



E-pharmacy in Kenya

Regulation, Practice and Performance

New Empirical Evidence and Policy Options

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Key points

- E-pharmacies in Kenya operate within a small but rapidly expanding market, with significant potential to improve access to medicines and pharmaceutical services, particularly for patients requiring ongoing treatment such as chronic conditions.
- The country has a relatively comprehensive regulatory framework for e-pharmacy and scores highly on international measures of regulatory completeness. However, implementation and enforcement remain inconsistent, with many market practices falling short of the existing Pharmacy and Poisons Board (PPB) requirements.
- The quality of pharmaceutical care delivered online shows substantial scope for improvement, particularly regarding prescribing oversight, patient counselling, and safety screening. Mystery shopper assessments found that when no prescription was provided, in approximately three-quarters of cases prescription-only medicines were still supplied.
- Most medicines supplied through e-pharmacies met pharmacopeial standards; however, isolated cases of falsified or substandard antibiotics were detected, posing public health risks.
- Larger, higher-traffic e-pharmacies tend to demonstrate stronger compliance with regulatory requirements and better performance in mystery shopper assessments. As these market leaders were about twice as likely to manage patient encounters correctly, they offer an opportunity to raise standards across the sector through partnership and peer influence.
- Parallel mystery shopper visits to 100 brick-and-mortar pharmacies in Nairobi found that inappropriate dispensing was common in both e-pharmacies and physical pharmacies; however, contrary to common assumptions, e-pharmacies were less likely to dispense prescription-only medicines inappropriately.

Background

Online medicine sales have expanded rapidly in Kenya over the past decade, with growth accelerating during and after the COVID-19 pandemic, reflecting the wider digitalisation of healthcare and retail markets.

E-pharmacies can play a critical role in improving equitable and timely access to medicines and pharmaceutical services, particularly for patients managing chronic conditions. However, this growth has taken place in a sector already challenged by variable service quality and limited regulatory enforcement capacity.

International evidence highlights risks associated with online medicine sales, including unrestricted access to prescription-only medicines, inconsistent counselling and safety checks, the proliferation of poorly regulated providers, and data protection concerns.

This policy brief draws on new empirical research to describe how e-pharmacies currently operate in Kenya, assess how existing regulatory requirements are implemented in practice, and evaluate the quality of pharmaceutical care and medicines supplied online. Based on these findings and consultations with stakeholders across the Kenyan pharmaceutical sector, the brief provides key policy options for enhancing regulatory performance and patient safety.

Methods used to investigate the e-pharmacy market



Regulatory review

A structured review and critical appraisal of e-pharmacy regulations in Kenya, alongside a comparative analysis of international regulatory frameworks.



Website and app review

Review of all websites (23) and mobile apps (3) serving the Kenyan public at the time of the study, evaluating compliance with regulatory requirements and international best practice.



Mystery shoppers

364 mystery shopper purchase attempts across all e-pharmacies. Trained researchers posed as customers to assess dispensing practices using scenarios with and without prescriptions, and including potentially harmful medicine requests (overdose, excess quantity, unsafe use in pregnancy).



Medicine quality testing

Laboratory analyses conducted at the National Quality Control Laboratory to identify sub-standard medicines, and visual assessments to detect physical defects and falsified products.



Stakeholder consultations

Interviews and workshops with a range of stakeholders to identify feasible policy and regulatory reforms.

Overview of the e-pharmacy market in Kenya

Kenya's retail pharmacy market is dominated by brick-and-mortar outlets, with more than 5,000 registered physical pharmacies, most independently owned. E-pharmacies represent a small but growing segment of this market. Most e-pharmacies operate through websites, with a few offering mobile apps. In practice, many providers also use social media channels such as WhatsApp to receive prescriptions and finalise orders.

All identified e-pharmacies supply over-the-counter medicines, nutraceuticals, and traditional or complementary products alongside prescription medicines. While the majority operate primarily as dispensing platforms, 15% offer additional services such as online consultations or laboratory testing.

The market includes both domestically registered and foreign providers, with web domains registered inside and outside Kenya. All platforms are hosted abroad, reflecting high domestic costs and limited infrastructure capacity. Where providers are based outside Kenya, regulatory oversight and enforcement may be more complex.

Mobile money is the most widely offered payment method, followed by credit or debit cards and cash on delivery. Nearly 60% of platforms claim to provide nationwide delivery, typically relying on courier and third-party logistics services.

Regulatory context

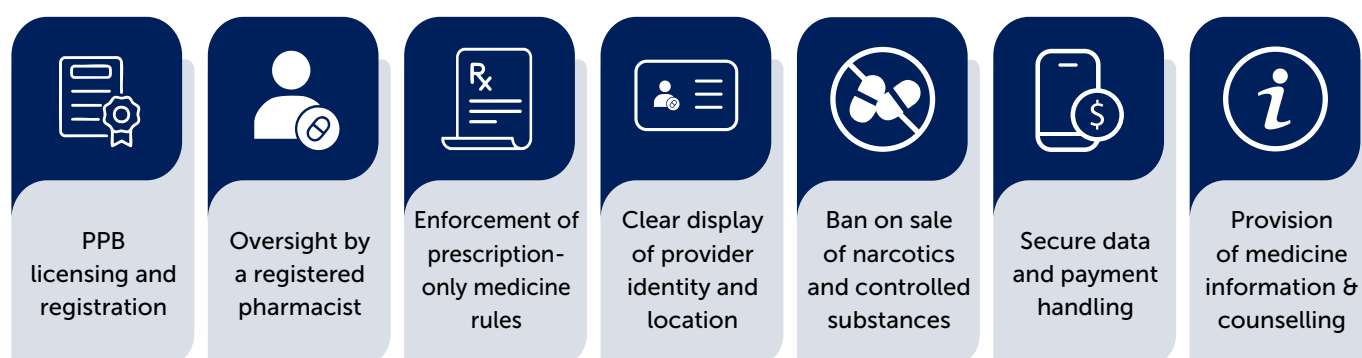
E-pharmacy services in Kenya are regulated primarily through the PPB under an established set of legal and policy instruments, including:

- Guidelines for Internet Pharmacy Services in Kenya (January 2022; revised April 2023)
- Pharmacy and Poisons Act (CAP 244)
- Guidelines for Registration and Licensing of Premises in Kenya
- Pharmacy and Poisons (Amendment) Rules, 2022
- Guidelines for Advertisement and Promotion of Health Products and Technologies (HPT/PDS/GUD/046)

Kenya's regulatory framework for e-pharmacies scores highly on an international 15-item checklist assessing key requirements such as licensing, prescription handling, information disclosure, and restrictions on controlled medicines (Figure 1).

Kenya's approach aligns closely with the UK model, viewing e-pharmacy as an extension of traditional pharmacy practice rather than a separate category. Kenya is among a small number of jurisdictions – alongside Ghana and Dubai – that explicitly reference mobile applications in regulations.

Figure 1: Core regulatory requirements for e-pharmacies in Kenya



How do Kenyan e-pharmacies perform in practice?

Evidence across the patient journey

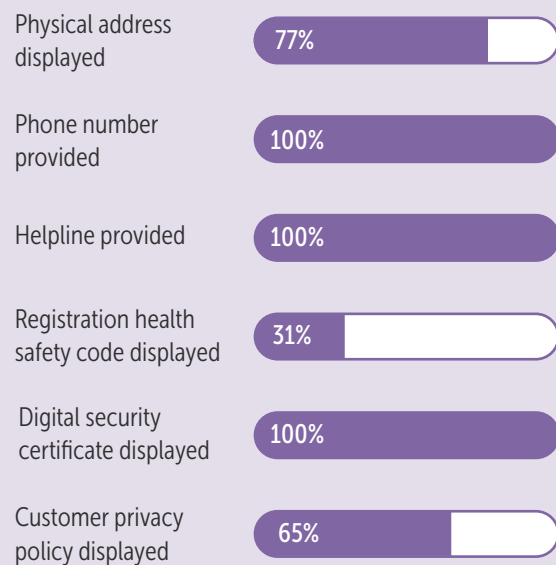
To understand how e-pharmacies serving Kenyans perform in real-world settings, the research examined patient experiences across the full online purchasing pathway, from first contact with a website or app through to the receipt of medicines. Findings are presented across four stages of this process below.

1

1 Visiting the website or app



Can I trust this site?



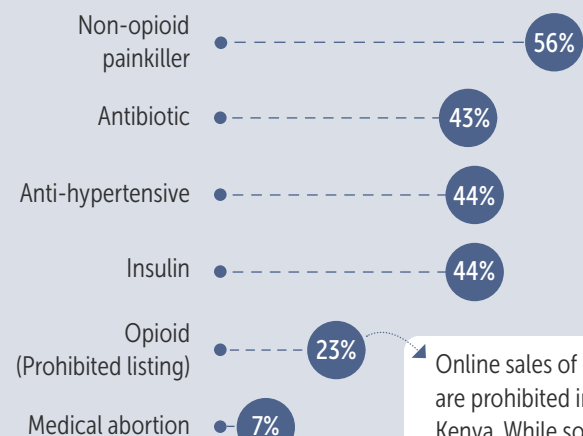
Website and app review

2

2 Selecting and ordering medicines



Is the medicine I need listed for sale online?



Online sales of opioids are prohibited in Kenya. While some platforms listed them for sale, only a few supplied them in practice.

Is information provided on how to use it safely?

42% of e-pharmacies provided complete drug information on their website, including side-effects and contraindications.



Website and app review



Mystery shopper

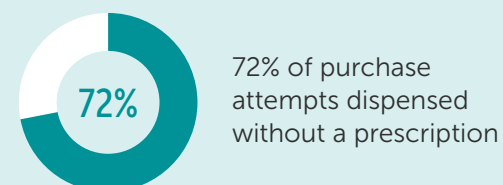
3

3 Safeguards before medicines are supplied



Is a prescription required and checked?

When a correct prescription was provided, **81%** were appropriately dispensed.



Will anyone check if the medicine is safe for me?

No platforms screened for pregnancy, allergies, or contraindications before dispensing.



Website and app review



Mystery shopper

4

4 Delivery and medicines received



Did I receive the correct medicines and instructions?

83% of orders matched the product, brand, and quantity requested

76% provided a product information leaflet

44% provided patient-specific dosing instructions

Are the medicines good quality?

Most medicines met quality standards; however, **25%** of erythromycin samples failed potency tests, and several samples of falsified Augmentin were detected.



Visual inspection



Laboratory testing

Do market-leading e-pharmacies perform better?

Evidence from both website reviews and mystery shopper purchase attempts demonstrates that higher-traffic market leaders in Kenya deliver a significantly higher standard of pharmaceutical care than smaller providers. However, important safety and regulatory gaps persist even among these leading platforms.

Twice as likely to deliver correct care

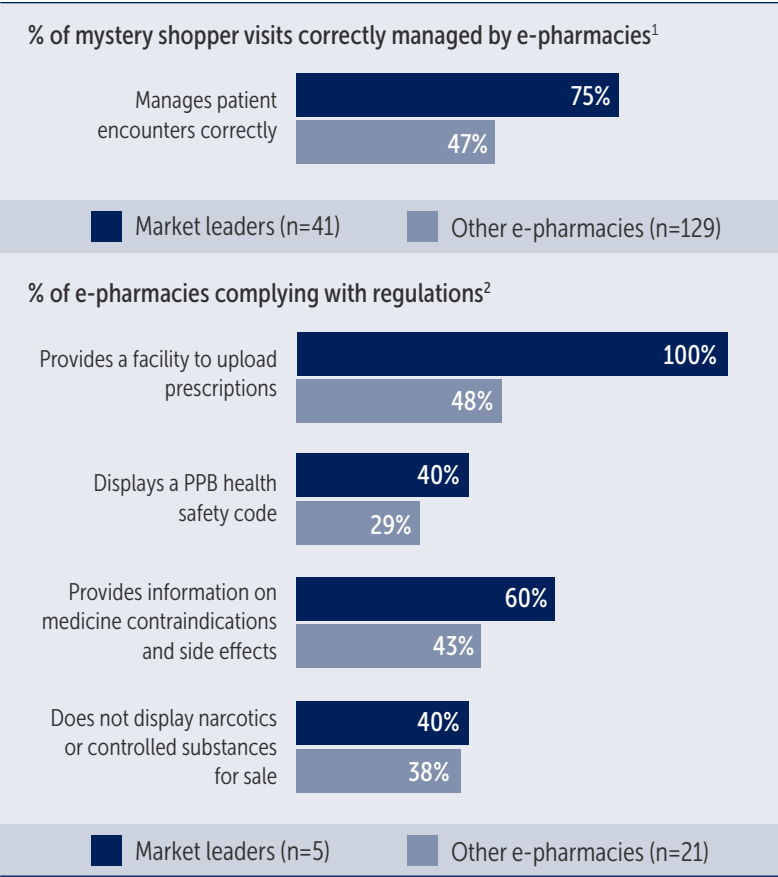
The analysis shows that higher-traffic e-pharmacies were approximately twice as likely to manage patient encounters correctly, for example by requesting a valid prescription when required. Market leaders correctly managed 75% of mystery shopper visits, compared with 47% among other e-pharmacies (Figure 2).

Stronger regulatory compliance

Market-leading e-pharmacies also performed better on several regulatory requirements. All high-traffic websites provided a prescription upload function, compared with 48% of lower-traffic sites, supporting verification of prescriptions before medicines are dispensed.

On average, Kenyan market leaders complied with 10 out of 12 national regulatory requirements, compared with an average of 8.7 for other providers. Among other requirements, they were more likely to display the mandatory PPB health safety code and to provide complete drug information including contraindications and side effects.

Figure 2: Performance and regulatory compliance among market-leading and other e-pharmacies



1. Estimates adjusted for case type, medicine sought and clustering within e-pharmacies. P-value for difference in adjusted percentages: 0.013.
2. As percentages for these indicators are based on a census of e-pharmacies, statistical tests for significance were not conducted.

How do e-pharmacies compare with brick-and-mortar pharmacies?

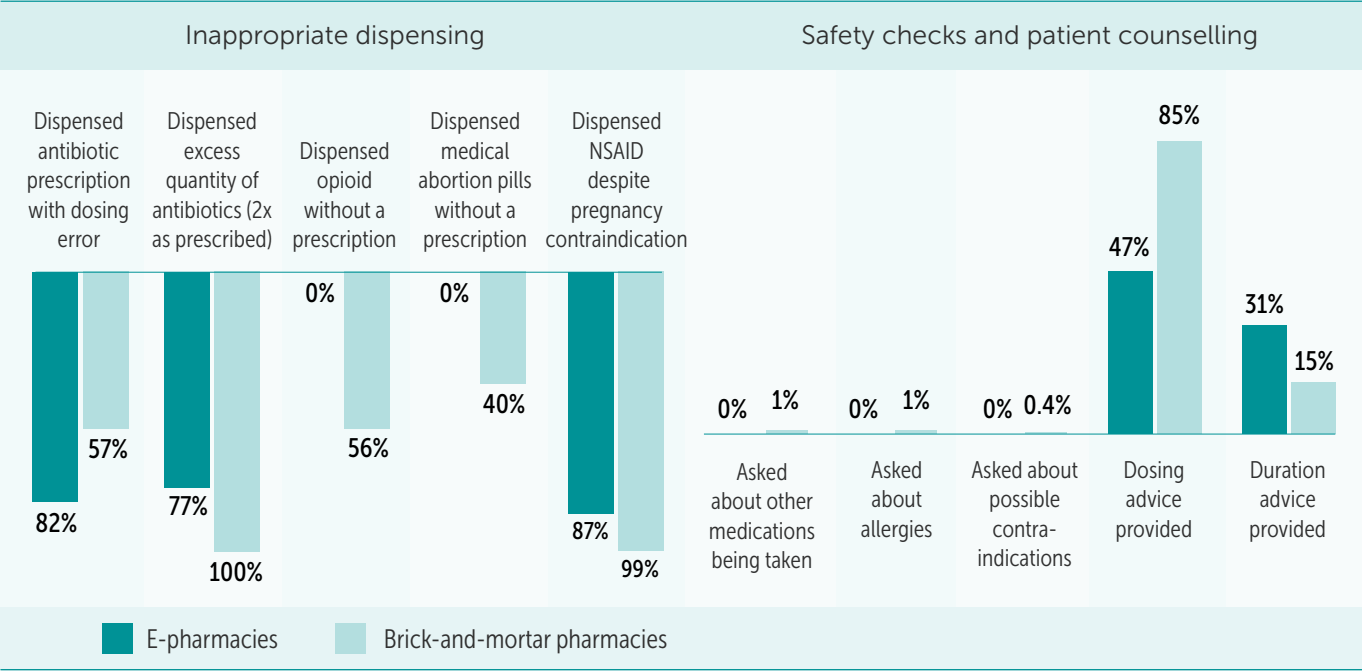
To provide a direct comparison, mystery shoppers visited 100 brick-and-mortar pharmacies in Nairobi using a subset of the same clinical scenarios applied to e-pharmacies.

Lower rates of inappropriate dispensing in e-pharmacies

Correct dispensing of prescription-only medicines was low overall. However, e-pharmacies were generally less likely than brick-and-mortar pharmacies to dispense prescription-only medicines inappropriately. For instance, bulk antibiotic requests were incorrectly dispensed in 77% of e-pharmacy visits, compared with 100% in brick-and-mortar pharmacies (Figure 3). In this comparative study, no e-pharmacies dispensed opioids or medical abortion medicines without a prescription. By contrast, brick-and-mortar pharmacies did dispense these medicines without appropriate authorisation.

Pre-dispensing safety screening – such as checking for pregnancy, allergies, or drug interactions – was nearly absent in both settings (zero in e-pharmacies). While physical pharmacies more often provided dosing instructions, e-pharmacies were more likely to mention treatment duration. Overall, these findings indicate that weaknesses in dispensing practices are systemic and not unique to online pharmacies.

Figure 3: Comparison between e-pharmacies and brick-and-mortar pharmacies



Are the medicines safe and of good quality?

Although no quality issues were identified with the majority of medicines purchased from e-pharmacies, isolated cases of substandard and falsified medicines were detected – specifically falsified Augmentin and sub-potent erythromycin (25% of samples tested). Similar or greater quality problems have been documented in Kenya’s physical retail sector. For example, a 2020 primary study of 168 retail and private hospital pharmacies found that 38% of amoxicillin and amoxicillin-clavulanic acid samples failed quality testing³.

Encouragingly, the proportion of unregistered brands supplied by e-pharmacies in Kenya (7%) was substantially lower than the average prevalence of unregistered medicines reported in a systematic review of medicine quality surveys conducted across African countries (35%)⁴.

Summary of key findings

The findings in this brief show that Kenya’s e-pharmacy market operates within a strong written regulatory framework, but implementation in day-to-day practice remains uneven. Significant gaps remain in the enforcement of prescription-only medicine rules, clinical safety checks, and patient counselling, although most medicines sampled met quality standards. Given that higher-traffic platforms show better compliance, regulators could work more with these market leaders as strategic partners to pilot improvements and raise standards across the market.

Contrary to common assumptions that online pharmacies pose greater risks, e-pharmacies demonstrated stronger prescription enforcement than brick-and-mortar providers. However, performance in relation to pre-dispensing safety checks was poor in both settings. These findings highlight the need for policy responses that strengthen patient protection and pharmaceutical practice across the retail pharmacy sector as a whole.

3. Koech, Lilian C., Irungu, Beatrice N., Ng’ang’a, Margaret M., Ondicho, Joyce M., Keter, Lucia K., Quality and Brands of Amoxicillin Formulations in Nairobi, Kenya, BioMed Research International, 2020, 7091278, 2020.

4. Biset Asrade Mekonnen, Muluabay Getie Yizengaw & Minichil Chanie Worku (2024) Prevalence of substandard, falsified, unlicensed and unregistered medicine and its associated factors in Africa: a systematic review, Journal of Pharmaceutical Policy and Practice, 17:1, 2375267.

Priority policy actions for Kenya's e-pharmacy market

This section outlines priority concerns and practical actions to strengthen Kenya's e-pharmacy market. The recommendations are intended to be validated and refined through structured engagement with relevant stakeholders, recognising that e-pharmacy operates within the wider retail pharmacy system. The proposed reforms aim to support system-wide improvements rather than isolated interventions.

Actions are grouped into immediate **Quick Wins** (actions that can be implemented within the existing legal and regulatory framework) and longer-term **Build for Tomorrow** reforms, which require further stakeholder dialogue, institutional strengthening, infrastructural investment or new legal and regulatory instruments.

Quick Wins	Build for Tomorrow
Eliminate rogue and illicit e-pharmacies	
- Publish a publicly accessible PPB register of licensed e-pharmacies. - Enforce existing requirement to display health safety code on website.	Establish a restricted e-pharmacy domain (e.g. '.pharmacy.ke') limited to licensed operators and linked to the PPB register.
Ensure compliance with prescription requirements for prescription-only medicines	
- Mandate prescription upload (which may include WhatsApp with audit trail). - Establish clearly defined prescription validity criteria and verification protocols. - Introduce phased enforcement starting with high-risk medicines.	- Develop an e-prescribing system in which prescriptions are issued, transmitted and verified electronically. - Introduce defined prescription types (single-use and repeat) supported by labelling and QR codes to enable traceability and authentication. - Introduce independent licensing requirements for telemedicine platforms. - Strengthen coordination between regulatory bodies.
Improve the quality of pharmacy care	
- Mandate pre-dispensing screening (e.g. allergies, pregnancy status, previous adverse reactions). - Require provision of minimum patient-friendly medicine information aligned with the Kenya National Formulary.	Implement a risk-based inspection and enforcement framework to strengthen oversight of pharmacy care standards across online providers.
Safeguard the quality of medicines supplied	
- Require platforms to link to a centrally maintained PPB register of approved medicine brands. - Establish guidelines for authorised and trained medicine delivery personnel to ensure quality control of medicines in transit. - Introduce temperature control and handling protocols for medicine transport.	Explore the development of a national QR-based medicines authentication system, drawing on Nigeria's Mobile Authentication Service model.

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www.lshtm.ac.uk/research/centres-projects-groups/regulating-e-pharmacy