities reported providing pharmacogenomic services. The overwhelming majority of facilities reported not offering the service, including 93.2% of Level 4 facilities, 86.8% of Level 5 facilities, and 100% of Level 6 facilities.

Among facilities that provided pharmacogenomic services, compliance with verification standards was relatively high. 72.7% of verification items were met among Level 4 facilities offering the service, while 80.0% were met among Level 5 facilities. No verification assessment was applicable in other facility categories because the service was either absent or not reported.

Pharmacogenomic services are extremely limited within the health system and are available only in a small proportion of Level 4 and Level 5 facilities. The absence of these services in lower level facilities, community pharmacies, and Level 6 facilities highlights the highly specialized nature of pharmacogenomics and its limited integration into routine pharmaceutical care. However, facilities that provide these services demonstrate relatively strong compliance with verification requirements, suggesting that quality standards are generally maintained where the service exists.

Toxicology services were uncommon across the surveyed facilities and were largely absent from lower level facilities and pharmacies. Among facilities that reported on service availability, toxicology services were available in only 0.3% of community pharmacies (1 facility), 9.3% of Level 4 facilities (15 facilities), and 28.9% of Level 5 facilities (11 facilities). No Level 6 facilities reported offering toxicology services. The majority of facilities reported not providing the service, including 90.7% of Level 4 facilities, 71.1% of Level 5 facilities, and 100% of Level 6 facilities.

Toxicology services are limited within the health system and are primarily concentrated in higher level hospitals, particularly Level 4 and Level 5 facilities.

Availability remains low even at these levels, and the service is virtually absent in community pharmacies, lower level facilities, and Level 6 facilities. However, facilities that provide toxicology services generally demonstrate good compliance with verification requirements, especially at Level 5, indicating stronger service quality where toxicology services are established.

Pharmacovigilance and Drug Safety Monitoring

The availability of pharmacovigilance services varied across the different facility categories but was generally high in most settings (see Annex 1).

Only 40.0% of level 2 FBO/NGO facilities reported offering pharmacovigilance services, making it the lowest-performing category. Service availability increased to 58.8% at community pharmacies and 57.1% level 2 public facilities, respectively.

Higher levels of implementation were observed in the remaining facility categories, with 79.6% (level 3), 83.9% (level 4), and 97.4% (level 5) reporting provision of pharmacovigilance services.

The highest level of service availability was observed at Level 5 facilities, where nearly all facilities (97.4%) offered pharmacovigilance services.

Among facilities that reported providing pharmacovigilance services, verification of the required standards showed moderate to high compliance: Verification rates ranged from 59.0% in community pharmacies and 100.0% at level 6 facilities.

Compliance was relatively strong in the higher level facility, with verification rates of 74.3% (level 3), 77.0% (level 4), and 78.4% (level 5).

Overall, facilities that provided pharmacovigilance services generally demonstrated good adherence to verification requirements, although some categories showed room for improvement.

The findings suggest that pharmacovigilance services are widely available in most facilities, particularly in higher level facilities, with generally good compliance to verification standards. However, lower availability and weaker verification performance in some facility categories indicate opportunities to strengthen pharmacovigilance systems and ensure consistent quality across all levels of healthcare service delivery.

Substance Abuse and Tobacco Cessation Services

Service availability was relatively low across all facility levels, with only 7.5% of Level 3 facilities, 10.6% of Level 4 facilities, 10.5% of Level 5 facilities, and 33.3% of Level 6 facilities reporting provision of tobacco smoking cessation services.

Among facilities offering tobacco smoking cessation services, compliance with verification standards was generally good. Verification rates were 71.4% among Level 3 facilities, 64.7% among Level 4 facilities, and 100% among both Level 5 and Level 6 facilities providing the service.

Tobacco smoking cessation services are limited across the health system and are offered by only a small proportion of facilities, even at higher levels of care. The service is largely absent in lower level facilities and community pharmacies. However, facilities that provide tobacco smoking cessation services generally demonstrate good compliance with verification requirements, with particularly strong adherence observed in Level 5 and Level 6 facilities. These findings suggest opportunities to expand the availability of smoking cessation services as part of broader preventive and public health interventions.

Complementary, Traditional and Alternative Medicine (CTAM) Services

Availability of CTAM services was low across the health system. Only 5.2% of community pharmacies, 3.2% of Level 3 facilities, 2.5% of Level 4 facilities, and 5.3% of Level 5 facilities reported offering CTAM services. No public Level 2 or Level 6 facilities reported providing these services.

Among facilities that offered CTAM services, compliance with verification standards was modest. Verification rates were 40.0% among community pharmacies, 66.7% among Level 3 facilities, 50.0% among Level 4 facilities, and 50.0% among Level 5 facilities. No verification assessment was applicable for public Level 2 or Level 6 facilities because the service was not offered.

CTAM services are minimally integrated into mainstream pharmaceutical and healthcare practice, with fewer than 6% of facilities in any category reporting provision of such services. Availability is particularly limited in public and higher level facilities, where no Level 6 or public Level 2 facilities reported offering CTAM services. Among the few facilities that provide CTAM services, adherence to verification requirements is variable, indicating a need for stronger standards, regulation, and oversight where these services are offered.

Veterinary Pharmaceutical Services

Veterinary pharmaceutical dispensing services were almost entirely absent across the surveyed facilities. All Level 2 facilities, public Level 2 facilities, and all higher level health facilities (Levels 3, 4, 5, and 6) either reported not providing the service or did not provide any information regarding its availability.

Among the facility categories that responded, only 5.2% of community pharmacies (15 facilities) reported offering veterinary pharmaceutical dispensing services, while 94.8% reported that they did not provide the service. No public Level 2 facilities reported offering veterinary pharmaceutical services. Furthermore, all Level 3, Level 4, Level 5, and Level 6 facilities recorded 100% no response, suggesting that veterinary pharmaceutical dispensing is not considered part of their routine service package or was outside the scope of their operations.

Among the community pharmacies that reported providing veterinary pharmaceutical dispensing services, 86.7% met the verification requirements, indicating a high level of compliance with the assessed standards.

Veterinary pharmaceutical dispensing services are highly limited within the surveyed healthcare system and are offered almost exclusively by a small proportion of community pharmacies. The absence of these services in public facilities and higher level hospitals reflects the separation between human and veterinary healthcare service delivery. However, the high verification rate among the few community pharmacies providing these services suggests that quality standards are generally well maintained where veterinary pharmaceutical dispensing is available.

KEY FINDINGS – OVERVIEW OF PHARMACY SERVICE DELIVERY

The assessment demonstrates that pharmacies play a critical role as accessible first points of care, providing medicines, health information, clinical screening, counselling, and referral services. However, the availability of Good Pharmacy Practice (GPP) services varies considerably by county, facility level, and ownership category. Nyeri, Vihiga, and Bungoma emerged as the best-performing counties in terms of GPP service availability, while Wajir, Garissa, and Kisii recorded the lowest levels of service availability.

1. Core Pharmacy Services are Widely Available

- Medication dispensing, patient counselling, treatment of minor ailments, and referral services were the most consistently available services across pharmacies.
- Pharmacists and pharmaceutical technologists routinely provided medication adherence support, dosage counselling, and advice on drug interactions, particularly for patients with chronic illnesses.
- Handling of narcotic and psychotropic substances, pharmacovigilance, and medication safety management were among the most widely available specialized pharmacy services.

2. Advanced Pharmaceutical Services are Concentrated in Higher level Facilities

- Clinical pharmacy services, therapeutic drug monitoring, aseptic dispensing, sterile compounding, and other advanced pharmaceutical services were predominantly available in Level 4–6 facilities.
- Availability of clinical pharmacy services increased markedly with facility level, reaching 100% among Level 6 facilities.
- Therapeutic drug monitoring was primarily available in referral level facilities with the necessary laboratory and clinical infrastructure.

3. Compounding Services Remain Limited

- Both non-sterile and sterile compounding services were uncommon throughout the health system.
- Sterile compounding was particularly limited and largely confined to higher level hospitals.
- Despite limited availability, facilities offering compounding services generally demonstrated moderate to high compliance with quality standards.

4. Specialized and Emerging Pharmacy Services are Rare

Several specialized pharmacy services were available only in a small proportion of facilities:

- Pharmacogenomic services were available in only a few Level 4 and Level 5 facilities.
- Toxicology services were limited and concentrated in higher level hospitals.
- Tobacco smoking cessation services were offered by relatively few facilities despite their public health importance.
- Complementary, Traditional and Alternative Medicine (CTAM) services were minimally integrated into mainstream pharmaceutical practice.
- Veterinary pharmaceutical dispensing services were almost entirely absent, except in a small number of community pharmacies.

5. Pharmacovigilance Services are Well Established

- Pharmacovigilance was one of the most widely available specialized services across facilities.
- Availability increased with facility level, reaching nearly universal coverage in Level 5 facilities.
- Facilities providing pharmacovigilance services generally demonstrated good compliance with verification requirements, indicating strong foundations for medicine safety monitoring.

6. Community Pharmacies Focus on Primary Care Functions

- Community pharmacies primarily provided dispensing, counselling, treatment of minor ailments, and referral services.
- They were less likely to offer advanced clinical and pharmaceutical services that require specialized infrastructure, equipment, and personnel.
- Nevertheless, community pharmacies remain an important entry point into the healthcare system and contribute significantly to preventive care and health education.

7. Quality Standards are Generally Strong Where Services Exist

- Across most specialized services, facilities that offered the service generally achieved moderate to high verification scores.
- Compliance was typically higher in Levels 4–6 facilities, reflecting stronger infrastructure, staffing, and quality management systems.
- The findings suggest that the primary challenge is not service quality, but rather limited availability and uneven distribution of specialized pharmacy services.

OVERALL CONCLUSION ON PHARMACY SERVICE DELIVERY

The assessment reveals a pharmacy sector that is performing strongly in core pharmaceutical care functions but exhibits substantial gaps in the availability of advanced and specialized pharmacy services. Higher level facilities provide a broader range of clinical and pharmaceutical services and generally maintain good compliance with quality standards. However, significant disparities exist across counties and facility levels, highlighting opportunities to strengthen pharmacy infrastructure, workforce capacity, and service integration, particularly for advanced clinical pharmacy services, pharmacogenomics, toxicology, smoking cessation, and other specialized areas of pharmaceutical care.

FAMILY PLANNING SERVICES

Provision of Family Planning Services

Table 23: Provision of Family Planning (FP) Services by Pharmacy Level and Ownership

Response	Level 2				Level 3		Level 4		Level 5		Level 6	
	Public (n=14)	FBO (n=2)	Community Pharmacies (n=291)	Private Not For Profit (n=3)	Public (n=42)	Private (n=51)	Public (n=78)	Private (n=83)	Public (n=20)	Private (n=18)	Public (n=2)	Private (n=1)
Missing	0 (0.0%)	0 (0.0%)	20 (6.9%)	0 (0.0%)	1 (2.4%)	5 (9.8%)	5 (6.4%)	8 (9.6%)	0 (0.0%)	3 (16.7%)	0 (0.0%)	1 (100.0%)
No	7 (50.0%)	2 (100.0%)	22 (7.6%)	0 (0.0%)	13 (31.0%)	11 (21.6%)	22 (28.2%)	28 (33.7%)	8 (40.0%)	6 (33.3%)	0 (0.0%)	0 (0.0%)
Yes	7 (50.0%)	0 (0.0%)	249 (85.6%)	3 (100.0%)	28 (66.7%)	35 (68.6%)	51 (65.4%)	47 (56.6%)	12 (60.0%)	9 (50.0%)	2 (100.0%)	0 (0.0%)

A high provision of family planning (FP) services across pharmacy levels was reported, with notable differences by ownership and level of care. Only half (50%) of public level 2 pharmacies reported provision of FP services while 85.6% of community pharmacies provided FP services. All level 2 private not for profit provided FP services. None of the level 2 FBO pharmacies provided FP services.

At Level 3, FP provision was strong, with 66.7% of the pharmacies in public facilities and 68.6% of pharmacies in private facilities offering FP services. However, nearly one-third (31.0%) of public Level 3 facilities reported not providing FP services compared to 21.6% of private facilities.

At Level 4, provision slightly declined among pharmacies in private facilities (56.6%) compared to pharmacies in public facilities (65.4%). A relatively higher proportion of private pharmacies in Level 4 facilities (33.7%) reported not providing FP services compared to pharmacies in public facilities (28.2%). Missing data was modest but more pronounced in pharmacies in private facilities (9.6%).

At Level 5, 60.0% of pharmacies in public facilities and 50.0% of pharmacies in private facilities provided FP services. Non-provision was reported in 40.0% of public and 33.3% of pharmacies in private facilities. Missing responses were higher in pharmacies in private facilities (16.7%). Interpretation of data from pharmacies at Level 6 facilities, was limited due to the very small sample size (n=2 public; n=1 private). Both pharmacies at public facilities (100%) reported providing FP services, while the pharmacy at private facility had missing data.

Cadres providing Family Planning Services

Table 24: Cadre Providing Family Planning (FP) Services by Facility Level and Ownership

	Level 2			Level 3		Level 4		Level 5		Level 6
Item	Public	Community Pharmacies	Private Not For Profit	Public	Private	Public	Private	Public	Private	Public
Pharmacy specialist	0 (0.0%)	2 (0.8%)	0 (0.0%)	1 (3.6%)	0 (0.0%)	11 (21.6%)	3 (6.4%)	6 (50.0%)	0 (0.0%)	2 (100.0%)
Pharmacist	0 (0.0%)	76 (30.5%)	2 (66.7%)	1 (3.6%)	3 (8.6%)	31 (60.8%)	33 (70.2%)	12 (100.0%)	7 (77.8%)	2 (100.0%)
Pharmaceutical technologist	5 (71.4%)	222 (89.2%)	2 (66.7%)	24 (85.7%)	34 (97.1%)	48 (94.1%)	42 (89.4%)	11 (91.7%)	9 (100.0%)	2 (100.0%)
Others (specify)	6 (85.7%)	11 (4.4%)	0 (0.0%)	8 (28.6%)	5 (14.3%)	7 (13.7%)	3 (6.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

The proportion of personnel providing family planning (FP) services relative to those available within each cadre was 17.4% (25/144) among pharmacist specialists, 37.5% (167/445) among pharmacists, and 28.4% (399/1,405) among pharmaceutical technologists. This indicates that pharmacists were more likely to provide FP services compared to the other cadres.

Pharmaceutical technologists played a significant role in FP service delivery, with their involvement exceeding 71.5% in most public pharmacies across all levels. At level 2 private facilities, 89.2% of pharmaceutical technologists in community pharmacies and 66.7% in private not-for-profit pharmacies provided FP services. In comparison, 30.5% of pharmacists in community pharmacies and 66.7% in private not-for-profit pharmacies offered FP services. The contribution of pharmacist specialists at level 2 was minimal: only 0.8% in community pharmacies provided FP services, and none in public or private not for profit pharmacies were involved. Among other service providers, a substantial proportion (85.7%) in public facilities delivered FP services, compared to just 4.4% in community pharmacies.

At higher facility levels (levels 3–6), the provision of FP services by pharmacist specialists was more pronounced in public facilities, increasing from 3.6% at level 3 to 100% at level 6. In contrast, in private pharmacies, only 6.4% of pharmacist specialists provided FP services at level 4, with no representation at higher levels.

Similarly, FP service provision by pharmacists in public facilities rose steadily from 3.6% at level 3 to 100% at level 6. In private pharmacies, the proportion increased more gradually, from 8.6% at level 3 to 77.8% at level 5, with no pharmacists providing FP services at level 6.

The GPP standards does not have minimum standards for number of personnel required for provision of FP other than the need for the personnel providing the services to be trained on FP.

Types of Family Planning Services Provided

Table 25: Types of Family Planning (FP) Services Provided within facility by Level and Ownership

Item*	Level 2			Level 3		Level 4		Level 5		Level 6
	Public	Community Pharmacies	Private Not For Profit	Public	Private	Public	Private	Public	Private	Public
Information	7 (100.0%)	212 (85.1%)	3 (100.0%)	27 (96.4%)	30 (85.7%)	50 (98.0%)	44 (93.6%)	10 (83.3%)	9 (100.0%)	2 (100.0%)
FP counselling	7 (100.0%)	213 (85.5%)	3 (100.0%)	28 (100.0%)	30 (85.7%)	50 (98.0%)	44 (93.6%)	11 (91.7%)	6 (66.7%)	2 (100.0%)
Oral contraceptives	7 (100.0%)	248 (99.6%)	3 (100.0%)	25 (89.3%)	34 (97.1%)	46 (90.2%)	46 (97.9%)	12 (100.0%)	9 (100.0%)	2 (100.0%)
Barrier Methods	6 (85.7%)	213 (85.5%)	3 (100.0%)	21 (75.0%)	26 (74.3%)	44 (86.3%)	34 (72.3%)	10 (83.3%)	7 (77.8%)	1 (50.0%)
Injectables	5 (71.4%)	111 (44.6%)	2 (66.7%)	16 (57.1%)	22 (62.9%)	26 (51.0%)	27 (57.4%)	7 (58.3%)	6 (66.7%)	2 (100.0%)
Implants insertion	5 (71.4%)	16 (6.4%)	0 (0.0%)	13 (46.4%)	12 (34.3%)	21 (41.2%)	19 (40.4%)	3 (25.0%)	5 (55.6%)	1 (50.0%)
Implant removal	4 (57.1%)	13 (5.2%)	0 (0.0%)	13 (46.4%)	14 (40.0%)	21 (41.2%)	19 (40.4%)	2 (16.7%)	6 (66.7%)	1 (50.0%)
IUCD removal	2 (28.6%)	5 (2.0%)	0 (0.0%)	8 (28.6%)	8 (22.9%)	16 (31.4%)	16 (34.0%)	3 (25.0%)	5 (55.6%)	1 (50.0%)
Other (specify)	0 (0.0%)	2 (0.8%)	0 (0.0%)	3 (10.7%)	1 (2.9%)	1 (2.0%)	3 (6.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

*The percentages in this table are based only on the facilities that reported providing FP services, not the total sample.

The data show that short-term FP methods and information services were widely available across all facility levels, while provision of long acting reversible contraceptives (LARCs) was more variable and generally lower, particularly in lower level private facilities.

Information and FP counselling were nearly universal in pharmacies in public facilities (83–100%) across all levels and remained high in pharmacies in private facilities (66.7–100%). This indicates strong emphasis on client education and counselling across both sectors. Oral contraceptives and barrier methods were the most consistently provided commodities in pharmacies in both public and private facilities. Oral contraceptives were almost universally available in private Level 2 community pharmacies (99.6%) and across private pharmacies in Levels 4–6 (97–100%). Barrier methods were also widely available (72–86%), though slightly lower in pharmacies in private Level 4 (72.3%), Level 3 (74.3%) and in pharmacy in public level 6 (50%).

Provision of injectables was moderate, ranging from 44.8% in community pharmacies to about 50–67% across Levels 3–5. Pharmacies in public Level 2 facilities reported higher injectable provision (71.4%) compared to private facilities at the same level. In contrast, long-acting methods, including implant insertion/removal and IUCD insertion/removal were less consistently provided. At community pharmacies, implant services (6.4%) and IUCD services (2.0%) were very limited. Availability improved at Levels 3 and 4 (approximately 31–46%) but remained below short-term method provision. At Level 5, private facilities demonstrated relatively stronger provision of LARC services (up to 66.7% for implant and IUCD removal).

The GPP standards do not specify the minimum requirement for provision of recommended FP methods at different levels of pharmacies.

Overall, short-term FP methods dominated service provision across all levels while LARC services were limited at lower level private facilities, indicating possible capacity or training gaps.

Personnel Trained to Offer Injectable FP Methods

Table 26: Personnel Trained to Offer Injectable FP Methods

	Level 2			Level 3		Level 4		Level 5		Level 6	
Response	Public (n=7)	Community Pharmacies (n=249)	Private Not For Profit (n=3)	Public (n=28)	Private (n=35)	Public (n=51)	Private (n=47)	Public (n=12)	Private (n=9)	Public (n=2)	Private (n=1)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
No	3 (42.9%)	161 (64.7%)	1 (33.3%)	17 (60.7%)	21 (60.0%)	38 (74.5%)	36 (76.6%)	9 (75.0%)	6 (66.7%)	2 (100.0%)	0 (0.0%)
Yes	4 (57.1%)	88 (35.3%)	2 (66.7%)	11 (39.3%)	14 (40.0%)	13 (25.5%)	11 (23.4%)	3 (25.0%)	3 (33.3%)	0 (0.0%)	0 (0.0%)

The findings indicate that only a few providers were trained to offer injectable contraceptive methods, across both public and private sectors despite 44.6% (community pharmacies) to 100% (pharmacies in level 6) providing injectable contraceptives. This implies that some pharmacies were using untrained personnel to provide injectable contraceptives thus jeopardizing the quality of care and safety of the clients.

At Level 2, 57.1% of public facilities reported having staff trained to provide injectables, compared to 35.3% of community pharmacies and 66.7% of private not for profit pharmacies. At Level 3, training coverage declines, with only 39.3% of public and 40.0% of private facilities reporting trained personnel. Approximately 60% of facilities at this level lack injectable FP training.

The gap widens further at Level 4, where only 25.5% of public and 23.4% of private facilities reported being trained. Nearly three-quarters of personnel in pharmacies at level 4 facilities at this level were not trained to offer injectable FP methods.

At Level 5, training remained low: 25.0% in public and 33.3% in private facilities. At Level 6, none of the two public facilities reported having training, though interpretation is limited due to the very small sample size.

Overall, the training coverage for injectable FP methods was generally low across all levels. Lower level public facilities (Level 2) demonstrated relatively better training compared to higher levels. These findings suggest a significant capacity gap that may limit expansion of injectable FP access and quality in provision of the method. Strengthening competency based training across facility levels particularly Levels 3–5 could enhance service availability and broaden contraceptive method choice.

Willingness to be Trained to Offer Contraceptive Implants

Table 27: Willingness to Be Trained to Offer Contraceptive Implants

	Level 2				Level 3		Level 4		Level 5		Level 6	
Response	Public (n = 14)	FBO (n = 2)	Community Pharmacies (n = 291)	Private Not For Profit (n = 3)	Public (n = 42)	Private (n = 51)	Public (n = 78)	Private (n = 83)	Public (n = 20)	Private (n = 18)	Public (n = 2)	Private (n = 1)
Missing	0 (0.0%)	0 (0.0%)	20 (6.9%)	0 (0.0%)	1 (2.4%)	5 (9.8%)	5 (6.4%)	8 (9.6%)	0 (0.0%)	3 (16.7%)	0 (0.0%)	1 (100.0%)
No	2 (14.3%)	1 (50.0%)	39 (13.4%)	0 (0.0%)	3 (7.1%)	2 (3.9%)	5 (6.4%)	13 (15.7%)	1 (5.0%)	2 (11.1%)	0 (0.0%)	0 (0.0%)
Yes	12 (85.7%)	1 (50.0%)	232 (79.7%)	3 (100.0%)	38 (90.5%)	44 (86.3%)	68 (87.2%)	62 (74.7%)	19 (95.0%)	13 (72.2%)	2 (100.0%)	0 (0.0%)

The findings demonstrate high willingness across both public and private facilities to receive training on contraceptive implant provision, despite some variation by level and ownership. At Level 2, willingness is strong, with 85.7% of public pharmacies, 79.7% of community pharmacies and 100% of private not for profit pharmacies expressing interest in training. Refusal rates were low (14.3% public; 13.4% community pharmacies). At Level 3, willingness increases further, reaching 90.5% in public and 86.3% in private facilities indicating strong demand for capacity building at this level.

At Level 4, willingness remained high among public facilities (87.2%) but slightly lower among private facilities (74.7%). A modest proportion of private facilities (15.7%) reported not being willing. At Level 5, public facilities demonstrate very high willingness (95.0%), while private facilities report 72.2% willingness.

At Level 6, interpretation was limited due to the very small sample size; both public facilities (100%) expressed willingness, while the single private facility had missing data.

Overall, willingness consistently exceeds 70% in both sectors across Levels 2–5 and public facilities generally showed slightly higher willingness compared to private facilities. This presents a strong opportunity for expanding contraceptive implant services. Addressing training gaps could significantly improve access to long-acting reversible contraceptive methods across facility levels.

Overall Patterns Observed on FP services

The findings demonstrate that while family planning services are widely offered across pharmacy cadres and facility levels, their provision is uneven in both workforce participation and method mix. Pharmacists are the most likely cadre to provide FP services relative to their availability, while pharmaceutical technologists play a central operational role particularly in public and lower level facilities where they constitute the majority of service providers. In contrast, pharmacist specialists contribute minimally at lower levels but become more involved in higher level public facilities.

Service delivery is strongly skewed toward short-term FP methods and counselling, which are nearly universal across both public and private sectors. However, access to long-acting reversible contraceptives (LARCs) remains limited, especially in lower level private facilities, pointing to gaps in capacity, skills, or infrastructure.

A critical concern is the mismatch between service provision and provider competency, particularly for injectable contraceptives. Despite moderate to high provision of injectables, training coverage is consistently low across most facility levels, suggesting that some services may be delivered by inadequately trained personnel which may potentially compromise the quality of care and client's safety. This capacity gap is most pronounced in Levels 3–5 facilities.

Encouragingly, the findings showed a strong and consistent willingness among providers especially in pharmacies in public facilities to receive training in LARC methods such as contraceptive implants. This indicates a clear opportunity to strengthen access to contraceptive implants service delivery through targeted, competency-based training programs.

Overall, addressing training gaps, standardizing service requirements, and strengthening capacity for LARC provision particularly in lower level and private facilities is essential to improving the quality, safety, and range of FP services offered through pharmacy channels.

Policy, regulation, and compliance

The pharmacy sector operates within a complex framework where institutional policies and national regulations intersect. While there is a profound respect for Standard Operating Procedures (SOPs) as life saving tools that mitigate risks, the landscape is characterized by a localized tension between adaptation and a desire for centralized standards. A key informant explained:

“I know that currently we have guidelines and policies that guide pharmacy practice. When it comes to each section, we have guidelines. If you want to operate a pharmacy, there are guidelines. In the hospital, there are guidelines for who is supposed to do what. I think the policies and guidelines are there. I would probably say an improvement is needed so that they become more progressive.”

– (KII_Hospital Admin_Kakamega)

Participants highlighted critical areas covered by the guidelines, including the storage and disposal of expired drugs, the administration and use of drugs, and data documentation.

Participants agreed that institutions have policies and SOPs in pharmacies. They are adapted from those developed by the Ministry of Health.

“Yes, they have developed them. There’s a pharmacy committee created by physicians. I think they were around nine. The nine communities are the ones who guide the hospital. They have developed SOPs, and they are given to all the wards and even the doctors and everybody who is working so that they follow those guidelines.”

– (KII_Hospital Admin_Garissa)

Some participants viewed the policies as unclear, inconsistently implemented and punitive. Respondents express concern that although policies exist, they are often unclear, inconsistently implemented, or enforced in a punitive rather than supportive way. Ambiguity in guidelines and weak operationalization contribute to insecurity among practitioners and poor adherence.

“We have guidelines. Some of them have been around for a while. Some have been uh recently introduced, others have been mutilated, for lack of a better word. Um and this is what has interfered with some of the scopes of practice because the lines are a bit blurred. Sometimes you don’t know where which ka starts and ends. You don’t know where which ka is allowed to do this or that. So the guidelines are not crisp clear to guide the scope of practice of pharmacy. And because of that there’s been a lot of crossing because of the way the guidelines are. So there’s need for this guidelines to be updated and to be very clear in terms of guiding on on how how the practice should be handled. That’s what I would comment.”

– (FGD 2_North Rift_pharmacist and pharmtechs)

“Maybe another challenge can be, from the regulatory point of view, the implementation of policies, have been more punitive than supportive. So that’s a challenge because it makes pharmacists and a bit insecure about their work environment.”

– (KII _Uasin Gishu _CP_ 003_TR)

At this level, SOPs are viewed as essential safeguards against the risks posed by staff shortages and non-standardized practices. There is a clear recognition that guidelines are necessary for pharmacy procedures, as outlined in national pharmacy practice guidelines by the MOH, including high risk procedures like administering potent drugs and safely managing controlled substances or waste.

While policy development is largely decentralized, with local pharmacy committees ensuring the SOPs are distributed and adapted for all wards and cadres, there is a desire among professionals for a “national good pharmacy practice” master document to unify practices across the country. This reflects dissatisfaction with the current fragmentation and inconsistent standards (like non-standard prescription writing). As pointed out earlier under section 6.5.4, manual prescription is still dominant in the private level 2 private pharmacies.

“A guideline where we can have what is defined as the national good pharmacy practice. Basically, it provides like, what are the SOPs for dispensing, patient counseling, matters about storage, good documentation practice... It’s basically reviewing the guidelines that we have and maybe coming up with like a master document or something a bit more descriptive of the criteria for what we deem as standard operating procedures for the pharmacy practice.”

– (FGD 4_Nyanza_pharmacist and pharmtechs)

Participants indicated that the biggest structural driver for a robust internal protocol is the staff shortage that leads to complex tasks often cascaded to other cadres, which necessitates “iron-clad” and simplified guidelines that can be followed even by non-pharmaceutical staff to maintain safety.

While awareness of Ministry of Health (MoH) and Pharmacy and Poisons Board (PPB) guidelines regarding licensing and certification is high and well understood across all settings, in-depth knowledge of good pharmacy practice guidelines remains limited. Existing guidelines on the scope of practice and quality assurance are unclear or inconsistently applied. This results in blurred scopes of practice and concerns regarding drug quality and role boundaries.

Ensuring compliance with the guidelines is currently driven by external pressures, such as unannounced inspections and police-supported crackdowns, rather than by internal enforcement. This explains the high compliance with narcotic storage which is heavily policed via DDA books versus the low compliance with the general GPP space and waste standards which is rarely policed. Though facilities implement compliance processes internally, the internal environment is saturated with several systemic issues, such as weak enforcement and corruption, which create an uneven environment where compliant facilities feel disadvantaged.

“I think PPB needs to be very strict with how they carry out inspections, and even after that, how they follow up to understand whether any corrections have been made or whatever was wrong has been, you know, there should be follow-up and feedback, not just random inspections, and that’s it. You cannot do inspections once a year.”

– (FGD 4_Nyanza_pharmacist and pharmtechs)

According to participants, internal quality assurance mechanisms, such as Medical Training Committees (MTCs) and continuous education, exist but implementation remains fragmented. The absence of structured systems, tools, and updated clinical protocols limits institutional ability to monitor ethical standards and stock integrity effectively.

“Implementation of standards, I think it is through the engagement of the stakeholders. We have the training institutions, we have the people practicing, we have the hospitals. So engagement is what would probably help in implementation.”

– (KII_Hospital Admin_Kakamega)

Participants highlighted three critical areas for improvement: automation, upstream controls, and monitoring. Specifically, they recommended transitioning from informal reporting structures to tech-enabled systems for targeted quality checks; strengthening regulation at key control points, such as product testing at ports of entry and structured monitoring of pharmacy students and interns; and increasing the presence and clear identification of qualified pharmacists and expanding the PPB’s inspectorate to ensure routine, rather than sporadic, monitoring.

Participants expressed concern that although policies exist, they are often unclear. Ambiguity in guidelines and weak operationalization contribute to poor adherence.

Gaps in awareness, training, and proactive compliance were highlighted. Non-compliance stems not just from a failure to follow rules, but from a fundamental lack of understanding, which current enforcement methods fail to address.

While policies are sufficient in promoting good pharmacy practice, participants suggested the need for modernization, clarity, and supportive implementation. They also suggested progressive, user-friendly, and supportive approaches, including continuous education, clearer guidelines, and updated training aligned with global standards are emphasized.

Compliance is often driven by external inspections, enforcement, and regulatory oversight. Facilities rely heavily on PPB inspections, multidisciplinary crackdowns, police supported enforcement, and licensing checks to ensure adherence to pharmacy practice regulations.

“Let’s start with the authorities. Enforce the guidelines. PPB should enforce the guidelines, like inspecting the DDA books, inspecting the shelves, inspect the shop, because people nowadays are taking a pharmacy like a shop. So you find that even a pharmacy or a facility is not up to standards. You find that someone is selling drugs in a container. You find someone who doesn’t even have a cool, dry place to store the medicine. You find, so what the authorities should do is enforce the guidelines, and let’s not have mushroom pharmacies everywhere.”

- (FGD 1_Cental_region_pharmacist and pharmtechs)

Internal facility mechanisms help ensure adherence to guidelines- Facilities implement internal compliance processes such as MTC committees, continuous medical education, clinical pharmacist oversight, supervision, and verification of staff and facility licenses. These internal controls embed compliance into routine operations.

Participants had mixed reactions on the enforcement of guidelines. On one hand, they suggested leniency, and, on the other hand they proposed more stringent measures in managing weak enforcement, corruption, and blurred practice boundaries that undermine compliance. Weak regulatory enforcement, corruption, misuse of licenses, unclear scopes of practice, and lenient legal penalties create an uneven environment where compliant facilities feel disadvantaged. These systemic issues undermine effective compliance across the sector:

“I think there needs to be very strict regulations and even random inspections because this one will have to make the employer actually follow these guidelines, because we actually have very good regulations and laws on paper, but I think application is a very big problem, which now might lead to burnout.”

- (FGD 4_Nyanza_pharmacist and pharmtechs)

Participants identified a pervasive reluctance to engage with existing written guidelines, suggesting that their mere availability in text form is insufficient to change practice. To bridge this gap, there is a strong call for the active dissemination of these frameworks and the creation of targeted awareness campaigns. Such initiatives should focus on the “essentials” of Good Pharmacy Practices (GPP), specifically emphasizing patient safety through integrated health education and health promotion forums. By shifting from passive documentation to active, multidisciplinary engagement, the goal is to transform these guidelines from “shelf-bound” protocols into a living culture of clinical safety.

Several concerns and barriers were raised. Participants intimated that pharmacy roles are undervalued and under-integrated, resulting in exclusion from clinical decision-making. This organizational barrier extends to weak oversight over essential functions like formulary management, procurement, and stock quality checks (commodity inspection).

“Some of them are, when it comes to the formulary, the pharmacist is also supposed to have a formulary, the drugs that they use, so that the prescribers are able to know which drugs are stored in this pharmacy. That is having a formulary booklet. When it comes to procurement, when these drugs are brought, we need to have an inspection team that has the consumer so that they are able to ensure that the quantities they ordered are the right commodity and expiry. They can be able also to maintain the storage to ensure the drugs remain potent.”

- (FGD Western 001_Non Pharms)

The analysis reveals that inadequate staffing amplifies all other weaknesses, creating time pressure that makes adherence to GPP impractical even when staff know what should be done. Furthermore, capacity building is irregular or absent, leaving providers uncertain about current GPP standards, surveillance requirements, and safety reporting.

“So we are struggling with the aspect of inadequate staffing, and it is impacting on the good pharmacy practices.”

– (FGD Rift valley 002_Non Pharms)

SUPPLY CHAIN

The analysis shows tension in the supply chain between strict sourcing protocols and a volatile operational reality. While procurement is designed to follow a strict hierarchy prioritizing KEMSA, systemic failures and low “fill rates” in which non-pharmaceutical consumables are often delivered instead of essential drugs, frequently force facilities to rely on secondary and tertiary suppliers like MEDS and private suppliers to meet demand.

“The number one challenge is the fill rate at KEMSA. It is not okay and I know the council of governors has been handling it. But KEMSA does not even have enough stock. So, when you make orders, they will rather give you the non-pharmaceuticals than the pharmaceuticals.”

– (KII_Baringo_ HA_ 004_TR)

The system exists in a state of digital irony. On one hand, internal management is highly sophisticated, utilizing digital innovations such as HMIS and QIA systems that provide real-time decision support to prevent stockouts and manage inventory via First In, First Out principles. On the other hand, high-level forecasting is described as “very poor” because it is reactive rather than data-driven.

“In terms of forecasting and so on, we are very poor in that, because we have a rely on, when our KEMSA gives us orders, when our money is available from the accounts that you can order.”

– (KII_BARINGO_ HA_ 004_TR)

Procurement is often dictated by the arbitrary timing of fund releases and KEMSA’s availability rather than actual patient consumption, turning planning into a “waiting game” hindered by a strict three-month budget cycle. This bureaucratic rigidity may limit the agility to respond to sudden disease outbreaks or demand spikes.

Stockouts are an entrenched operational reality, worsened by seasonal disease spikes and bureaucratic delays at the end of financial years. To mitigate the clinical impact, participants reported that institutional staff have developed intricate coping mechanisms: Pharmacies issue “Available Stock Lists” to clinicians to ensure prescriptions match current inventory; Larger hospitals act as hubs, moving short-dated stock to high-volume clinics to prevent expiry and waste; and internal departments like Maternity/MCH, staff maintain contact lists to notify parents the moment vaccines become available.

“Stockouts are being managed by the pharmacist and the procurement officers whereby they just ensure that the stock in and the stock out are being done. In our facility, we supply most of the drugs to the health centers and the dispensaries that surround us, and that is being managed by the pharmacist and the procurement officer.”

– (FGD Rift valley 002_Non Pharms)

The human cost of these supply failures is significant. Patients in vulnerable regions often face financial toxicity, going without treatment when forced to buy from expensive private pharmacies. Furthermore, erratic supply chains disrupt dosing schedules, leading to missed doses and compromised safety. Supply chain disruptions make these advanced clinical monitoring even more critical and their absence at lower levels more dangerous. There is also a growing concern regarding quality and safety; pharmacists warn that the pressure to fill gaps may allow substandard imports into the market, potentially fueling antimicrobial resistance (AMR).

Participants observed that at the root cause of these issues is a crippling cycle of debt. Many facilities are locked out of the primary supply chain because of outstanding arrears, leading to credit suspensions. Financial management is further complicated by bureaucratic silos; where funds might be available for drugs but not the reagents needed to use them, and political pressure to fund visible infrastructure projects over the recurring costs of essential medicines. This creates a paralyzed system where administrative bottlenecks and financial instability ensure that delays remain systemic rather than situational.

“Yes, there are challenges. They are not enough. The funds, the allocation for pharmacy is not enough. And also another challenge, we can’t even order from KEMSA right now because we have a very huge debt which have not been paid. So even KEMSA told us we pay the debt first, we reach to a conclusion how we are going to pay the debt before they supply. So if you have not gotten from MEDS, you see now you can’t even buy from KEMSA, it becomes also a charge. Now we depend only from MEDS mostly because of the debt.”

- (KII_Hospital_Admin_Kiambu).

DISCUSSION

This study provides a comprehensive national assessment of pharmacy practice across hospital and community settings in Kenya. By combining quantitative facility assessments with qualitative insights from pharmacists, regulators, and other health professionals, the findings reveal important systemic gaps in pharmacy service delivery, workforce capacity, and infrastructure compliance with professional standards. Overall, the results indicate that while pharmacy services are widely available across health facilities, significant structural and operational challenges persist that may compromise the quality, safety, and patient-centeredness of pharmaceutical care.

Workforce composition and implications for service delivery

The findings show that pharmaceutical technologists constitute the majority of the pharmacy workforce in Kenya, accounting for approximately 72% of personnel across the surveyed facilities, while pharmacists represent about 27% and specialist pharmacists less than 1%. This workforce distribution reflects the structure of pharmaceutical service provision in the country, particularly in lower level health facilities and community pharmacies where pharmaceutical technologists often serve as the primary providers.

While pharmaceutical technologists play an essential role in medicine dispensing and operational pharmacy services, the relatively limited presence of pharmacists, especially in lower level facilities may limit the ability of facilities to provide advanced pharmaceutical care functions such as clinical medication review, pharmacovigilance, and complex therapeutic management. The qualitative findings reinforce this concern, highlighting persistent shortages of pharmacy personnel and frequent reliance on task shifting to non-pharmacy cadres, including nurses and clinicians, particularly in Levels 2 and 3 facilities. Such practices may increase the risk of medication errors and compromise adherence to Good Pharmacy Practice (GPP) standards.

The study also identified a paradoxical situation in which workforce shortages coexist with underutilization of pharmacists. Participants reported that pharmacists' clinical training is often not fully integrated into multidisciplinary healthcare teams, resulting in missed opportunities for optimizing patient care. This underutilization reflects broader systemic issues including unclear role delineation between pharmacists and pharmaceutical technologists and limited recognition of pharmacists' expanded clinical roles within the health system.

Financial constraints were identified as a key driver of workforce patterns, particularly in private and community pharmacies where employers frequently prefer pharmaceutical technologists due to lower salary requirements. While economically understandable, this practice may inadvertently reinforce workforce imbalances and limit the scope of pharmacy practice in the private sector.

Infrastructure availability versus adequacy

The infrastructure assessment revealed a complex picture in which most facilities reported the availability of basic pharmacy infrastructure such as dispensing areas, storage areas, and waiting spaces, but many failed to meet the minimum spatial requirements established under Good Pharmacy Practice standards.

For example, although the majority of facilities reported having dispensing areas, compliance with GPP minimum space requirements was generally low across both public and private sectors. Similarly, waiting areas were widely available but often did not meet recommended space standards. These findings highlight an important distinction between infrastructure availability and infrastructure adequacy, suggesting that the mere presence of physical infrastructure does not necessarily ensure compliance with regulatory standards or support optimal service delivery.

Private facilities, particularly community pharmacies consistently demonstrated lower compliance with GPP standards compared to public facilities. This may reflect differences in regulatory enforcement, financial investment, and facility planning between the two sectors. However, even higher level public facilities exhibited notable gaps in compliance, suggesting that infrastructure deficiencies are systemic rather than sector-specific.

Another critical finding relates to the limited availability of private consultation or counselling areas, particularly in lower level facilities. Only about one-fifth of Level 2 public facilities reported having such spaces. The absence of dedicated counselling areas undermines the ability of pharmacists to provide confidential patient counselling, medication education, and adherence support—key components of patient-centered pharmaceutical care. Qualitative data further revealed that many facilities rely on “window-style” dispensing arrangements that compromise patient privacy and restrict opportunities for meaningful provider–patient interaction.

Storage infrastructure and medicine management

The availability of storage areas for health products and technologies was generally high, particularly in higher level facilities. However, compliance with recommended storage space requirements varied considerably, especially at lower facility levels and in private pharmacies. Inadequate storage infrastructure can affect medicine quality through poor temperature control, inadequate cold chain management, and insufficient segregation of pharmaceutical products.

Participants also reported infrastructure challenges such as leaking roofs, limited storage capacity, and inadequate equipment including refrigerators and information technology systems. These findings underscore the importance of investing not only in physical infrastructure but also in the supporting systems necessary for safe and efficient pharmaceutical supply chain management.

Digital systems and pharmaceutical information management

An important emerging theme from the qualitative findings was the lack of digital systems to support pharmaceutical services. Participants highlighted the absence of integrated electronic systems for patient records, pharmacovigilance reporting, drug allergy tracking, and refill monitoring. These gaps in digital infrastructure limit the ability of pharmacy providers to deliver longitudinal patient care, monitor medication safety, and support evidence-based decision making.

Digital health systems have the potential to significantly enhance pharmaceutical care by enabling better documentation, medication tracking, and patient follow up. The absence of such systems represents a missed opportunity for strengthening pharmaceutical governance and patient safety within Kenya's health system.

Availability of Advanced Pharmaceutical Services

The analysis demonstrates significant variation in the availability of advanced pharmaceutical services across counties and facility levels. Several specialized services including therapeutic drug monitoring and radiopharmacy services showed the highest availability, averaging approximately 95% across facilities where these services were reported. This indicates that higher level referral hospitals and specialized facilities have established infrastructure and technical capacity to support advanced pharmaceutical care.

Services such as clinical pharmacy, cytotoxic preparation, aseptic dispensing, and total parenteral nutrition were moderately available, with national averages of approximately 63% availability. These findings suggest gradual integration of advanced clinical pharmacy practices within tertiary and selected secondary facilities. The presence of these services indicates progress in expanding the clinical role of pharmacists within multidisciplinary health care teams.

Similarly, pharmacogenomic services, toxicology services, pharmacoepidemiology studies, and treatment of drug abuse patients demonstrated average availability of approximately 62–63%, indicating emerging implementation of precision medicine and specialized pharmaceutical services in certain facilities.

However, their uneven distribution across counties suggests that these services remain concentrated in urban or higher level health facilities.

In contrast, several services were reported at very low levels of availability, including tobacco smoking cessation services, sterile compounding, medication safety management, and sports pharmacy services, each averaging approximately 21% availability across the assessed facilities. These findings highlight potential gaps in preventive and public health-oriented pharmacy services.

More notably, non-sterile compounding services, pharmacovigilance services, handling of narcotic and psychotropic substances, and complementary or alternative medicine services were not reported in any of the assessed facilities (0% availability). The absence of pharmacovigilance services is particularly concerning given the critical role pharmacists play in adverse drug reaction monitoring and medication safety surveillance.

Overall, the findings suggest that while Kenya has made progress in integrating advanced pharmaceutical services within higher level facilities, there remain substantial gaps in the distribution of these services across the broader health system. Strengthening regulatory guidance, expanding training in clinical pharmacy practice, and improving infrastructure for specialized pharmaceutical services may enhance the contribution of pharmacy professionals to patient care and medication safety.

Family Planning Services in Pharmacies

The findings indicate that family planning (FP) services are widely available across pharmacy settings in Kenya, though the extent and scope of services vary by facility level and ownership. Community pharmacies demonstrated particularly strong participation in FP service provision, with approximately 85.6% of Level 2 community pharmacies reporting provision of FP services, compared with 50% of Level 2 public pharmacies, highlighting the important role of the private retail sector in expanding access to contraceptive services.

Across facility levels, information provision, counselling, oral contraceptives, and barrier methods were the most consistently offered FP services, indicating that pharmacies primarily support clients with short-term contraceptive methods and counselling services. These findings align with the traditional role of pharmacies as accessible points for information, counselling, and distribution of short-term contraceptives.

However, access to long-acting reversible contraceptives (LARCs) such as implants and intrauterine contraceptive devices (IUCDs) was considerably lower, particularly in community pharmacies and other lower level private facilities. For example, implant services were reported by only 6.4% of community pharmacies, while IUCD services were available in approximately 2.0% of community pharmacies, although availability improved at higher level facilities. This suggests important gaps in capacity, infrastructure, and training needed to support broader provision of long-acting methods within pharmacy settings.

Another critical finding relates to the mismatch between service provision and provider competency, particularly for injectable contraceptives. Although injectables were moderately available across facilities, the proportion of personnel trained to provide injectable FP methods was generally low across all facility levels. This gap raises concerns about quality of care and highlights the need for strengthened competency-based training.

Encouragingly, the study revealed strong willingness among pharmacy personnel to receive training on contraceptive implant provision, with more than 70% of facilities across Levels 2–5 expressing interest in such training. This suggests significant potential for expanding access to long-acting contraceptive methods through targeted training and capacity-building initiatives within pharmacy channels.

Overall, the findings underscore the strategic role of pharmacies in expanding access to family planning services, particularly for counselling and short-term contraceptive methods. However, improving training coverage, strengthening regulatory guidance, and building capacity for long-acting contraceptive services will be critical to fully realizing the potential of pharmacy-based FP service delivery.

Professional training and competency development

The study also identified concerns regarding disparities in training quality among pharmacy graduates, particularly among diploma-level pharmaceutical technologists. Participants reported that some graduates require extensive on the job training due to gaps in practical competencies. In addition, the shortage of senior pharmacists limits mentorship opportunities for junior staff, further constraining professional development.

These findings highlight the need to strengthen pre-service training curricula, standardize training quality across institutions, and expand structured mentorship and continuous professional development programs. Investments in workforce development will be essential for strengthening pharmacy practice and ensuring that pharmacy personnel are equipped to meet evolving healthcare demands.

Policy and system-level implications

The findings of this study point to several important policy implications. The findings from the GPP assessment highlight important structural and regulatory implications for pharmacy practice in Kenya. Overall, the findings underscore the need for targeted policy interventions to reduce geographic disparities in pharmacy services and to strengthen the implementation of Good Pharmacy Practice standards across the country.

- First, strengthening pharmacy workforce planning and deployment will be critical to addressing the persistent shortages of pharmacists and pharmaceutical technologists in lower level facilities.
- Second, improved regulatory enforcement and infrastructure investment are needed to enhance compliance with Good Pharmacy Practice standards across both public and private sectors.
- Third, the health system should prioritize the integration of pharmacists into multidisciplinary healthcare teams to maximize their clinical expertise and improve medication management outcomes. Finally, expanding digital health infrastructure for pharmacy services could significantly enhance pharmacovigilance, patient monitoring, and overall pharmaceutical service quality.
- Fourth, the analysis demonstrates that advanced pharmaceutical services are unevenly distributed across counties, with higher availability concentrated in specific regions such as Migori, Kericho, Tana River, Machakos, and Meru. In contrast, counties such as Wajir, Kirinyaga, Kisumu, and Nyamira reported significantly lower service availability indices, suggesting disparities in pharmacy workforce capacity, infrastructure, and regulatory oversight.
- Fifth, the low availability of key services including pharmacovigilance, medication safety management, and compounding services at community pharmacies and public level 2 facilities, indicates potential gaps in the implementation of the Pharmacy and Poisons Board (PPB) Good Pharmacy Practice Guidelines.

Pharmacovigilance systems are particularly critical for detecting adverse drug reactions and improving medication safety. Strengthening reporting systems and pharmacist training in pharmacovigilance should therefore be prioritized.

- Sixth, the moderate availability of clinical pharmacy services and therapeutic drug monitoring suggests that Kenya is gradually transitioning toward more patient-centered pharmaceutical care. However, scaling these services will require targeted investments in:
 - workforce development,
 - specialized training programs,
 - infrastructure upgrades in county-level facilities.
- Finally, strengthening regulatory enforcement and professional capacity across counties will be essential to ensure that pharmacy practice consistently aligns with national GPP standards.

Expanding continuing professional development (CPD) programs, strengthening supervision systems, and integrating pharmacies into broader health system quality improvement initiatives could significantly enhance pharmaceutical service delivery.

RECOMMENDATIONS

Based on the findings of this national assessment of pharmacy practice in Kenya, several strategic actions are recommended to strengthen pharmaceutical services, improve adherence to Good Pharmacy Practice (GPP) standards, and enhance patient-centered pharmaceutical care across both public and private sectors.

Strengthen Pharmacy Workforce Planning and Deployment

The study revealed significant shortages of pharmacists and pharmaceutical technologists in lower level facilities, alongside heavy reliance on pharmaceutical technologists and task shifting to non-pharmacy personnel.

Recommendations:

- The Ministry of Health and county governments should develop and implement a **national pharmacy workforce strategy** to guide recruitment, deployment, and retention of pharmacy personnel across all levels of care.
- County governments should prioritize the **recruitment of pharmacists and pharmaceutical technologists**, particularly in Level 2 and Level 3 facilities where staffing shortages are most acute.
- Establish **minimum staffing ratios for pharmacy personnel** in health facilities and strengthen enforcement of these standards through regulatory oversight by the Pharmacy and Poisons Board (PPB).
- Promote **team-based pharmaceutical care models** that integrate pharmacists into multidisciplinary healthcare teams to enhance medication management and clinical decision-making.

Improve Compliance with Good Pharmacy Practice (GPP) Infrastructure Standards

Although most facilities reported having basic pharmacy infrastructure, many failed to meet minimum GPP space requirements for waiting areas, dispensing areas, storage facilities, and quarantine areas.

Recommendations:

- The Pharmacy and Poisons Board should strengthen **inspection and regulatory enforcement** to ensure compliance with GPP infrastructure standards in both public and private facilities.
- Health facility managers should prioritize **facility redesign and renovation** to ensure adequate dispensing, counselling, and storage spaces that meet regulatory standards.
- Government and partners should provide **targeted infrastructure improvement grants or financing mechanisms** to support upgrading of pharmacy premises, particularly in community pharmacies and lower level facilities.
- Establish **clear design guidelines for pharmacy infrastructure** within health facilities to support patient-centered pharmaceutical care.

Strengthen Patient-Centered Pharmaceutical Care

The limited availability of consultation or counselling areas in many facilities compromises patient privacy and restricts effective medication counselling.

Recommendations:

- All pharmacies should establish **dedicated consultation or counselling spaces** to ensure confidentiality and improve patient engagement.
- The PPB should consider **introducing minimum standards for counselling spaces** within GPP guidelines to ensure consistent patient privacy protections.
- Healthcare facilities should promote **expanded pharmaceutical care services**, including medication therapy management, patient education, and adherence monitoring.

Strengthening Pharmacy-Based Family Planning Services

Based on the findings of the assessment of family planning (FP) services across pharmacy settings in Kenya, several actions are recommended to strengthen the quality, safety, and scope of FP service delivery through pharmacy channels.

Recommendations:

- **Institutionalize Pharmacy-Based Family Planning within National Policy**
The Ministry of Health should formally integrate community and hospital pharmacies into Kenya's national family planning strategy and self-care framework, recognizing pharmacies as key access points for contraceptive information and short-term methods, particularly in urban and peri-urban areas.
- **Scale Up Competency-Based Training for Pharmacy Personnel**
A national training initiative should be implemented to equip pharmacists and pharmaceutical technologists with standardized, competency based skills in family planning service delivery, particularly for injectables and long-acting reversible contraceptives (LARCs)—to close the current gap between service provision and provider training.
- **Expand Access to Long Acting Contraceptive Methods through Pharmacies**
Policymakers should pilot and scale models that enable trained pharmacy providers to offer selected LARC services, especially contraceptive implants, supported by appropriate regulation, clinical protocols, and referral systems to higher level facilities.
- **Strengthen Regulatory Standards for FP Services in Pharmacies**
The Pharmacy and Poisons Board should update Good Pharmacy Practice guidelines to include clear standards for pharmacy-based FP service provision, including minimum competency requirements, supervision mechanisms, and quality assurance protocols.
- **Leverage Task Sharing to Expand FP Service Coverage**
National FP programs should formalize task-sharing approaches that allow trained pharmaceutical technologists to safely provide selected FP services under regulatory guidance, thereby expanding contraceptive access without overburdening existing health facilities.
- **Invest in Public–Private Partnerships to Accelerate Contraceptive Access**
Government and development partners should strengthen partnerships with pharmacy networks to improve contraceptive supply chains, training, and service delivery, ensuring pharmacies are fully integrated into Kenya's efforts to achieve FP2030 goals and expand equitable access to family planning services.

Strengthen Pharmaceutical Training and Professional Development

Participants highlighted disparities in the quality of pre-service training and the need for ongoing professional development for pharmacy personnel.

Recommendations:

- Training institutions and regulators should review and standardize pharmacy training curricula, particularly for diploma-level pharmaceutical technologist programs.
- Expand structured internship and mentorship programs to support practical skill development among newly graduated pharmacy personnel.
- Strengthen Continuous Professional Development (CPD) programs focusing on emerging pharmaceutical practices, clinical pharmacy, and medication safety.
- Promote collaborative training programs between universities, hospitals, and regulatory bodies to ensure competency-based pharmacy education.

Enhance Pharmaceutical Infrastructure and Equipment

The study identified gaps in storage infrastructure, cold chain capacity, equipment availability, and workspace adequacy.

Recommendations:

- Health facilities should invest in adequate storage infrastructure, including cold chain equipment and temperature monitoring systems.
- Improve medicine quarantine and storage facilities to ensure safe handling of expired, damaged, or recalled medicines.
- Expand investment in pharmacy workspace modernization, including improved dispensing counters and secure medicine storage systems.

Strengthen Digital Systems for Pharmaceutical Services

The study identified major gaps in digital systems for medication tracking, pharmacovigilance, and patient record management.

Recommendations:

- The Ministry of Health should support the development and rollout of integrated digital pharmaceutical information systems to support medication management, pharmacovigilance, and patient monitoring.
- Pharmacies should adopt electronic dispensing and record systems to improve documentation of patient history, allergies, drug interactions, and refill schedules.
- Expand training for pharmacy personnel on digital health tools to improve adoption and effective utilization of electronic systems.

Strengthen Regulatory Oversight of Community Pharmacies

The study revealed concerns regarding regulatory compliance and the operation of some pharmacies without appropriate professional oversight.

Recommendations:

- The Pharmacy and Poisons Board should strengthen licensing, inspection, and enforcement mechanisms for community pharmacies.
- Introduce risk-based inspection models targeting high-risk facilities or areas with documented regulatory non-compliance.
- Strengthen professional accountability mechanisms to ensure pharmacies are supervised by appropriately qualified personnel.

Promote Investment in Pharmacy Infrastructure and Services

Financial constraints were identified as a key barrier to improving staffing, infrastructure, and service quality.

Recommendations:

- National and county governments should increase investment in pharmaceutical services as part of broader health system strengthening efforts.
- Encourage public-private partnerships to support infrastructure upgrades, training, and digital transformation in pharmacy practice.
- Development partners and donors should support capacity strengthening initiatives targeting pharmacy workforce development and infrastructure improvement.

Strengthen Pharmaceutical Policy and Strategic Planning

To address the systemic issues identified in the study, stronger strategic planning and coordination across stakeholders is needed.

Recommendations:

- Develop a national pharmaceutical services strengthening strategy aligned with Universal Health Coverage (UHC) goals.
- Strengthen collaboration between Ministry of Health, Pharmacy and Poisons Board, training institutions, and professional associations.
- Promote evidence based policy development using data generated from studies such as this assessment.

CONCLUSION

This national assessment of pharmacy practice in Kenya provides important insights into the current state of pharmaceutical service delivery across hospital and community pharmacy settings. The findings demonstrate that pharmacy services are widely available across the health system; however, significant gaps remain in workforce capacity, infrastructure adequacy, regulatory compliance, and service delivery quality.

The study reveals that pharmaceutical technologists form the backbone of pharmacy service provision across most facility levels, particularly in lower level facilities and community pharmacies, while pharmacists and specialist pharmacists are concentrated in higher level hospitals.

While this workforce structure enables continued service delivery, persistent shortages of trained pharmacy personnel and the reliance on task shifting to non-pharmacy cadres pose potential risks to the quality and safety of pharmaceutical care. These findings highlight the need for strengthened workforce planning, clearer role delineation between pharmacy cadres, and improved deployment of pharmacists within multidisciplinary health teams.

Infrastructure assessments further indicate that although most facilities report the presence of essential pharmacy spaces including dispensing areas, waiting areas, and storage facilities, compliance with Good Pharmacy Practice (GPP) minimum standards is frequently inadequate. In particular, deficiencies in space requirements, consultation areas, and storage infrastructure may limit the ability of facilities to provide patient-centered pharmaceutical services and maintain appropriate medicine management standards. These challenges were particularly evident in community pharmacies and lower level facilities, underscoring the need for targeted infrastructure investments and strengthened regulatory enforcement.

The study also highlights critical gaps in digital health systems and pharmaceutical information management. The absence of robust electronic systems for patient record management, pharmacovigilance reporting, and medicine tracking limits the capacity of pharmacy providers to deliver comprehensive, safe, and coordinated pharmaceutical care. Strengthening digital infrastructure within pharmacy services will therefore be essential to improving medication safety, patient monitoring, and service accountability.

Importantly, the findings demonstrate that pharmacies play a significant and growing role in the provision of family planning services. Short-term contraceptive methods and counselling are widely available through pharmacy channels, demonstrating the sector's potential to expand access to reproductive health services. However, access to long-acting reversible contraceptives remains limited in many pharmacy settings, largely due to gaps in training and infrastructure. Addressing these capacity gaps could substantially enhance the contribution of pharmacies to national family planning goals and improve contraceptive choice for clients.

Overall, the study underscores the strategic importance of pharmacies within Kenya's health system as accessible points of care that support medicine access, patient counselling, and public health services. However, unlocking the full potential of pharmacy-based service delivery will require coordinated investments in workforce development, infrastructure improvements, regulatory strengthening, digital innovation, and expanded training opportunities.

Strengthening Good Pharmacy Practice implementation across both public and private sectors will be critical to improving the quality, safety, and effectiveness of pharmaceutical services. Such efforts will not only enhance pharmacy practice standards but also contribute to broader health system goals, including improved patient outcomes, expanded access to essential medicines, and progress toward universal health coverage in Kenya.

LIMITATIONS OF THE STUDY

Cross-Sectional Design

The study employed a cross-sectional design, capturing practices and infrastructure conditions at a single point in time. As such, it does not allow for causal inference or assessment of trends over time. Observed compliance gaps may reflect temporary operational constraints rather than sustained performance deficiencies. Longitudinal follow-up assessments would be necessary to evaluate improvements and sustainability.

Self-Reported and Interview-Based Data

Some findings, particularly those related to governance practices, documentation availability, training history, and service provision relied partly on self-reported information from facility staff. Although triangulated where possible with observation and document review, responses may be subject to recall bias or social desirability bias, potentially leading to overestimation of compliance.

Variability in Documentation and Record Quality

In several facilities, documentation systems were incomplete or inconsistently maintained. Where registers or SOPs were missing, expired, or not readily accessible, assessment of compliance may have underestimated actual practices. Conversely, the presence of documentation does not necessarily confirm consistent implementation.

Infrastructure Assessment Limitations

Infrastructure compliance assessments were based on observable physical space and reported measurements. However, in facilities where space measurements were estimated rather than formally verified, there may be minor inaccuracies in reported compliance with minimum GPP standards.

Scope of Clinical Outcome Assessment

The study assessed structural and process indicators of GPP compliance but did not directly measure clinical outcomes such as medication error rates, patient satisfaction, treatment adherence, or health outcomes. Therefore, while infrastructure and governance gaps suggest potential quality risks, the study does not quantify the clinical impact of these gaps.

Regulatory Environment Dynamics

The regulatory and policy environment is evolving, and facilities may be in transitional phases of compliance due to recent guideline updates or inspection cycles. The assessment may not fully capture ongoing improvement initiatives that were not yet institutionalized at the time of data collection.

Generalizability to Informal or Unlicensed Outlets

The study focused on licensed facilities and pharmacies within the formal health system. Findings may not be generalizable to informal medicine outlets or unlicensed providers, which may operate under different regulatory and infrastructure conditions.

Despite these limitations, the study provides a robust national snapshot of GPP implementation and offers valuable baseline data to guide regulatory strengthening, workforce development, infrastructure investment, and service expansion strategies. The mixed-methods approach strengthens confidence in the overall patterns observed, even where specific indicators may be subject to reporting or measurement constraints.

ANNEXES

ANNEX I: TASKS ANALYSIS – ALL COUNTIES

Response	Level 2			Level 3 (N=93)	Level 4 (N=161)	Level 5 (N=38)	Level 6 (N=3)
	FBO & NGO (N=5)	Community Pharmacy (N=291)	Public (N=14)				
SERVICE: Non-sterile compounding services							
No	5 (100.0%)	252 (86.6%)	12 (85.7%)	79 (84.9%)	127 (78.9%)	19 (50.0%)	1 (33.3%)
Yes	0 (0.0%)	39 (13.4%)	2 (14.3%)	14 (15.1%)	34 (21.1%)	19 (50.0%)	2 (66.7%)
% verification item met (among Yes)	0 (0.0%)	25 (64.1%)	1 (50.0%)	10 (71.4%)	25 (73.5%)	14 (73.7%)	2 (100.0%)
SERVICE: Sterile Compounding							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	86 (92.5%)	146 (90.7%)	31 (81.6%)	2 (66.7%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (7.5%)	15 (9.3%)	7 (18.4%)	1 (33.3%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (57.1%)	9 (60.0%)	5 (71.4%)	1 (100.0%)
SERVICE: Aseptic Dispensing Service							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	123 (76.4%)	25 (65.8%)	1 (33.3%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	38 (23.6%)	13 (34.2%)	2 (66.7%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	92 (98.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	30 (78.9%)	11 (84.6%)	1 (50.0%)
SERVICE: Cytotoxic Preparation and Reconstitution							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	155 (96.3%)	27 (71.1%)	0 (0.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (3.7%)	11 (28.9%)	3 (100.0%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	92 (98.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (66.7%)	10 (90.9%)	2 (66.7%)
SERVICE: Total Placental Nutrition							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	132 (82.0%)	30 (78.9%)	3 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	29 (18.0%)	8 (21.1%)	0 (0.0%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	92 (98.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	22 (75.9%)	7 (87.5%)	0 (0.0%)
SERVICE: Medication Safety Management							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	25 (26.9%)	33 (20.5%)	1 (2.6%)	1 (33.3%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	68 (73.1%)	128 (79.5%)	37 (97.4%)	2 (66.7%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	45 (66.2%)	89 (69.5%)	27 (73.0%)	2 (100.0%)

SERVICE: Clinical Pharmacy Services							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (3.2%)	78 (48.4%)	10 (26.3%)	0 (0.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (4.3%)	83 (51.6%)	28 (73.7%)	3 (100.0%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	86 (92.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (50.0%)	64 (77.1%)	24 (85.7%)	2 (66.7%)
SERVICE: Pharmacogenomic Services							
No	0 (0.0%)	20 (6.9%)	0 (0.0%)	7 (7.5%)	150 (93.2%)	33 (86.8%)	3 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (6.8%)	5 (13.2%)	0 (0.0%)
No response	5 (100.0%)	271 (93.1%)	14 (100.0%)	86 (92.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (72.7%)	4 (80.0%)	0 (0.0%)
SERVICE: Toxicology Services							
No	0 (0.0%)	19 (6.5%)	0 (0.0%)	7 (7.5%)	146 (90.7%)	27 (71.1%)	3 (100.0%)
Yes	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	15 (9.3%)	11 (28.9%)	0 (0.0%)
No response	5 (100.0%)	271 (93.1%)	14 (100.0%)	86 (92.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	10 (66.7%)	10 (90.9%)	0 (0.0%)
Response	Level 2			Level 3 (N=93)	Level 4 (N=161)	Level 5 (N=38)	Level 6 (N=3)
	FBO & NGO (N=5)	Community Pharmacy (N=291)	Public (N=14)				
No	3 (60.0%)	120 (41.2%)	6 (42.9%)	19 (20.4%)	26 (16.1%)	1 (2.6%)	1 (33.3%)
Yes	2 (40.0%)	171 (58.8%)	8 (57.1%)	74 (79.6%)	135 (83.9%)	37 (97.4%)	2 (66.7%)
% verification item met (among Yes)	1 (50.0%)	101 (59.1%)	4 (50.0%)	55 (74.3%)	104 (77.0%)	29 (78.4%)	2 (100.0%)
SERVICE: Pharmacoepidemiology Studies							
No	0 (0.0%)	20 (6.9%)	0 (0.0%)	7 (7.5%)	147 (91.3%)	30 (78.9%)	3 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	14 (8.7%)	8 (21.1%)	0 (0.0%)
No response	5 (100.0%)	271 (93.1%)	14 (100.0%)	86 (92.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (78.6%)	8 (100.0%)	0 (0.0%)
SERVICE: Radiopharmacy							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	37 (97.4%)	3 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.6%)	0 (0.0%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	93 (100.0%)	161 (100.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
SERVICE: Handling Narcotic and Psychotropic Substances							
No	3 (60.0%)	68 (23.4%)	6 (42.9%)	29 (31.2%)	17 (10.6%)	0 (0.0%)	0 (0.0%)
Yes	2 (40.0%)	223 (76.6%)	8 (57.1%)	64 (68.8%)	144 (89.4%)	38 (100.0%)	3 (100.0%)
% verification item met (among Yes)	1 (50.0%)	146 (65.5%)	5 (62.5%)	46 (71.9%)	109 (75.7%)	32 (84.2%)	2 (66.7%)

SERVICE: Treatment Of Drug Abuse Patients							
No	0 (0.0%)	18 (6.2%)	0 (0.0%)	6 (6.5%)	125 (77.6%)	27 (71.1%)	1 (33.3%)
Yes	0 (0.0%)	2 (0.7%)	36 (22.4%)	1 (1.1%)	0 (0.0%)	11 (28.9%)	2 (66.7%)
% verification item met (among Yes)	0 (0.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	30 (83.3%)	9 (81.8%)	2 (100.0%)
SERVICE: Tobacco Smoking Cessation Services							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	86 (92.5%)	144 (89.4%)	34 (89.5%)	2 (66.7%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (7.5%)	17 (10.6%)	4 (10.5%)	1 (33.3%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (71.4%)	11 (64.7%)	4 (100.0%)	1 (100.0%)
SERVICE: Complementary / Traditional / Alternative Medicine (CTAM)							
No	5 (100.0%)	276 (94.8%)	14 (100.0%)	90 (96.8%)	157 (97.5%)	36 (94.7%)	3 (100.0%)
Yes	0 (0.0%)	15 (5.2%)	0 (0.0%)	3 (3.2%)	4 (2.5%)	2 (5.3%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	6 (40.0%)	0 (0.0%)	2 (66.7%)	2 (50.0%)	1 (50.0%)	0 (0.0%)
SERVICE: Sports Pharmacy							
No	0 (0.0%)	0 (0.0%)	0 (0.0%)	91 (97.8%)	157 (97.5%)	37 (97.4%)	3 (100.0%)
Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.2%)	4 (2.5%)	1 (2.6%)	0 (0.0%)
No response	5 (100.0%)	291 (100.0%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
% verification item met (among Yes)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)	2 (50.0%)	1 (100.0%)	0 (0.0%)
SERVICE: Veterinary Pharmaceutical Dispensing Services							
No	5 (100.0%)	276 (94.8%)	14 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yes	0 (0.0%)	15 (5.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
No response	0 (0.0%)	0 (0.0%)	0 (0.0%)	93 (100.0%)	161 (100.0%)	38 (100.0%)	3 (100.0%)
% verification item met (among Yes)	0 (0.0%)	13 (86.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

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Dr Susan Njogu	Dantrio Pharmacy Limited	Pharmacist
Dr Malesi Shava	Pharmaceutical Society of Kenya	Project Implementation Coordinator
Eric Gichane	Kenya Pharmaceutical Association	Hon. Secretary General
Calvin Otieno	Kenya Pharmaceutical Association	M& E officer
James Kamande	inSupply Health	Regional Manager Market Shaping & Access

Name	Organization	Designation
Danielson Kennedy	inSupply Health	Regional Manager DTII
Jane Mutegi	inSupply Health	Manager DTII
Kevin Muchai	inSupply Health	Senior Analyst Market Shaping & Access
Lucy Kerubo	inSupply Health	Senior Analyst DTII
Anthony Kabarita	inSupply Health	Senior Analyst DTII
Evans Mutinda	URADCA	Qualitative research officer, Nairobi
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