REPORT

PRICES & AVAILABILITY OF LOCALLY PRODUCED & IMPORTED **MEDICINES IN KENYA**

Survey Report July 2018

HAI HEALTH ACTION INTERNATIONAL

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PRICES & AVAILABILITY OF LOCALLY PRODUCED & IMPORTED **MEDICINES IN KENYA**

Report of Survey Conducted January–May, 2018

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EXECUTIVE SUMMARY

A survey was undertaken from January to May 2018 to measure and compare the price and availability of locally produced and imported medicines in Kenya. The survey used a methodology developed by Health Action International (HAI), soon to be published by the World Health Organization (WHO). HAI's Dr Margaret Ewen led the work, and Ms Dorothy Juma Okemo from Nairobi coordinated data collection and data entry.

Methodolgy

Price and availability data was collected for 31 medicines, both locally produced and imported, in a total of 30 public sector outlets (hospitals and health centres), 30 private pharmacies, and 22 mission outlets across six counties (i.e., the capital Nairobi, Kajiado, Nakuru, Vihiga, Kwale and Kisumu). Each medicine was strength- and dosage-form specific. For each medicine, data was collected for all products in stock in each outlet on the day of the survey. Procurement prices and quantities purchased were collected from the Kenyan Medical Supplies Authority (KEMSA) and the Mission for Essential Drugs and Supplies (MEDS).

Key Findings

Procurement prices:

- Both KEMSA and MEDS were procuring more locally produced products than imported products.
- Locally produced products were on average 30 percent (KEMSA) and 25 percent (MEDS) lower priced than the imported products.
- Median prices of both locally produced and imported medicines were below the international reference prices.

Availability and patient prices in the public sector:

- Locally produced products had greater mean availability (48 percent) than imported products (23 percent). Overall availability (local and import) was 68 percent.
- Where patients paid for medicines, median prices of locally produced and imported products were almost identical. Some individual medicines were over three times the international reference prices.
- The median mark-up between patient prices and KEMSA procurement prices was higher for locally produced products (177 percent) than imports (35 percent), with wide variation for individual brands.
- Locally produced branded generics were more available (45 percent) than imported branded generics (13 percent), and patients were paying 45 percent more for imported branded generics than those made in Kenya. No originator brands, and few International Non-proprietary Name (INN) generics, were found.

Availability and patient prices in the private sector:

- Locally produced products had slightly higher mean availability (37 percent) than imported products (34 percent). Overall availability was 66 percent.
- Overall, patients were paying 48 percent more for imported products than for locally produced products. Some individual medicines were high priced.

- Locally produced branded generics were more available (36 percent) than imported branded generics (28 percent), and patients were paying 34 percent more for imported branded generics than those made in Kenya. Originator brands were few in number but high in price (all imported).

Availability and patient prices in the mission sector:

- Locally produced products had slightly higher mean availability (36 percent) than imported products (34 percent). Overall availability was 68 percent.
- Where patients paid for medicines, imported products were 33 percent higher priced than locally produced products.
- The median mark-up between patient price and MEDS procurement price was higher for locally produced products (343 percent) than imports (257 percent), with wide variation for individual brands. Both far exceeded official mark-ups rates.
- Locally produced branded generics were more available (34 percent) than imported branded generics (24 percent). Patients paid 63 percent more for imported branded generics than those made locally. Few originator brands were found, but where present, they were high priced.

Cross-regional analysis:

- In the public and private sectors—in most of the survey counties—the availability of locally produced products was higher than for imported products.
- In the private sector, imports were highest priced in Nairobi and lowest in Kisumu. Local products were highest priced in Nakuru and lowest in Kwale.

Country of manufacture:

- Approximately 55 percent of the products found were made in Kenya. The largest number of imported products were from India (30.3 percent of all products found), China (6.6 percent) and South Africa (4.0 percent).
- The vast majority of products found were made by Dawa, Laboratory & Allied, and Cosmos.
- Of these three companies, patient prices across all three sectors were lowest for Laboratory & Allied products.

Recommendations

- Pass low procurement prices paid by KEMSA and MEDS on to patients required to pay for medicines out-of-pocket in order to improve access. Regulate mark-ups in the public sector.
- Improve supply chain challenges to avoid stock-outs, especially for medicines in the essential package list so they are available free-of-charge to patients at all times.
- Public sector facilities should pay KEMSA on time for orders to avoid stock-outs, especially of essential package list medicines.
- Investigate differences in procurement prices paid by KEMSA with those paid by public sector facilities who buy medicines from other sources (when KEMSA cannot supply). In addition to identifying procurement price differentials, such research will also identify mark-ups applied by the facilities to KEMSA procured medicines, with mark-ups applied when they procure from other sources. It would be valuable to undertake the same research in the mission sector.
- KEMSA should investigate cheaper sources for amoxicillin dispersible tabs and whether local production at the same price level would be possible.
- Consider investigating price components in the private sector to ascertain the contribution of both the manufacturer's selling prices, and also add-ons (including mark-ups of wholesalers and retailers), on patient prices for locally produced and imported medicines.
- Improve transparency by providing a list of registered products on the website of the Kenyan Pharmacy and Poisons Board (PPB), and ensure it is regularly updated.
- Ensure procurement prices listed on KEMSA's website are up-to-date and complete.
- Monitor the price and availability of locally produced and imported medicines every two to three years to ascertain if efforts to support local production are resulting in lower patient prices and greater medicine availability at outlets.

INTRODUCTION

Safe-guarding access to medicines is complex; it requires governments, through their policies, to balance the availability of quality assured medicines, while ensuring that they are affordable, and at the same time meeting the priority health needs of the population[1]. An increasing number of governments in low-and middle-income countries (LMICs) are supporting local medicine production in the expectation that it will result in increased medicine availability and lower medicine prices.

This report summarises the results of a survey undertaken in Kenya to measure and compare the price and availability of locally produced and imported medicines. The survey used a methodology, and accompanying automated Excel workbook, developed by HAI and soon to be published by the WHO. The methodology is a 'one-point-in-time' survey, therefore findings relate only to what is found on the day of data collection.

The survey was undertaken in the first quarter of 2018 by Dr Margaret Ewen (HAI) and Ms Dorothy Juma Okemo (National Investigator from Nairobi). Funding was provided by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH as part of their Global Project, 'Access to Medicines'.

The survey was designed to answer the following questions:

- What is the availability and patient price for selected medicines that are imported, locally produced (in Kenya), and produced in East African Community Member States (Kenya, Burundi, Rwanda, Tanzania and Uganda), in different sectors (public, private and mission)?
- What price does the government and mission sector pay for selected medicines that are imported and locally produced, and what amounts are procured?
- How do procurement prices for locally produced and imported medicines compare with their respective patient prices in the public and mission sectors?
- Do prices and availability for locally produced and imported medicines vary for originator brands, branded generics, and generics named using the International Nonproprietary Name (INN generics)?
- What is the availability and patient price for selected medicines that are locally produced and imported in different regions of the country?
- How do patient prices differ by country of manufacture and by manufacturer?

Kenyan Pharmaceutical Sector

Kenya was recently re-classified by the World Bank as a lower middle-income country, and has an estimated population of 50.93 million people according to the 2018 World Population Review. Estimated gross national product (GNP) per capita was US$69.85 in 2016. According to the World Bank, total expenditure on health per capita in 2014 was US$77.70.

PPB authorises the marketing (registration) of medicines in Kenya. No list of registered products is published on their website. In Kenya, the company name and country of manufacture is required by law to be printed on the product label.

According to the PPB, there are 34 active pharmaceutical manufacturers of finished dose forms (medicines). The definition of 'local production' in Kenya refers to the manufacturing of finished dose forms.

KEMSA is a state corporation under the Ministry of Health, mandated to procure, store and distribute medical commodities to public health facilities. Procurement is carried out via tenders and price negotiation.

[1] WHO Policy Brief Local production for access to medicinal products. Developing a framework to improve public health 2011; http://www.who.int/phi/publications/local_production/en/

The Mission for Essential Drugs and Supplies (MEDS) also procures medicines for sale to various market segments. Their core clients are faith-based organisations and mission hospitals, although they also sell to non-governmental organisations (NGO), private hospitals and government outlets. Mission sector facilities are not obligated to purchase from MEDS. MEDS charge an 18 percent mark-up for formulary items and 10 percent for non-stock items. The mark-up is slightly higher for medicines sold to NGOs and private hospitals. A mark-up is also applied to sales to county governments. Mark-ups are standard for locally manufactured and imported products.

Medicine prices are not controlled in Kenya, mark-ups in the supply chain are not regulated, and prices are not regularly monitored. When procuring medicines, the government has a local preference of up to 15 percent (i.e., the government will pay up to 15 percent more for locally produced medicines than for imports).

Some medicines under the essential care package are provided free-of-charge in the public sector at all levels of care. In the public sector, children under five get free medicines and treatment, and maternity services and family planning commodities are also provided free-of-charge. Medicines to treat tuberculous and HIV are also provided free-of-charge in the public sector. In the mission sector, free treatment depends on medicines that are funded/purchased by donors and distributed to faith-based facilities (e.g., through the MEDS or KEMSA supply systems). Donated medicines are usually provided for free in both the public and mission sectors.

When supply chain challenges result in stock-outs, as an interim measure some public facilities opt to buy out-of-stock medicines from other sources and charge patients when these medicines are dispensed.

METHODOLOGY

Sectors

Data was collected in the public sector (public hospital outpatient dispensaries and health care facilities), the private sector (private retail pharmacies) and in mission health care facilities.

Survey Areas

At GIZ's request, Vihiga, Kwale and Kisumu counties were surveyed (all are rural areas). As per the methodology, data was also collected in the capital Nairobi and two counties within 24 hours drive of Nairobi. The selection would normally be done randomly, however, consideration was given to the urban/rural mix, geographic spread and support from local health officers. Kajiado county and Nakuru county were selected. Kajiado county is considered rural, but is only about two hours drive south of Nairobi. Nakuru county is considered urban and hosts a large referral hospital. It is about 2.5 hours drive to the north-west of Nairobi. In terms of the old provincial administrative blocks (which numbered eight), Kajiado was considered to be between Nairobi and Rift Valley Province, Nakuru in Rift Valley, Vihiga in the West, Kwale in the Coast, and Kisumu in Nyanza. The geographic spread of the six survey areas is shown in Figure 1.

Figure 1: Map of Kenya showing the survey area.

Medicines

A total of 31 medicines, known to be both locally produced and imported, were surveyed. All had pre-set strengths and dosage forms, and are included in Kenya's Essential Medicines List.

The selection of the survey medicines was determined by the researchers and GIZ. It was initially based on data provided by GIZ on medicines manufactured by Kenyan companies (2016 data), local capacity data, and therapeutic classes of products of local manufacturers (2016 data). The websites of the larger local pharmaceutical manufacturers' were also reviewed to identify their products, and three large wholesalers in Nairobi were visited to see what products were in stock and ascertain what local products were commonly traded. (See Annex 1 for the list of survey medicines)

For each medicine, data was collected on all products (containing the same active pharmaceutical ingredient(s), strength and dosage form) stocked in the medicine outlet on the day of data collection.

Note: different strengths and dosage forms of the survey medicines, and therapeutic alternatives, may be on the market (but were not included in the survey).

Data Collection

As shown in Table 1, patient price and availability data was collected from a total of 82 outlets: 30 in the public sector (hospitals (outpatients) and health centres), 30 private retail pharmacies, and 22 mission health facilities (hospitals (outpatients) and health centres).

Table 1: Measurements in each sector.

Measurement	Public sector	Private sector	Mission sector
Availability to patients	Yes	Yes	Yes
Price to patients	Yes	Yes	Yes
Procurement price	Yes		Yes
Number of medicine outlets sampled	30	30	22

The selection of the outlets was according to the manual. In each county, the main public hospital was identified. Four public hospitals/ health centres were randomly selected from those within a three hour car journey of the main hospital. The nearest private pharmacy, and the nearest mission health centre/hospital, to each public sector outlet was then selected.

Fewer mission sector outlets were sampled in Kwale and Kajiado counties compared to the other four areas. Kwale had no mission facilities, however, two facilities that service both Kwale and Mombasa counties were surveyed. In Kajiado, the mission facilities were unwilling to participate in the survey until they got direction from the Archdiocese of Nairobi. The process of getting this approval tends to be very long. There was insufficient time to seek this approval, which resulted in no mission facilities being surveyed in Kajiado county.

The public sector sample consisted of:

- Nairobi: one level five hospital, one level four hospital, and three level three outlets (one special treatment hospital, one sub-district hospital and one health centre)
- Vihiga: two level four hospitals (one referral hospital and one sub-county hospital), and three level three health centres (one of which was a rural health training centre)
- Kwale: two level four hospitals (one referral hospital and one sub-county hospital), and three level three health centres (one of which was a rural health training centre)
- Kisumu: four level four hospitals (three county hospitals and one sub-county hospital) and one level three hospital (sub-county)
- Kajiado: two level four hospitals (one referral hospital and one sub-county hospital) and three level three health centres
- Nakuru: one level five hospital, one level four government pharmacy and three level three outlets (one health centre, one sub-county hospital and one nursing home)

Public sector procurement prices were collected from KEMSA in Nairobi. Procurement prices were also collected from MEDS in Nairobi.

The country of manufacture, as specified by the PPB, was used to determine if the product was locally produced or imported. The company name and country of manufacture was identified from product labels.

Data Collection and Data Quality Assurance

The national investigator was trained on the methodology. She then trained the data collectors and data entry personnel, including piloting data collection in a large chain pharmacy (Goodlife) in Nairobi (approval was sought to pilot test in a second pharmacy in Nairobi, but no response was received).

The national investigator reviewed the data collection forms before data entry. In addition, she undertook validation surveys in a private retail pharmacy in two survey areas. Two price inconsistencies were found. These were discussed with the data collector and the correct data clarified. There were also two inconsistencies in the availability of a medicine, due to sales in the

hour between the initial survey and the validation survey. Data was double-entered into an automated Excel workbook that accompanies the manual, then checked by the national investigator and by HAI.

A list of the products found in the survey was sent to PPB to check the registration status (marketing authorisation). No response has been received from PPB, despite direction by the Chief Pharmacist to his officers to check the registration status.

Data Analysis

Availability was based on whether the medicine was in the outlet on the day of data collection.

For each medicine, where more than one locally produced product or imported product was found in an outlet, the median unit price was calculated and used in the analysis.

Prices are expressed as median price ratios (MPR). An MPR is the ratio of the median price in local currency (Kenyan Shilling, KSh) divided by an international reference price converted to KSh. At the time of the survey, US$1 = 102.21 KSh. The use of reference prices serves as an external benchmark for price comparisons. An MPR of 1 means the Kenyan price is equivalent to the reference price, whereas an MPR of 2 means the Kenyan price is twice the reference price. The international reference prices used for this survey were taken from the 2015 Management Sciences for Health (MSH) International Medical Products Price Guide (http://mshpriceguide.org/en/home/). The MSH guide pulls together information from recent price lists of not-for-profit and for-profit suppliers for multisource medicines, and thus reflects the prices governments could be expected to pay for medicines.

For public sector procurement prices, an MPR was calculated when one or more products were procured. For patient prices in the private and mission sectors, an MPR was only calculated for a medicine when products were found in more than three outlets surveyed within a sector. In the public sector, no restriction was applied as there were few price points (many outlets supply medicines free-of-charge to patients). Minimum MPRs and maximum MPRs represent the minimum and maximum values found in an outlet. All products, whether provided free or patients had to pay, were included in the availability analysis.

International commercial (INCO) terms were identified for all the products procured by KEMSA and MEDS. INCO terms are three-letter trade terms (there are a total of 11 INCO terms) used to communicate the tasks, costs, and risks associated with the transportation and delivery of goods. More common INCO terms used in the procurement of medicines are EXW (ex-works or ex-factory, more often used for locally produced medicines), FOB (free on board ship), DDP (delivered duty paid), and CIF (cost, insurance and freight). Where INCO terms are found to differ between locally produced and imported medicines, price adjustments would be needed so they include the same costs. In this survey, procurement prices for all products purchased (imported and local) by KEMSA and MEDS were DDP (i.e., the price covered all costs to their central stores in Kenya). Hence no price adjustments were needed.

Prices were analysed in various ways, including by product type (i.e., originator brands, branded generics and INN generics). An originator brand is the product that was first authorised worldwide for marketing (usually as a patented product). It always has a brand name. A branded generic is a generic equivalent product marketed under a brand name. An INN generic is a generic equivalent product that is marketed under its INN rather than a brand name. For the analysis by product type, a median MPR was only calculated if data was available for more than three medicines.

RESULTS

1. Procurement Prices

1.1 Public Sector Procurement Prices

Of the 31 survey medicines, KEMSA procured 18 locally produced products and seven imported products. Six medicines were not procured (as imports or local products).

Overall, government procurement prices for locally produced and imported medicines were 0.55 and 0.78 times international reference prices respectively, as shown in Table 2. Therefore, across these medicines, locally produced products were 30 percent lower priced than imports.

For locally produced products, half the medicines ranged from 0.39–0.63 times international reference prices, and for imported products half the medicines ranged from 0.56–0.85 times international reference prices.

Note: data are not for a paired sample of medicines.

Table 2: Summary of public sector procurement prices.

	Locally produced products	Imported products
Number of medicines	18	7
Number of products	18	7
Median MPR	**0.55**	**0.78**
Interquartile range	0.39–0.63	0.56–0.85
Minimum MRP	0.13	0.35
Maximum MPR	0.68	2.29

Annex 1 lists the government procurement prices of individual medicines.

Only silver sulphadiazine cream was being procured as both locally produced and imported products. The Kenyan product was the 250g jar at 0.5668 KSh per gram (4987 jars purchased annually), whereas the product imported from India was the 100g tube at 0.7287 KSh per gram (2369 tubes purchased annually). Thus the imported product was 28 percent higher priced than the local product, but both had price ratios well below the international reference price (MPR 0.28 (local) vs MPR 0.35 (imported)).

1.2 Mission Sector Procurement Prices

Of the 31 survey medicines, MEDS procured 22 locally produced products and eight imported products. No medicines had products procured that were both locally produced and imported. The only survey medicine found not be to procured was amoxicillin 250mg dispersible tablets (although MEDS did purchase the 125mg strength).

Overall, procurement prices for locally produced and imported medicines were 0.61 and 0.81 times the international referenwce prices respectively, as shown in Table 3. Therefore, across these medicines locally produced products were 25 percent lower priced than imports.

For locally produced products, half the medicines ranged from 0.49–0.82 times the international reference prices, and for imported products half the medicines ranged from 0.70–0.91 times the international reference prices. No medicines had products procured that were both locally produced and imported.

Note: data are not for a paired sample of medicines.

Annex 2 lists the mission sector procurement prices of individual medicines.

Table 3: Summary of mission sector procurement prices.

	Locally produced products	Imported products
Number of medicines	22	8
Number of products	22	8
Median MPR	**0.61**	**0.81**
Interquartile range	0.49–0.82	0.70–0.91
Minimum MRP	0.20	0.43
Maximum MPR	3.52	2.03

2. Patient Prices

2.1 Public Sector Patient Prices

2.1.1 Overall Public Sector Patient Prices

Across the 30 public sector outlets surveyed, a total of 471 locally produced products were found, of which 216 were not supplied free-of-charge (25 medicines). For imported medicines, a total of 233 products were found, of which 80 were not supplied free-of-charge (18 medicines). Of those requiring payment, overall patient prices for locally produced products and imported products were similar at 1.58 times and 1.46 times international reference prices, respectively (see Table 4).

For locally produced products, half the medicines (25th-75th percentiles) were 0.91–2.31 times the international reference prices, whereas for imported products, half the medicines were 1.12–2.71 times the international reference prices.

Note: this is not a paired analysis and, due to the low number of price points in this sector, an MPR was calculated even where less than four prices were recorded.

Table 4: Summary of public sector patient prices.

	Locally produced products	Imported products
Number of medicines	25	18
Number of products	216	80
Median MPR	**1.58**	**1.46**
Interquartile range	0.91–2.31	1.12–2.71
Minimum MRP	0.07	0.39
Maximum MPR	4.47	5.20

Overall patient prices for locally produced and imported products were almost identical across the 15 medicines where both product categories were found (paired analysis), as shown in Table 5. The median MPRs of locally produced and imported products were 1.58 and 1.59, respectively. However, it must be noted that the number of products was not large in this analysis, particularly for those that were imported (many medicines are supplied free-of-charge in the public sector).

Table 5: Summary of public sector patient prices, paired analysis.

	Locally produced products	Imported products
Number of medicines	15	15
Number of products	110	74
Median MPR	**1.58**	**1.59**
Median of interquartile range	0.68–2.27	1.15–2.80

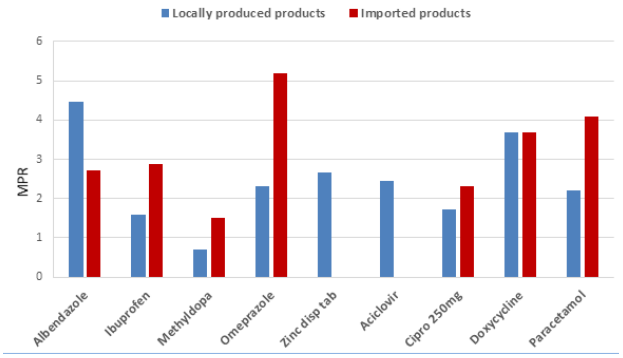
2.1.2 Patient Prices of Individual Medicines in the Public Sector

Annex 3 lists the MPRs and prices in Ksh for individual medicines in the public sector where patients pay out-of-pocket, as well as the number of products found to be provided free-of-charge. Locally produced medicines ranged in price from 0.07 times (93 percent less than) the international reference price for amoxicillin 500mg cap to 4.47 times (347 percent higher than) the international reference price for albendazole chew tabs. Imports ranged from 0.39 times (61 percent less than) the international reference price for silver sulphadiazine cream to 5.20 times (420 percent higher than) the international reference price for omeprazole 20mg tab.

Figure 2 shows examples of medicines with patient prices in the public sector over twice their international reference prices and/or where price differences were greatest between locally produced and imported products.

Note: in many cases the price data was based on a small number of products.

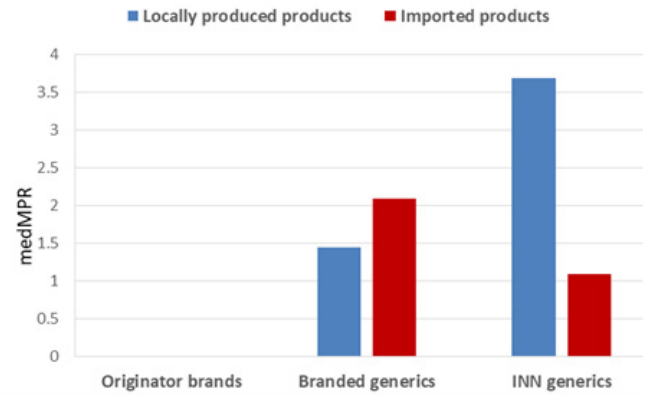
Figure 2: Patient prices (MPRs), public sector individual medicines.



2.1.3 Public Sector Patient Prices by Product Type

No originator brands were found in the public sector. Overall, for branded generics, patients were paying 45 percent more for imported products (medMPR = 2.09) than for locally produced products (medMPR = 1.44) (Figure 3). A different picture was seen for INN generics, where locally produced products (medMPR = 3.68) had higher prices than imported products (medMPR = 1.09). However, few locally produced INN products were found. It should be noted that this aggregate data is not for a paired sample of medicines.

Figure 3: Patient prices (median MPRs), public sector, by product type.



2.2 Private Sector Patient Prices

2.2.1 Overall Private Sector Patient Prices

In the 30 private pharmacies surveyed, where MPRs were calculated, overall patient prices for locally produced products (390 products) were 2.04 times the international reference prices (see Table 6). Patient prices for imported products (also 390 products) were 2.62 times the international reference prices.

For locally produced products, half the medicines were 1.54–2.94 times the international reference prices, whereas for imported products there was a greater spread with half the medicines 1.82–4.44 times the international reference prices.

Table 6: Summary of private sector patient prices.

	Locally produced products	Imported products
Number of medicines	22	21
Number of products	390	390
Median MPR	**2.04**	**2.62**
Interquartile range	1.54–2.94	1.82–4.44
Minimum MRP	0.87	1.20
Maximum MPR	22.34	33.51

In the paired analysis, across 16 medicines, patient prices for imported products were 48 percent higher (medianMPR = 3.14) than prices for locally produced products (medianMPR = 2.12) (Table 7).

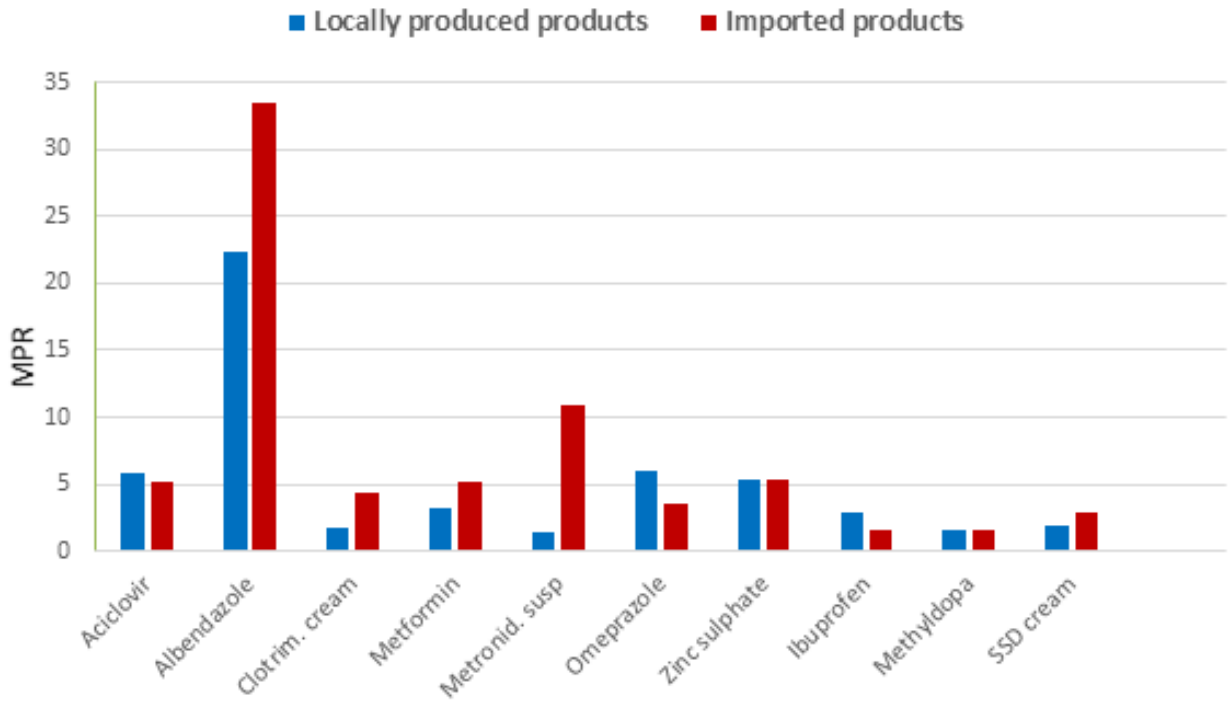
Table 7: Summary of private sector patient prices, paired analysis.

	Locally produced products	Imported products
Number of medicines	16	16
Number of products	232	288
Median MPR	**2.12**	**3.14**
Median of interquartile range	2.01–3.04	2.25–6.19

2.2.2 Patient Prices of Individual Medicines in the Private Sector

Annex 4 lists the MPRs for individual medicines in the private sector. Locally produced products ranged from an MPR of 0.87 times (13 percent less than) the international reference price for nystatin suspension to 22.34 times (2,134 percent higher than) the international reference price for albendazole chewable tab. For imported products, glucose five percent in normal saline IV solution had the lowest price ratio across the 21 medicines in the analysis (medMPR = 1.20). Again, albendazole had the highest MPR at 33.51 times (3,251 percent higher than) the international reference price. Figure 4 shows individual medicines with patient prices in the private sector over four times the international reference prices and/or where price differences were greatest and least between locally produced and imported products.

Figure 4: Patient prices (MPRs), private sector, individual medicines over four times international reference prices and those with large or small prices differences.

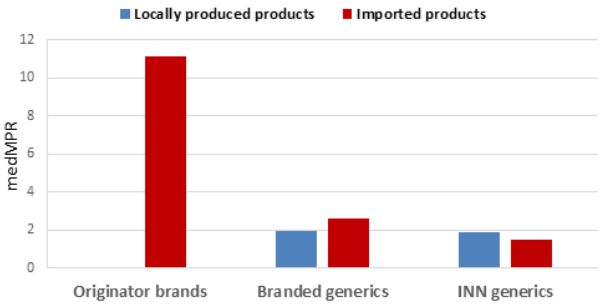


All tablets or capsules except metronidazole suspension, clotrimazole topical cream, and silver sulphadiazine (SSD) cream

2.2.3 Private Sector Patient Prices by Product Type

Across all products found in the private sector, originator brands (57 products, all imported) were 11.12 times the international reference prices (Figure 5). For branded generics, imported products were 34 percent higher priced (medMPR =2.62, 314 products) compared to locally produced products (medMPR = 1.95, 383 products). Of the few INN generics found, overall patient prices for locally produced products (medMPR = 1.85, 11 products) were only slightly higher priced than imported INN generics (medMPR=1.51, 27 products). This aggregate data is not for a paired sample of medicines.

Figure 5: Patient prices (median MPRs), private sector by product type.



2.3 Mission Sector Patient Prices

2.3.1 Overall Patient Prices in the Mission Sector

Some medicines were not supplied free-of-charge in the mission outlets surveyed. Overall, patient prices for locally produced products (228 products) were 3.21 times the international reference prices. Patient prices for imported products (1914 products) were 4.01 times the international reference prices (see Table 8).

For locally produced products, half the medicines were 2.04–4.08 times international reference prices. For imported products, there was a slightly greater spread with half the medicines 2.23–5.42 times international reference prices.

Table 8: Summary of patient prices in the mission sector.

	Locally produced products	Imported products
Number of medicines	21	19
Number of products	228	191
Median MPR	**3.21**	**4.01**
Interquartile range	2.04–4.08	2.23–5.42
Minimum MRP	0.76	0.91
Maximum MPR	22.34	11.95

In the paired analysis, across 13 medicines, patient prices for imported products were 33 percent higher priced (medMPR = 4.32) than locally produced products (medMPR = 3.26), as shown in Table 9.

Table 9: Summary of patient prices in the mission sector, paired analysis.

	Locally produced products	Imported products
Number of medicines	13	13
Number of products	119	129
Median MPR	**3.26**	**4.32**
Median interquartile range	2.79–5.32	3.26–7.32

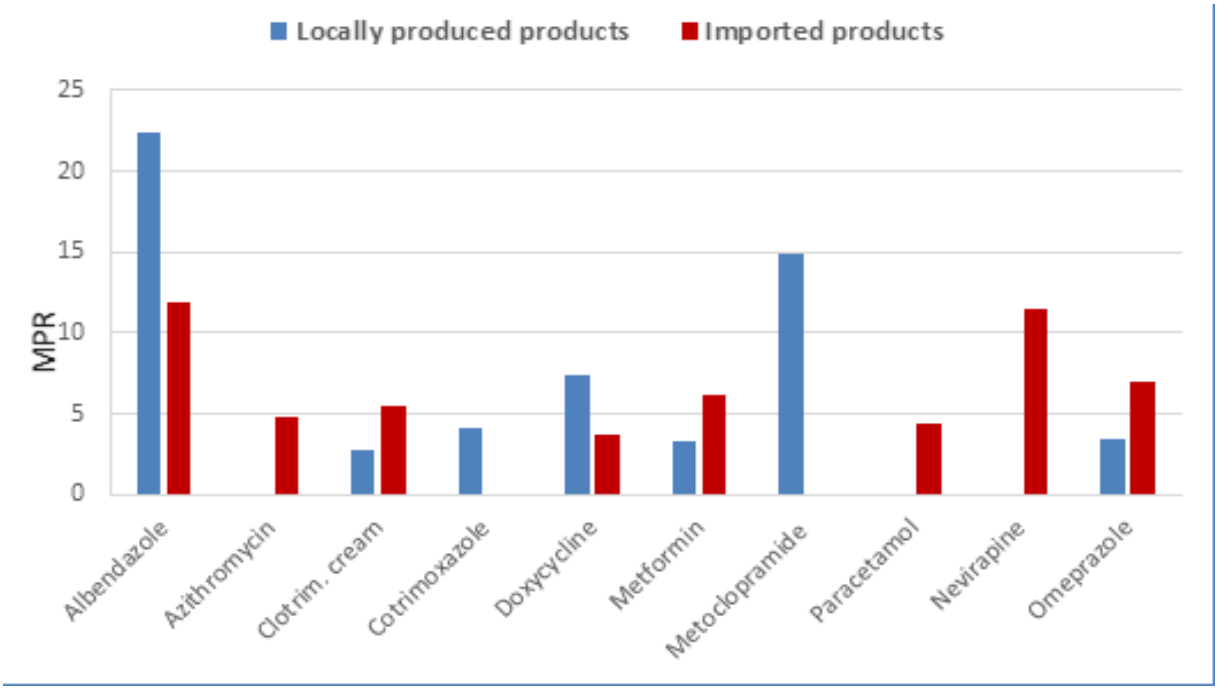
2.3.2 Patient Prices of Individual Medicines in the Mission Sector

Annex 5 lists the MPRs for individual medicines in the mission sector. Locally produced products ranged from an MPR of 0.76 times (24 percent less than) the international reference price for nystatin suspension to 22.34 times the international reference price for albendazole tablets. For imported medicines, atorvastatin had the lowest price ratio (medMPR = 0.91 or nine percent below the international reference price). Albendazole had the highest MPR at 11.95.

Figure 6 gives individual medicines with the highest patient prices in this sector and/or where price differences were greatest between locally produced and imported products.

Note: Nevirapine has been included in Figure 6 although it was not included in the analysis in Tables 7 and 8 (as less than four price points were recorded). It was provided free-of-charge, except for the imported originator brand found in one mission outlet.

Figure 6: Patient Prices (MPRs), mission sector, individual medicines.

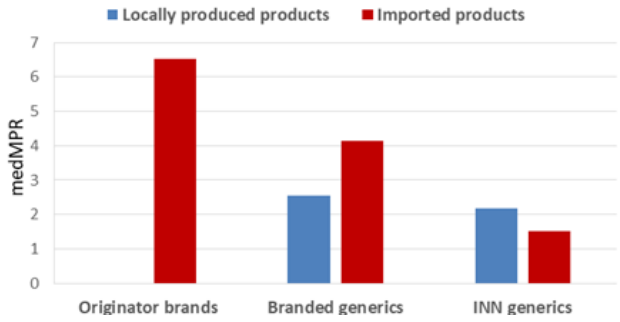


All tablets or capsules except clotrimazole topical cream

2.3.3 Mission Sector Patient Prices by Product Type

Across all originator brands not supplied free-of-charge in the mission sector, patients were paying 6.52 times the international reference prices (based on 17 products). All were imported, as shown in Figure 7. For branded generics, patients were paying 63 percent more for imported products (medMPR = 4.13 across 171 products) than for locally produced products (medMPR = 2.54 across 250 products). Only nine locally produced INN generic products were found. They were higher priced than imports (medMPR = 1.51 across 52 products). This aggregate data is not for a paired sample of medicines.

Figure 7: Patient Prices (median MPRs), mission sector, by product type.



3. Analysis of Procurement Prices and Patient Prices

3.1 Public Sector

For 18 medicines procured by the government (KEMSA) as locally produced products, out-of-pocket patient prices were recorded in public sector outlets (i.e., matched pairs of medicines). Across these medicines, patients were paying 3.17 times (217 percent more than) the procurement price. A paired analysis for imported products included only five medicines. For these medicines, patients were paying 1.40 times (40 percent more) than the procurement price (Table 10).

See Annex 6 for details on the paired analysis of public sector procurement prices and public sector patient prices.

Table 10: Median ratio of public sector patient prices and public sector procurement prices.

	Number of paired medicines	Median Ratio between Public Sector Patient Price MPR and KEMSA Procurement Price MPR
Locally produced products	18	3.17 (217%)
Imported products	5	1.40 (40%)

The analysis above assumes that the public sector hospitals and health centres purchased their medicines from KEMSA. However, a number of products not procured by KEMSA were found, so the hospitals and health centres were likely purchasing from other sources. When only brands both procured by KEMSA and sold to patients in the public hospitals and health centres were considered, the median ratios were 2.77 (16 brands) and 1.35 (four brands) for local and imported products, respectively (Table 11). Wide variation were seen for individual brands. However, even these identical products may not have been purchased by the outlet from KEMSA. See Annex 7 for details on the paired analysis of brands both procured by KEMSA and sold to patients in the public sector.

Table 11: Median ratio of public sector patient prices and public sector procurement prices for matched brands.

	Number of paired brands	Median Ratio between Public Sector Patient Price MPR and KEMSA Procurement Price MPR
Locally produced products	16	2.77 (177%)
Imported products	4	1.35 (35%)

3.2 Mission Sector

For 18 medicines procured by MEDS as locally produced products, out-of-pocket patient prices were recorded in mission outlets (i.e., matched pairs). Across these medicines, patients were paying 4.76 times (376 percent more than) the procurement price. A paired analysis for imported products included seven medicines. For these medicines, patients were paying 3.28 times (228 percent more) than the procurement price (Table 12).

See Annex 6 for details on the paired analysis of mission sector procurement prices and mission sector patient prices.

Table 12: Median ratio of mission sector patient prices and mission sector procurement prices.

	Number of paired medicines	Median Ratio between Mission Sector Patient Price MPR and MEDS Procurement Price MPR
Locally produced products	18	4.76 (376%)
Imported products	7	3.28 (228%)

The analysis above assumes that the mission hospitals purchased their medicines from MEDS. Various products not procured by MEDS were found, hence we assume some mission hospitals were purchasing from other sources. When only brands both procured by MEDS and sold to patients in the mission outlets were considered, the median ratios were 4.43 (18 brands) and 3.57 (five brands) for local and imported products, respectively (Table 13). Wide variations were seen for individual brands.

Note: it may be that even these identical products may not have been purchased by the mission hospitals from MEDS. If they were, then these mark-ups far exceeded the official rate of 18 percent for formulary item sales to mission hospitals.

See Annex 8 for details on the paired analysis of brands both procured by MEDS and sold to patients in mission sector outlets.

Table 13: Median ratio of mission sector patient prices and mission sector procurement prices for matched brands.

	Number of paired brands	Median Ratio between Mission Sector Patient Price MPR and MEDS Procurement Price MPR
Locally produced products	18	4.43 (343%)
Imported products	5	3.57 (257%)

Of note was the lower median mark-up for locally produced brands, compared to imported brands in both sectors, i.e., 177 percent (local) vs 35 percent (import) in the public sector, and 343 percent (local) vs 257 percent (import) in the mission sector. However, in both sectors, the analysis included few imported brands. Also of note was the higher mark-ups applied in the mission sector compared to the public sector.

4. Availability

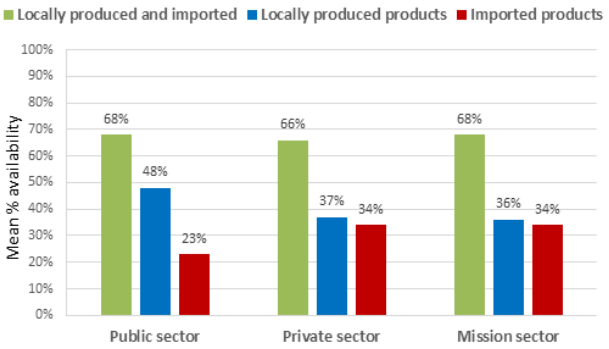
4.1 Overall Availability by Sector

Across the 31 survey medicines, locally produced products had a higher mean percentage availability than imported products in the public sector but similar availability in the private and mission sectors (see Figure 8). Across the 30 public sector outlets, mean availability of the survey medicines, for both locally produced and imported products, was 68 percent. The mean availability of locally produced products was 48 percent, whereas imported medicines had a lower mean availability of 23 percent.

In the private sector, the availability of the medicines was 66 percent. Of these, the availability of locally produced and imported products was similar at 37 percent and 34 percent, respectively. In the mission sector, availability was similar to that found in the private sector. The availability of locally produced products and imported products was 36 percent and 34 percent, respectively (with a mean availability of imported and locally produced products of 68 percent which was identical to the public sector and very similar to the private sector).

Note: For some medicines in some outlets, both locally produced and imported products were in stock on the day of data collection. Therefore, the sum of the percentage availability of locally produced products (blue bar) and the percentage availability of imported products (red bar) may not be equal to the percentage availability of both locally produced and imported products (green bar).

Figure 8: Mean percentage availibility by sector.



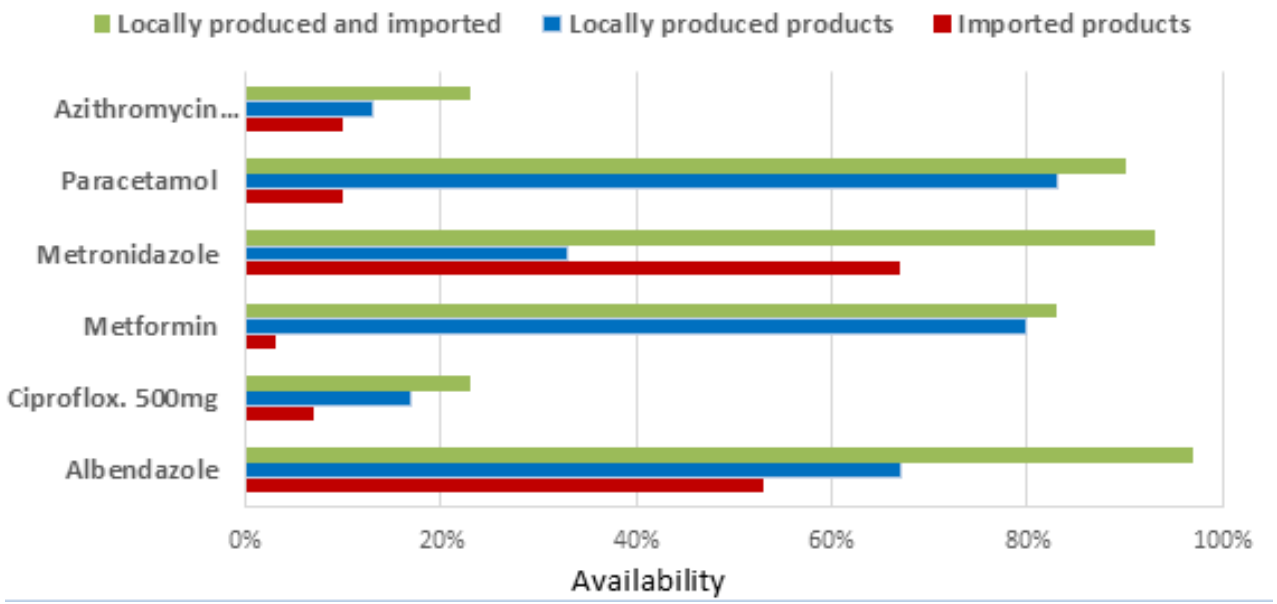
4.2 Availability of Individual Medicines by Sector

Annex 9 lists the availability of individual medicines in each sector. Figure 9 shows the availability of six medicines (all tablets or capsules except azithromycin suspension) in the public sector outlets surveyed. Locally produced paracetamol and metformin had far higher availability than imported products—i.e., 83 percent (local) versus 10 percent (imported) for paracetamol, and 80 percent (local) versus three percent (imported) for metformin. For azithromycin (13 percent local vs 10 percent imported), ciprofloxacin (17 percent local versus seven percent imported) and albendazole (67 percent local versus 53 percent imported) the difference was not so great.

For metronidazole, imported products (67 percent) had higher availability than local products (33 percent). Of note was the poor availability of any products of azithromycin and ciprofloxacin in the public sector, despite being on Kenya's EML.

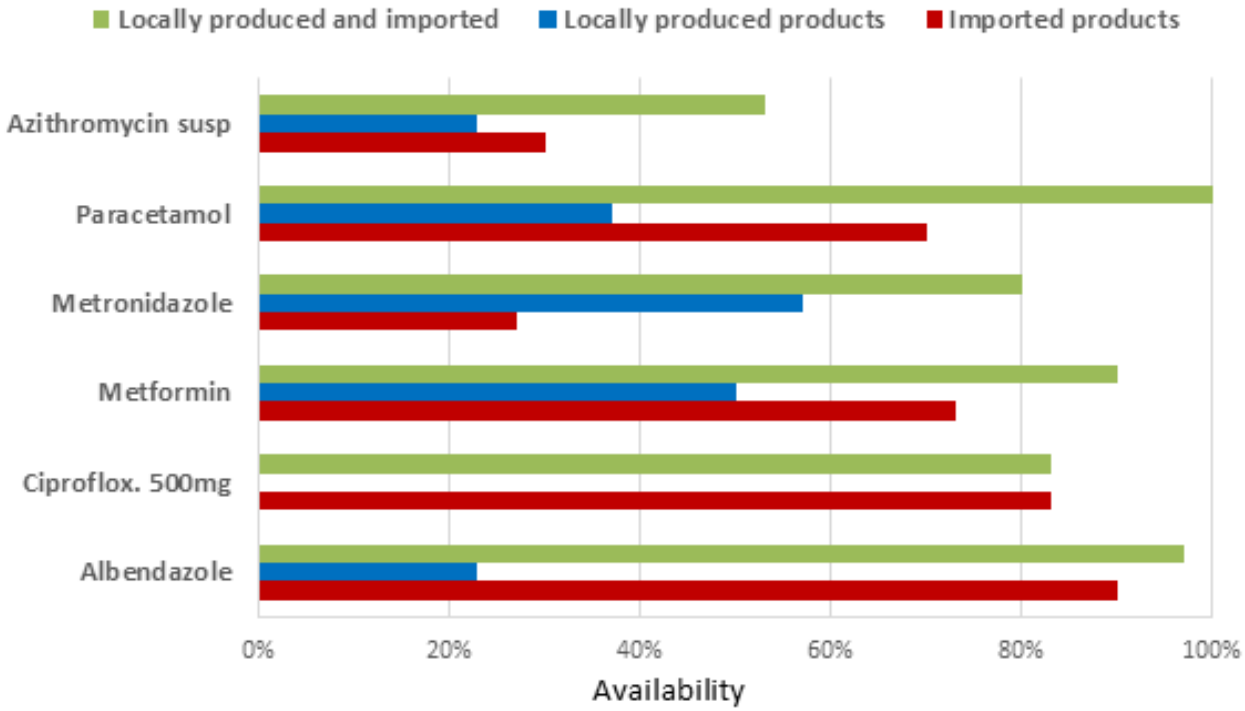
In the private sector, a somewhat different picture was seen for these six medicines (Figure 10). With the exception of metronidazole, the availability of imported products of the other five medicines was higher in the private sector compared to the public sector. For ciprofloxacin, only imported products were found in the private pharmacies, despite local production of this medicine.

Figure 9: Percentage availability, selected individual medicines, public sector.



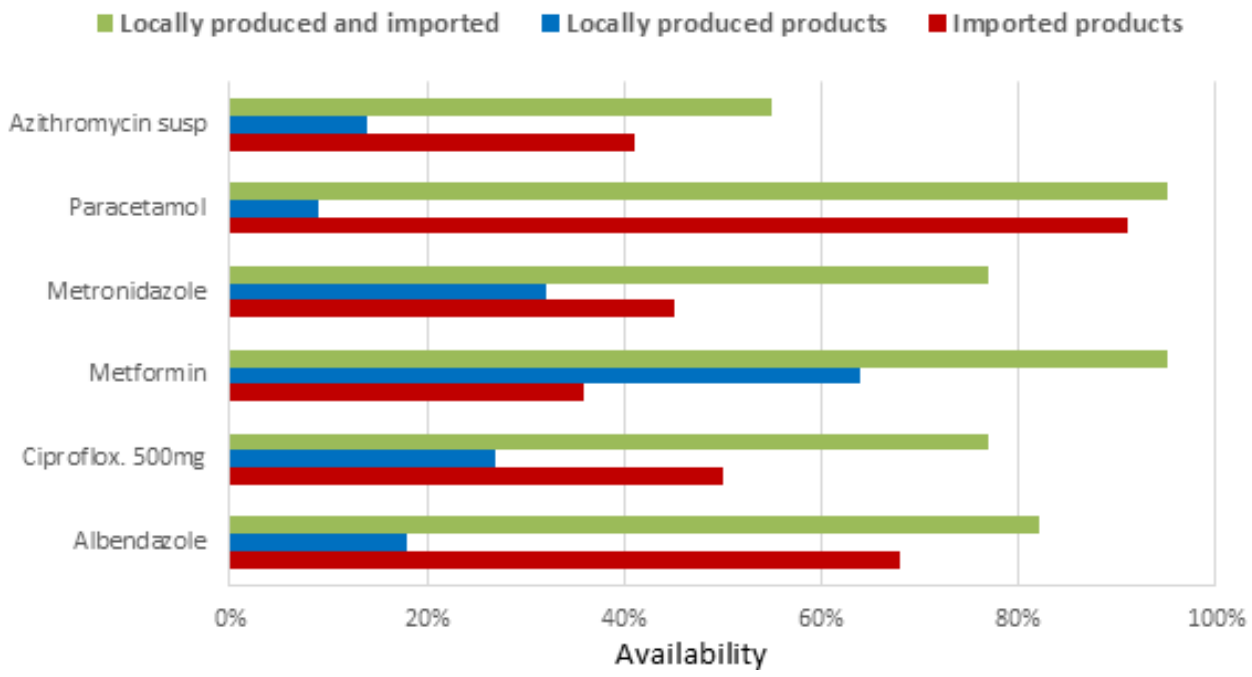
All tablets or capsules except azithromycin suspension

Figure 10: Percentage availability, selected individual medicines, private sector.



All tablets or capsules except azithromycin suspension

Figure 11: Percentage availability, selected individual medicines, mission sector.



All tablets or capsules except azithromycin suspension

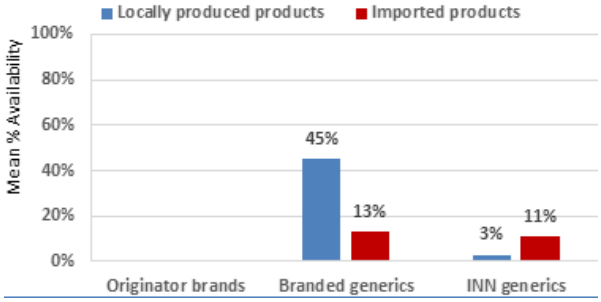
With the exception of metronidazole, the availability of imported products of the other five medicines was higher in the mission sector compared to the public sector (Figure 11). Of the six medicines, only metformin had higher availability of locally produced products (64 percent) compared to imported products (36 percent).

4.3 Availability by Product Type

4.3.1 Public Sector

Across the 30 public sector outlets, the majority of products found were branded generics (570) rather than INN generics (134). No originator brands were found. For the branded generics, the mean availability was higher for locally produced products (45 percent) than for imported products (13 percent) (see Figure 12). For the INN generics, the mean availability was higher for imported products (11 percent) than local products (three percent).

Figure 12: Mean percentage availability, public sector, by product type.

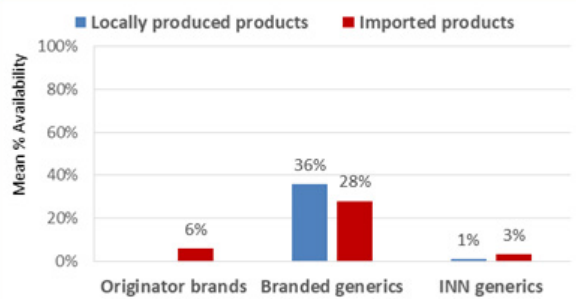


4.3.2 Private Sector

Across the private pharmacies, branded generics were the predominant product type (697 products found). Locally produced branded generics had a mean availability of 36 percent, compared to imported products at 28 percent (Figure 13). INN generics were far less available (38 products found), with the majority being imported (three percent) as compared to one percent being locally produced.

No locally produced originator brands were found. The mean availability of imported originator brands was six percent (57 products).

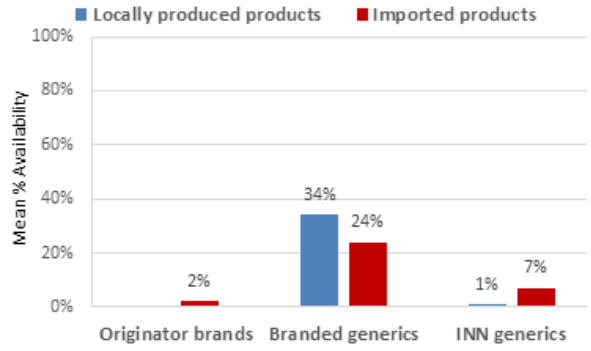
Figure 13: Mean percentage availability, private sector, by product type.



4.3.3 Mission Sector

Across the mission outlets, the predominant product type for both locally produced products and imported products was branded generics (421 products in total) at 34 percent and 24 percent respectively (see Figure 14). Mean availability of INN generics (61 products in total) was far lower at one percent and seven percent for locally produced and imported products, respectively. The mean availability of originator brands across the other sector outlets was two percent (all 17 products found were imported).

Figure 14: Mean percentage availability, mission sector, by product type.



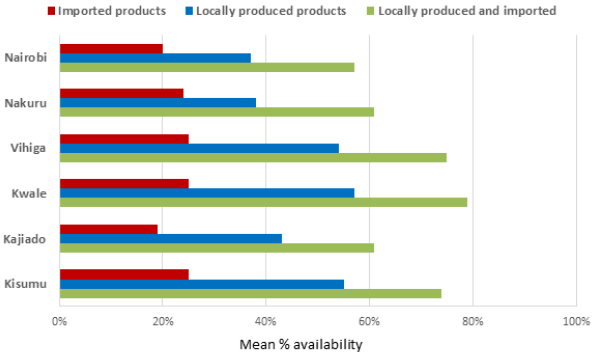
5. Cross-county Analysis

5.1 Availability

5.1.1 Public Sector

In the five public sector outlets in each of the six counties, the mean percentage availability of locally produced products was higher than the availability of imported products (Figure 15). The availability of any products (whether local or imported) was highest in Vihiga, Kwale and Kisumu, although it must be noted again that availability refers to the day of data collection only.

Figure 15: Mean percentage availability, public sector, by county.

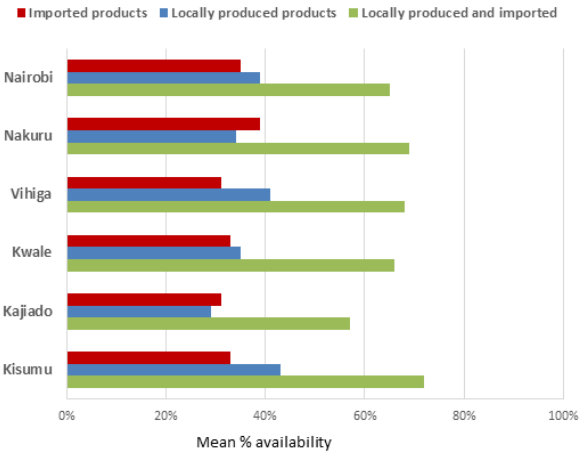


5.1.2 Private Sector

While the mean percentage availability of medicines (local and imported) was similar across the six counties in the private pharmacies sampled (five per county), a mixed picture was seen for locally produced versus imported medicines (Figure 16). In Vihiga and Kisumu counties, the availability of locally produced products was higher than imported products. In the other four areas (Nairobi, Nakuru, Kwale and Kajiado), the availability of local and imported products were similar.

Data is not given for the mission sector due to the low number of outlets surveyed in some counties.

Figure 16: Mean percentage availability, private sector, by county.



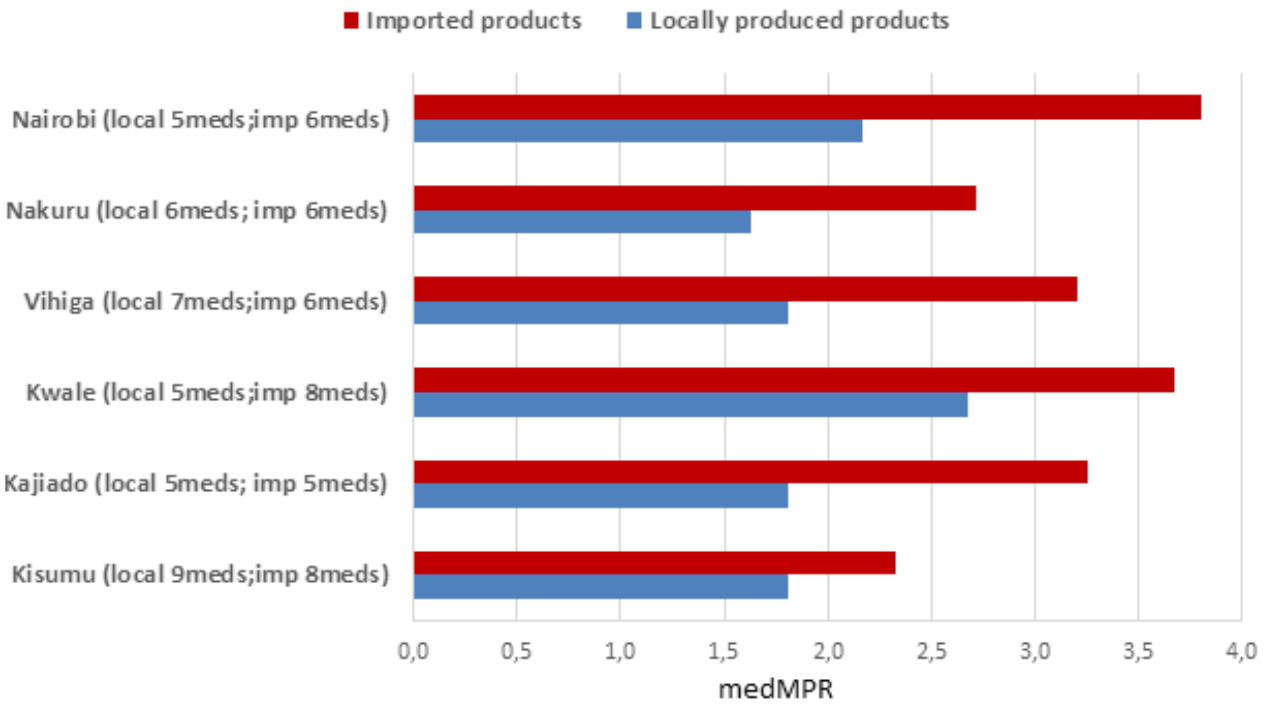
5.2 Patient Prices in the Private Sector

The following figures give overall patient prices (median MPRs) for locally produced and imported medicines, in the private sector, in each survey area (county). This is a non-paired analysis. Further, a median MPR is calculated only when the medicine was found in more than three of the outlets sampled per sector per county (although the median MPR can be based on a larger number of products found that contain that active ingredient). Hence, in most cases, the summary data is based on only a few medicines.

Data is not given for the public sector as there were very few imported medicines for which a median MPR could be calculated, and in the mission sector due to the low number of outlets in some counties.

Figure 17 shows patient prices (median MPRs) in the private sector across the six counties. In all areas, prices of imported medicines were higher than prices of locally produced products. Imported products were highest priced in Nairobi (medMPR = 3.81) and Kwale (medMPR = 3.63), and lowest priced in Kisumu (medMPR = 2.33). Locally produced products ranged from a medMPR of 1.63 in Nakuru to a medMPR of 2.68 in Kwale.

Figure 17: Summary of patient prices (median MPRs) by county, private sector.



6. Country of Manufacture

Across all sectors, 55.4 percent of the products found in the outlets were made in Kenya (by 21 companies – see Section 7). The largest number of imported products came from India (30.3 percent of all products found), followed by China (6.6 percent) and South Africa (4.0 percent) as shown in Table 14 and Figure 18.

The most predominant product type found was branded generics, at 88.0 percent. INN generics and originator brands made up 7.2 percent and 4.8 percent of all the products found, respectively.

Figure 18: Top four countries of manufacture, all sectors, by product type.

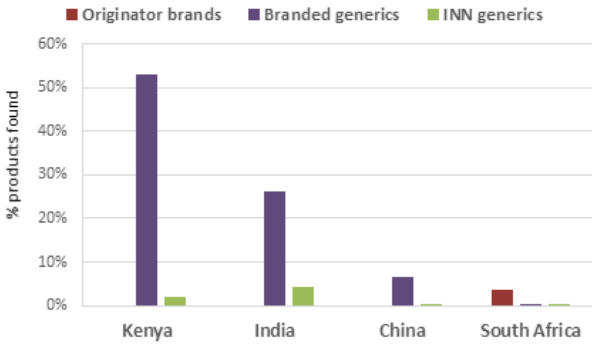


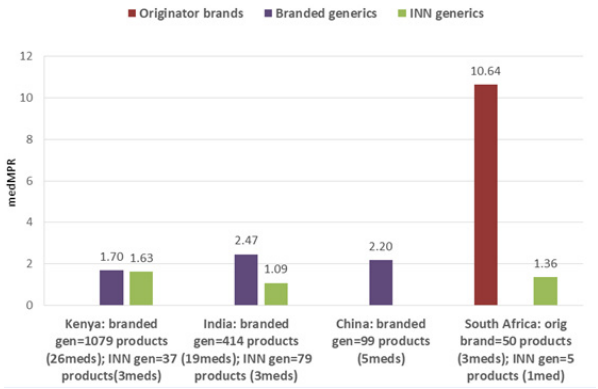
Table 14: Country of manufacture and % of products found by product type.

	Originator brands	Branded generics	INN generics	Total
Kenya	0.0%	53.2%	2.1%	55.4%
India	0.0%	26.1%	4.2%	30.3%
China	0.0%	6.4%	0.2%	6.6%
South Africa	3.6%	0.1%	0.3%	4.0%
Bangladesh	0.0%	0.8%	0.0%	0.8%
Pakistan	0.1%	0.5%	0.0%	0.5%
Ireland	0.4%	0.0%	0.0%	0.4%
France	0.4%	0.0%	0.0%	0.4%
Germany	0.1%	0.1%	0.1%	0.3%
Oman	0.0%	0.2%	0.0%	0.2%
Cyprus	0.0%	0.1%	0.1%	0.2%
Egypt	0.0%	0.2%	0.0%	0.2%
Poland	0.0%	0.0%	0.1%	0.1%
Turkey	0.0%	0.1%	0.0%	0.1%
USA	0.1%	0.0%	0.0%	0.1%
Switzerland	0.0%	0.1%	0.0%	0.1%
Romania	0.0%	0.1%	0.0%	0.1%
UK	0.1%	0.0%	0.0%	0.1%
Saudi Arabia	0.0%	0.1%	0.0%	0.1%
Uganda	0.0%	0.0%	<0.1%	0.1%
Total	**4.8%**	**88.0%**	**7.2%**	**100.0%**

As shown above in Table 14, the greatest number of products found in the outlets were manufactured in Kenya, India, China and South Africa. Figure 19 gives overall patient prices of the products found, across all sectors where the patient pays out-of-pocket, by product type for these four countries. For branded generics, overall patient prices for products manufactured in Kenya (medMPR = 1.70) where about 30 percent lower priced than those from India (medMPR = 2.47), and about 22 percent lower than products from China (medMPR = 2.20). For INN generics, products from Kenya had higher patient prices (medMPR = 1.63) than those made in India (medMPR = 1.09) and South Africa (medMPR = 1.36).

Note: this is not a paired analysis, the data for INN generics is based on only a few medicines, and few products made in China and South Africa were found.

Figure 19: Overall patient prices, most frequent countries of manufacture, all sectors.



7. Patient Prices Across Kenyan Manufacturers

A total of 1125 products, manufactured by 21 Kenyan companies, were found in the outlets surveyed in the three sectors.

The vast majority of these products were made by Dawa, Laboratory & Allied and Cosmos as shown in Table 15. Patient price ratios (across all sectors where people pay out-of-pocket) were similar across these three companies (i.e., medMPR =1.70 for Dawa, medMPR=1.26 for Laboratory & Allied, and medMPR 1.46 for Cosmos).

Note: this is not a paired analysis hence the basket of medicines for each company differ, products supplied free-of-charge are not included in the price analysis, and the data is combined across the three sectors.

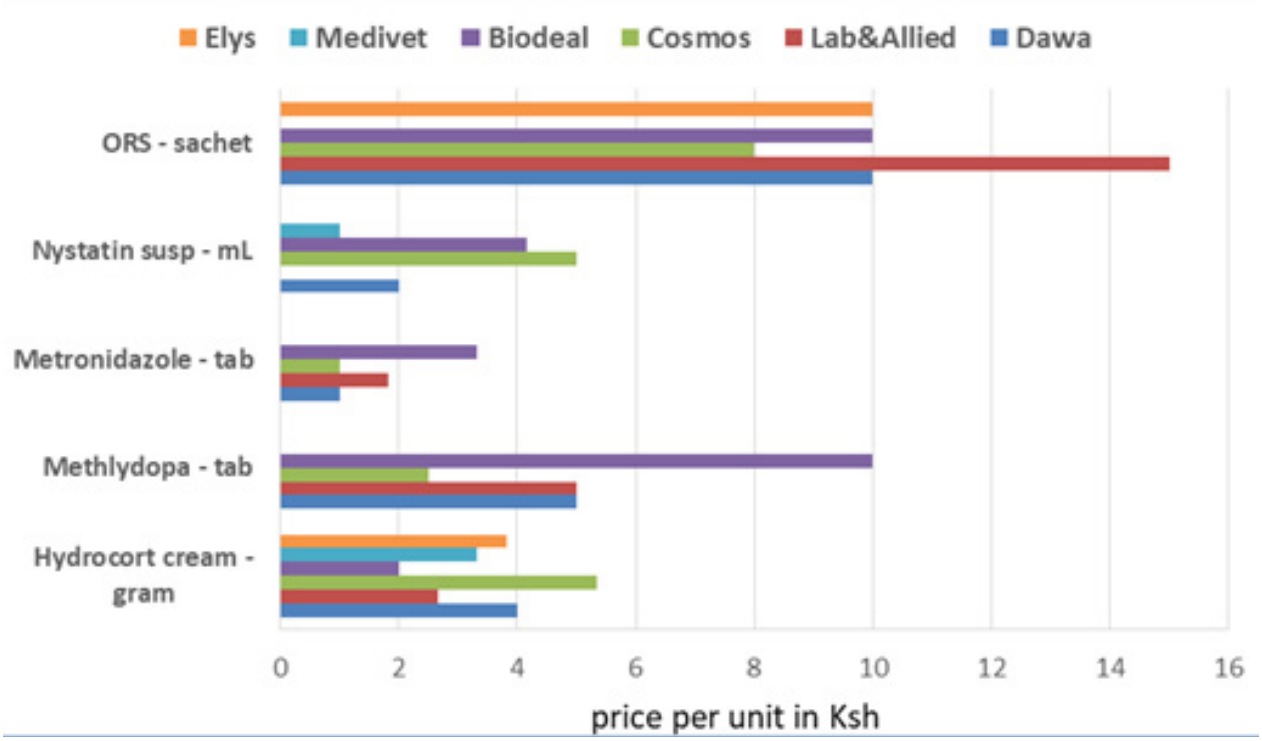
Annex 10 lists median patient prices in KSh and MPRs (where patients have to pay out-of-pocket), for individual medicines manufactured by six Kenyan manufacturers (Dawa, Laboratory & Allied, Cosmos, Biodeal, Medivet and Elys). Figure 20 gives examples of patient prices in KSh. Note: these are median prices across the combined sectors.

One of the objectives of this study was to compare the prices and availability of imported products with those produced in East African Community Member States (Kenya, Burundi, Rwanda, Tanzania and Uganda). Across all the outlets visited in this survey, only one product was found to be produced in one of these countries, excluding Kenya. It was made in Uganda, found in a public sector outlet, and supplied free-of-charge. With only one additional data point to that found for products made in Kenya, no analysis for products from East African Community Member States was undertaken.

Table 15: Local manufacturers, number of products found, and patient prices combined sectors.

Company	Number of products found	Number of medicines found	Median patient price in KSh	Median MPR
Dawa	276	17	2.00	1.70
Laboratory & Allied	184	19	1.00	1.26
Cosmos	157	19	2.50	1.46
Biodeal	99	15	2.50	1.36
Medivet	88	6	1.00	0.41
Elys	84	11	3.83	1.84
Universal Corporation	81	13	6.00	1.82
Regal Pharmaceuticals	73	6	1.11	1.26
Biopharma	26	8	5.00	2.58
Benmed	16	9	2.63	0.80
Njimia	13	4	1.50	1.51
Concepts Africa	7	2	0.60	1.43
Ivee Infusion	6	1	0.15	1.63
Sphinx	3	2	0.92	-
Mac's Pharma	3	2	3.42	-
Osschemie	2	1	0.70	-
Comet Healthcare	2	2	25.42	-
Skylight	1	1	1.00	-
Opera Pharma	1	1	0.32	-
Beta Healthcare	1	1	5.00	-

Figure 20: Median patient unit price in KSh, combined sectors, for selected medicines manufactured by selected Kenyan manufacturers.



DISCUSSION

The Kenyan government has stated that there are long-term gains to be had in stimulating the development of local medicine manufacturers. However, does local production benefit health through lower priced medicines that are widely available? This survey helps to answer this question.

Just over half (55 percent) of all the products found across outlets in the three sectors were made in Kenya (by 21 companies). About half of these were made by three companies—Dawa, Laboratory & Allied, and Cosmos. The largest number of imported products came from India (30 percent). Therefore, based on the medicines in this study, 85 percent of the products found were 'Made in Kenya' or 'Made in India'.

In the public sector, where patients had to pay out-of-pocket, overall prices (across the basket of medicines) of locally made and imported products were almost identical at 1.58 (local) and 1.59 (import) times the international reference prices. The WHO/HAI target is a median MPR of 1 for public sector patient prices (i.e., where patients have to pay for medicines, government procurement prices are passed onto them at little or no additional costs). Based on our findings, there may be some room for improvement.

In private pharmacies and mission hospitals/ health centres, a different situation was found—imports were 48 percent and 33 percent higher priced than locally produced products, respectively. That said, in all sectors, individual medicines showed variations. For example, for one albendazole tablet (anthelmintic), imports were cheaper in the public sector (median 6.5 Ksh [import] versus 10 Ksh [local]) and mission sector (26.75 Ksh [import] versus 50 Ksh [local]), but higher priced in the private sector (75 Ksh [import] versus 50 Ksh [local]).

A key contributor to the final patient price, particularly in the public and mission sectors, are procurement prices. In this study, procurement

prices were obtained from KEMSA and MEDS. KEMSA generally purchased either a local product or an import. KEMSA procured more locally produced products than imports, and overall their prices were 30 percent lower (median MPR 0.55 [local] vs 0.78 [import]). Only one medicine, silver sulphadiazine burn cream, had two brands procured—one locally produced and one imported. As they had significantly different pack sizes (100g tube and 250g jar), it was not feasible to determine if significant savings would be achieved by only buying the local product or the import. Likewise, it was not possible to determine from the KEMSA data if the 15 percent local preference was being exceeded. A similar picture was seen for MEDS. All the medicines were procured as either a local product or an import (not both), and more local products were purchased than imports. Overall, MEDS paid 25 percent less for local products than imports (median MPR 0.61 [local] vs 0.81 [import]). While KEMSA and MEDS were paying less for local products compared to imports, the imports also had median procurement prices less than the international reference prices, showing price efficiency compared to the international market.

A second key contributor to the final patient price are add-on charges in the supply chain, including mark-ups, duties and taxes. While the standard WHO/HAI methodology describes how to measure these add-ons comprehensively, in reality it is challenging, as distributors, retailers and others are usually unwilling to divulge mark-up information. Therefore, in this survey, mark-ups were assessed by comparing the KEMSA and MEDS procurement prices with patient prices, for the same brands of medicines, in the public and mission outlets sampled. The findings showed that patients in the public sector were paying 177 percent more than the KEMSA procurement price for locally produced products, and 35 percent for imports. In the mission sector, the mark-ups were 343 percent for locally produced products and 257 percent for imports, which far exceeds the official mark-up of 18 percent for formulary items (local and imported) sold to mission outlets. From our study, mark-ups were higher for the lower-priced locally produced products (compared to the high-priced imports). It would be valuable to undertake research on these add-on charges with a larger number of medicines, with confirmation of the source of the purchase by the public and mission outlets. Likewise, identification of the manufacturer's selling-price, and other add-on charges—such as wholesale and retail mark-ups—in the private sector could be valuable.

In summary, our findings show that both the public and the mission sectors pay less for locally produced medicines (compared to imports), but then charge higher percentage mark-ups. The result is that patients are not benefiting from the lower procurement prices of locally made products.

The key objective of this survey was comparing price differences between locally produced and imported medicines. It must be remembered that to improve access, medicines must be affordable, especially for those on low wages. Medicine affordability was not assessed in this survey. Therefore, it cannot be inferred that any of the medicines (whether produced locally or imported) are affordable for Kenyans.

The mean availability of the survey medicines (whether imported or locally produced) was similar, but suboptimal, across the three sectors (66–68 percent). In public sector facilities, some medicines had less than 50 percent availability (any product), such as azithromycin suspension and tablets, oral rehydration sachets, sulfadoxine + pyrimethamine, and dihydroartemisinin + piperazine.

KEMSA did not purchase seven of the 31 survey medicines, which impacts availability in the public sector outlets (and impacts price if outlets are forced to buy from private wholesalers).

Another issue impacting availability is paying KEMSA on time. We understand KEMSA cancels orders when outlets do not pay according to agreed timelines.
In the public sector outlets, local products were far more available (48 percent) than imports (23 percent), but with almost identical median patient prices. In outlets in the other two sectors, local products and imports had similar availability (48 percent and 33 percent in the private and mission sectors respectively), but prices were higher for imports. Therefore, it appears that patients are prepared to pay a higher price for imported products in the private and mission sectors.

The availability of locally produced and imported medicines in Kenya contrasts strongly to the findings from surveys undertaken in Tanzania and Ethiopia in 2013 using the same methodology (although the basket of survey medicines differed). In Tanzania, locally produced products were far less available than imports in all sectors (i.e., public: 21 percent [local] versus 32 percent [import]; private: 21 percent [local] versus 70 percent [import]; mission: 18 percent [local] versus 54 percent [import]). In Ethiopia, locally produced products were far more available than imports in all three sectors (i.e., public: 48 percent [local] versus 19 percent [import]; private: 54 percent [local] versus 35 percent [import]; mission: 55 percent [local] versus 32 percent [import]). Since the time of the survey, the government of Ethiopia has launched a 10-year national strategy and plan of action to develop local pharmaceutical manufacturing capacity to increase access to locally manufactured, quality-assured medicines.

Limitations of the methodology include:

- the number of survey medicines (although it resulted in a large number of products in the analyses);
- the limited number of price points in the public sector (as many medicines were supplied free-of-charge to patients);
- the findings only relate to the day of the survey and do not take into account factors such as the delivery dates for new supplies; and
- an inability to determine medicine availability had there been no local production. The large number of factors that impact the importation and subsequent supply of medicines in outlets would require a different methodological approach.

All medicines on the market in Kenya must be quality-assured. In this study, it was assumed that if a medicine had marketing authorisation (i.e., it was registered) then it met Good Manufacturing Practice (GMP) and other related standards. The registration status of the products found in this study could not be verified as the PPB does not provide a list of registered products on its website, nor was PPB able to tell us the registration status within the period of the study. PPB is encouraged to publish a list of registered products on its website (which is regularly updated) to aid transparency in regulatory processes and also in product quality.

RECOMMENDATIONS

The following recommendations are made based on the survey findings:

- Pass low procurement prices paid by KEMSA and MEDS on to patients required to pay for medicines out-of-pocket in order to improve access. Regulate mark-ups in the public sector.
- Improve supply chain challenges to avoid stock-outs, especially for medicines in the essential package list so they are available free-of-charge to patients at all times.
- Public sector facilities should pay KEMSA on time for orders to avoid stock-outs, especially of essential package list medicines.
- Investigate differences in procurement prices paid by KEMSA with those paid by public sector facilities who buy medicines from other sources (when KEMSA cannot supply). In addition to identifying procurement price differentials, such research will also identify mark-ups applied by the facilities to KEMSA procured medicines, with mark-ups applied when they procure from other sources. It would be valuable to undertake the same research in the mission sector.
- KEMSA should investigate cheaper sources for amoxicillin dispersible tabs and whether local production at the same price level would be possible.
- Consider investigating price components in the private sector to ascertain the contribution of both the manufacturer's selling prices, and also add-ons (including mark-ups of wholesalers and retailers), on patient prices for locally produced and imported medicines.
- Improve transparency by providing a list of registered products on the website of the PPB, and ensure it is regularly updated.
- Ensure procurement prices listed on KEMSA's website are up-to-date and complete.
- Monitor the price and availability of locally produced and imported medicines every two to three years to ascertain if efforts to support local production are resulting in lower patient prices and greater medicine availability at outlets.

Annex 1: Government (KEMSA) Procurement Prices

Prices in KSh are for a unit (i.e., a tab or cap, mL of liquid, gram of cream).

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	MPR	Products (n)	Median unit price (KSh)	MPR
Aciclovir 200mg						
Albendazole 400mg chew tab	1	1.16	0.52			
Amoxicillin 250mg disp tab				1	7.36	2.29
Amoxicillin 500mg	1	1.77	0.58			
Atorvastatin 20mg	1	1.42	0.13			
Azithromycin 200mg/5ml susp.						
Azithromycin 250mg						
Ciprofloxacin 250mg	1	1.26	0.58			
Ciprofloxacin 500mg						
Clotrimazole 1% topical cream	1	0.62	0.45			
Cotrimoxazole 240mg/5ml susp.	1	0.32	0.66			
Cotrimoxazole 480mg	1	0.81	0.66			
Dihydroartemisinin+piperazine 40mg+320mg						
Doxycycline 100mg	1	0.92	0.68			
Glucose 5% in sodium chloride 0.9% 500ml IV soln.				1	0.07	0.78
Hydrocortisone 1% cream/oint	1	1.65	0.46			
Ibuprofen 200mg	1	0.44	0.63			
Lamivudine 150mg				1	2.57	0.64
Metformin 500mg	1	0.48	0.32			
Methyldopa 250mg				1	3.04	0.92
Metoclopramide 10mg	1	0.40	0.59			
Metronidazole 200mg				1	0.31	0.49
Metronidazole 200mg/5ml susp	1	0.25	0.46			
Nevirapine 200mg				1	3.12	0.79
Nystatin 100000IU/ml susp	1	1.12	0.37			
Omeprazole 20mg	1	0.91	0.63			
Oral rehydration salts sachet (0.5 litre)						
Paracetamol 500mg	1	0.30	0.66			
Silver sulphadiazine 1% cream	1	0.57	0.28	1	0.73	0.35
Sulfadoxine+pyrimethamine 500mg+25mg						
Zinc sulphate 20mg disp tab	1	0.37	0.19			
Median MPR			**0.55**			**0.78**

tablet/capsule unless stated

Annex 2: Mission Sector (MEDS) Procurement Prices

Prices in KSh are for a unit (i.e., a tab or cap, mL of liquid, gram of cream).

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	MPR	Products (n)	Median unit price (KSh)	MPR
Aciclovir 200mg	1	2.13	0.62			
Albendazole 400mg chew tab	1	2.64	1.18			
Amoxicillin 250mg disp tab						
Amoxicillin 500mg				1	2.23	0.73
Atorvastatin 20mg	1	2.14	0.20			
Azithromycin 200mg/5ml susp.				1	2.67	0.43
Azithromycin 250mg	1	5.83	0.49			
Ciprofloxacin 250mg	1	1.50	0.69			
Ciprofloxacin 500mg	1	2.00	0.52			
Clotrimazole 1% topical cream	1	0.70	0.51			
Cotrimoxazole 240mg/5ml susp.	1	0.33	0.68			
Cotrimoxazole 480mg	1	0.74	0.60			
Dihydroartemisinin+piperazine 40mg+320mg				1	14.78	0.62
Doxycycline 100mg	1	1.45	1.07			
Glucose 5% in sodium chloride 0.9% 500ml IV soln.				1	0.10	1.06
Hydrocortisone 1% cream/oint	1	1.53	0.42			
Ibuprofen 200mg				1	0.60	0.86
Lamivudine 150mg	1	14.17	3.52			
Metformin 500mg	1	1.25	0.82			
Methyldopa 250mg				1	2.80	0.85
Metoclopramide 10mg	1	0.55	0.82			
Metronidazole 200mg	1	0.32	0.51			
Metronidazole 200mg/5ml susp	1	0.28	0.51			
Nevirapine 200mg	1	6.67	1.69			
Nystatin 100000IU/ml susp	1	1.09	0.36			
Omeprazole 20mg	1	1.20	0.83			
Oral rehydration salts sachet (0.5 litre)	1	3.60	0.63			
Paracetamol 500mg				1	0.35	0.78
Silver sulphadiazine 1% cream	1	0.90	0.44			
Sulfadoxine+pyrimethamine 500mg+25mg				1	8.25	2.03
Zinc sulphate 20mg disp tab	1	0.90	0.48			
Median MPR			**0.61**			**0.81**

tablet/capsule unless stated

Annex 3: Patient Prices in the Public Sector

N is the number of products found that were free and where patients paid out-of-pocket. An MPR and price in KSh is given for medicines where the patient paid out-of-pocket. Prices in KSh are for a unit (i.e., a tablet or capsule, mL of liquid, gram of cream).

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	MPR	Products (n)	Median unit price (KSh)	MPR
Aciclovir 200mg	11 6	free 8.34	2.44	0		
Albendazole 400mg chew tab	12 8	free 10.00	4.47	6 14	free 6.50	2.72
Amoxicillin 250mg disp tab	0			13 3	free 2.70	0.84
Amoxicillin 500mg	3 3	free 0.20	0.07	4 6	free 3.67	1.20
Atorvastatin 20mg	7	5.00	0.46	3	5.00	0.46
Azithromycin 250mg	2 3	free 26.67	2.23	1	16.67	1.39
Azithromycin 200mg/5ml susp.	2 2	free 4.00	0.65	2 1	free 3.33	0.54
Ciprofloxacin 250mg	9 6	free 3.75	1.73	4 6	free 5.00	2.31
Ciprofloxacin 500mg	4 1	free 5.00	1.31	2	6.07	1.59
Clotrimazole 1% topical cream	10 18	free 2.50	1.81	0		
Cotrimoxazole 480mg	16 14	free 2.00	1.63	0		
Cotrimoxazole 240mg/5ml susp.	26 5	free 0.50	1.02	0		
Dihydroartemisinin+piperazine 40mg+320mg	0			1 1	free 33.33	1.41
Doxycycline 100mg	11 17	free 5.00	3.68	2	5.00	3.68
Glucose 5% in sodium chloride 0.9% 500ml IV soln.	1 1	free 0.1	1.09	10 7	free 0.10	1.09
Hydrocortisone 1% cream/oint	11 17	free 3.33	0.92	0		
Ibuprofen 200mg	9 16	free 1.10	1.58	1	2.00	2.88
Lamivudine 150mg	0			34	free	
Metformin 500mg	10 16	free 2.00	1.30	1	free	
Methyldopa 250mg	1 2	free 2.33	0.70	12 9	free 5.00	1.51
Metoclopramide 10mg	11 16	free 2.50	3.71	0		
Metronidazole 200mg	3 9	free 1.68	2.69	9 11	free 1.67	2.67
Metronidazole 200mg/5ml susp	27 3	free 0.50	0.91	0		

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	MPR	Products (n)	Median unit price (KSh)	MPR
Nevirapine 200mg	0			37	free	
Nystatin 100000IU/ml susp	19 9	free 1.30	0.42	0		
Omeprazole 20mg	6 8	free 3.33	2.31	5 4	7.50	5.20
Oral rehydration salts sachet (0.5 litre)	5	free		3 2	free 6.75	1.19
Paracetamol 500mg	11 15	free 1.00	2.22	1 2	free 1.83	4.08
Silver sulphadiazine 1% cream	8 12	free 1.20	0.58	2 5	free 0.80	0.39
Sulfadoxine+pyrimethamine 500mg+25mg	8	free		9	free	
Zinc sulphate 20mg disp tab	19 2	free 5.00	2.66	0		

tablet/capsule unless stated

Annex 4: Patient Prices in the Private Sector

An MPR and price in KSh is given for medicines with >3 price points. Prices in KSh are for a unit i.e. a tab or cap, mL of liquid, gram of cream etc. Note: Zinc disp tabs were found to be supplied free-of-charge from two pharmacies.

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	Median MPR	Products (n)	Median unit price (KSh)	Median MPR
Aciclovir 200mg	9	20.00	5.86	4	17.50	5.13
Albendazole 400mg chew tab	11	50.00	22.34	59	75.00	33.51
Amoxicillin 250mg disp tab	0			3		
Amoxicillin 500mg	2			32	6.00	1.96
Atorvastatin 20mg	8	10.39	0.95	25	20.00	1.82
Azithromycin 250mg	1			4	40.83	3.41
Azithromycin 200mg/5ml susp.	7	9.33	1.52	11	12.67	2.07
Ciprofloxacin 250mg	1			1		
Ciprofloxacin 500mg	0			34	10.00	2.62
Clotrimazole 1% topical cream	24	2.50	1.81	14	6.13	4.44
Cotrimoxazole 480mg	16	2.50	2.04	5	2.00	1.63
Cotrimoxazole 240mg/5ml susp.	34	1.00	2.04	2		
Dihydroartemisinin+piperazine 40mg+320mg	0			24	47.50	2.00
Doxycycline 100mg	17	3.00	2.21	13	5.00	3.68
Glucose 5% in sodium chloride 0.9% 500ml IV soln.	0			8	0.11	1.20
Hydrocortisone 1% cream/oint	28	4.67	1.29	0		
Ibuprofen 200mg	9	2.00	2.88	20	1.15	1.65
Lamivudine 150mg	0			0		
Metformin 500mg	17	5.00	3.26	24	8.00	5.22
Methyldopa 250mg	11	5.00	1.51	13	5.00	1.51
Metoclopramide 10mg	17	2.00	2.96	0		
Metronidazole 200mg	17	1.00	1.60	9	1.00	1.60
Metronidazole 200mg/5ml susp	33	0.80	1.45	5	6.00	10.87
Nevirapine 200mg	0			0		
Nystatin 100000IU/ml susp	33	2.67	0.87	0		
Oral rehydration salts sachet (0.5 litre)	26	10.00	1.76	1		
Omeprazole 20mg	9	8.75	6.07	34	5.00	3.47
Paracetamol 500mg	13	1.00	2.22	23	1.00	2.22
Silver sulphadiazine 1% cream	16	4.00	1.95	17	5.78	2.81
Sulfadoxine+pyrimethamine 500mg+25mg	20	11.33	2.79	1		
Zinc sulphate 20mg disp tab	2 15	free 10.00	5.32	12	10.00	5.32

tablet/capsule unless stated

Annex 5: Patient Prices in the Mission Sector

N is the number of products found (some of which were supplied free-of-charge). An MPR and price in KSh is given for medicines where the patient pays out-of-pocket and where there were >3 price points. Prices in KSh are for a unit (i.e., a tab or cap, mL of liquid, or gram of cream).

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	Median MPR	Products (n)	Median unit price (KSh)	Median MPR
Aciclovir 200mg	7	20.00	5.86	4	20.00	5.86
Albendazole 400mg chew tab	4	50.00	22.34	18	26.75	11.95
Amoxicillin 250mg disp tab	0			2		
Amoxicillin 500mg	3			15	6.60	2.15
Atorvastatin 20mg	2			10	10.00	0.91
Azithromycin 250mg	3			7	58.17	4.86
Azithromycin 200mg/5ml susp.	3			9	8.67	1.41
Ciprofloxacin 250mg	7	6.00	2.77	4		
Ciprofloxacin 500mg	7	13.50	3.54	11	12.00	3.15
Clotrimazole 1% topical cream	1 17	free 3.75	2.72	4	7.62	5.52
Cotrimoxazole 480mg	2 14	free 5.00	4.08	3		
Cotrimoxazole 240mg/5ml susp.	4 9	free 1.00	2.04	1		
Dihydroartemisinin+piperazine 40mg+320mg	0			6	54.44	2.30
Doxycycline 100mg	13	10.00	7.36	8	5.00	3.68
Glucose 5% in sodium chloride 0.9% 500ml IV soln.	4	0.30	3.26	5 8	free 0.14	1.47
Hydrocortisone 1% cream/oint	20	4.67	1.29	0		
Ibuprofen 200mg	9	2.00	2.88	12	3.00	4.32
Lamivudine 150mg	0			12 1	free 18.00	
Metformin 500mg	1 14	free 5.00	3.26	9	9.44	6.16
Methyldopa 250mg	4	10.00	3.02	17	5.00	1.51
Metoclopramide 10mg	13	10.00	14.82	0		
Metronidazole 200mg	7	2.00	3.21	10	2.50	4.01
Metronidazole 200mg/5ml susp	1 18	free 0.90	1.63	2		
Nevirapine 200mg	0			14 1	free 45.00	
Nystatin 100000IU/ml susp	1 20	free 2.33	0.76	0		
Omeprazole 20mg	8	5.00	3.47	14	10.00	6.94
Oral rehydration salts sachet (0.5 litre)	2 11	free 10.00	1.76	1		

Medicine	Locally produced products			Imported products		
	Products (n)	Median unit price (KSh)	Median MPR	Products (n)	Median unit price (KSh)	Median MPR
Paracetamol 500mg	2			20	2.00	4.45
Silver sulphadiazine 1% cream	1 12	free 2.67	 1.30	 4	 5.70	 2.77
Sulfadoxine+pyrimethamine 500mg+25mg	4 1	free 11.67		 3		
Zinc sulphate 20mg disp tab	10	10.00	5.32	5	10.00	5.32

Annex 6: Paired Analysis of Procurement Prices and Patient Price

Medicine	Ratio between median patient price MPR and procurement price MPR			
	PUBLIC SECTOR		MISSION SECTOR	
	Locally produced products	Imported products	Locally produced products	Imported products
Aciclovir 200mg			9.45	
Albendazole 400mg chew tab	8.60		18.93	
Amoxicillin 250mg disp tab		0.37		
Amoxicillin 500mg	0.12			2.95
Atorvastatin 20mg	3.54			
Azithromycin 200mg/5ml susp.				3.28
Ciprofloxacin 250mg	2.98		4.01	
Ciprofloxacin 500mg			6.81	
Clotrimazole 1% topical cream	4.02		5.33	
Cotrimoxazole 480mg	2.77		6.80	
Cotrimoxazole 240mg/5ml susp.	1.55		3.00	
Dihydroartemisinin+Piperazine 40mg/320mg				3.71
Doxycycline 100mg	5.41		6.88	
Glucose 5% in sodium chloride 0.9% 500ml IV soln.		1.40		1.39
Hydrocortisone 1% cream/oint	2.00		3.07	
Ibuprofen 200mg	2.51			5.02
Metformin 500mg	4.06		3.98	
Methyldopa 250mg		1.64		1.78
Metoclopramide 10mg	6.29		18.07	
Metronidazole 200mg		5.45	6.29	
Metronidazole 200mg/5ml susp	1.98		3.20	
Nystatin 100000IU/ml susp	1.14		2.11	
Omeprazole 20mg	3.67		4.18	
Oral rehydration salts sachet (0.5 litre)			2.79	
Paracetamol 500mg	3.36			5.71
Silver sulphadiazine 1% cream	2.07	1.11	2.95	
Zinc sulphate 20mg disp tab	14.00		11.08	

tablet/capsule unless stated

Annex 7: Paired Analysis by Product of Government Procurement Prices and Public Sector Patient Prices

Prices are for a unit (i.e., a tablet or capsule, mL of liquid, gram). N is the number of public sector outlets where the product was found and patients paid out-of-pocket.

Medicine	Product	Procurement Price Ksh	Median Patient Price KSh	Ratio (%) Patient to Procurement Price
LOCALLY PRODUCED				
Albendazole 400mg chew tab	Wombit	1.16	10.0 (n=5)	8.62(762%)
Amoxicillin 500mg	Moximed	1.77	0.20 (n=3)	0.11(-89%)
Atorvastatin 20mg	Lipideal	1.42	5.0 (n=5)	3.53(253%)
Ciprofloxacin 250mg	Ciprocos	1.26	2.5 (n=5)	1.98(98%)
Clotrimazole 1% topical cream	Dazole	0.62	2.5 (n=13)	4.03(303%)
Cotrimoxazole 240mg/5ml susp	Septrimed	0.32	0.80 (n=2)	2.5(150%)
Cotrimoxazole 480mg	Lecotrim	0.81	2.5 (n=3)	3.09(209%)
Doxycycline 100mg	Doxan	0.92	2.79 (n=4)	3.03(203%)
Hydrocortisone 1% cream	Hydrotopic	1.65	3.33 (n=7)	2.06(106%)
Metformin 500mg	Metmin	0.48	2.0 (n=14)	4.17(317%)
Metoclopramide 10mg	Melasil	0.40	1.0 (n=3)	2.5(150%)
Metronidazole 200mg/5ml susp	Trichozole	0.25	0.50 (n=1)	2.0(100%)
Nystatin 100000IU/ml susp	Labstatin	1.12	1.17 (n=2)	1.04(4%)
Omeprazole 20mg	OM	0.91	3.33 (n=6)	3.66(266%)
Paracetamol 500mg	Cetamol	0.30	1.0 (n=10)	3.33(233%)
Silver sulphadiazine 1% cream	Burnimed	0.57	1.20 (n=10)	2.11(111%)
			median	**2.77(177%)**
IMPORTED				
Glucose 5% in sodium chloride 0.9% 500ml IV soln.	Glucose/Shree Krishna	0.07	0.10(n=5)	1.32(32%)
Methyldopa 250mg	Methyldopa/ Macleod	3.04	4.0 (n=4)	5.39(439%)
Metronidazole 200mg	Metrogyl	0.31	1.67 (n=11)	0.89 (-11%)
Silver sulphadiazine 1% cream	Flazine	0.73	0.65 (n=4)	1.39 (39%)
			median	**1.35 (35%)**

tablet/capsule unless stated

Annex 8: Paired Analysis by Product of Mission Sector Procurement Prices and Mission Sector Patient Prices

Prices are for a unit (i.e., a tablet or capsule, mL of liquid, gram). N is the number of mission outlets where the product was found and patients paid out-of-pocket.

Medicine	Product	Procurement Price Ksh	Median Patient Price KSh	Ratio (% difference) Patient to Procurement Price
LOCALLY PRODUCED				
Aciclovir 200mg	Cyclovir	2.13	10.0 (n=1)	4.69(369%)
Atorvastatin 20mg	Avastatin	2.14	5.0 (n=1)	2.34(134%)
Ciprofloxacin 250mg	Ciprocos	1.50	2.0 (n=2)	1.33(33%)
Ciprofloxacin 500mg	Ciflo	2.00	15.0 (n=5)	7.50(650%)
Clotrimazole 1% topical cream	Dazole	0.70	4.0 (n=10)	5.71(471%)
Cotrimoxazole 240mg/5ml susp	Trimoxol	0.33	0.75 (n=2)	2.27(127%)
Cotrimoxazole 480mg	Unitrim	0.74	5.0 (n=5)	6.76(576%)
Doxycycline 100mg	Doxycycline/Elys	1.45	10.0 (n=2)	6.90(590%)
Hydrocortisone 1% cream	Hycorum	1.53	3.33 (n=1)	2.18(118%)
Metformin 500mg	Glucomet	1.25	5.0 (n=8)	4.0(300%)
Metoclopramide 10mg	Metcos	0.55	7.5 (n=12)	13.64(1264%)
Metronidazole 200mg	Eflaron	0.32	2.0 (n=3)	6.25(525%)
Metronidazole 200mg/5ml susp	Eflaron	0.28	0.65 (n=8)	2.32(132%)
Nystatin 100000IU/ml susp	Dawastin	1.09	2.0 (n=7)	1.83(83%)
Omeprazole 20mg	Dawapraz	1.20	5.0 (n=7)	4.17(317%)
Oral rehydration salts sachet (0.5 litre)	Lyfe	3.60	15.0 (n=6)	4.17(317%)
Silver sulphadiazine 1% cream	Dermazine	0.90	6.67 (n=1)	7.41(641%)
Zinc sulphate 20mg disp tab	Junior Zinc	0.90	10.0 (n=7)	11.11(1011%)
			median	**4.43(343%)**
IMPORTED				
Amoxicillin 500mg	Omacillin	2.23	5.3 (n=2)	2.38(138%)
Ibuprofen 200mg	Ibufil	0.60	3.0 (n=5)	5.00(400%)
Methyldopa 250mg	Methyldopa/ Macleod	2.80	10.0 (n=15)	3.57(257%)
Paracetamol 500mg	Paracetamol/ CSPC	0.35	2.0 (n=8)	5.71(471%)
Sulfadoxine+pyrimethamine 500mg+25mg	Sulfadoxine+pyrimethamine/Square	8.25	0.833 (n=1)	0.10(-90%)
			median	**3.57(257%)**

tablet/capsule unless stated

Annex 9: Percentage Availability of Medicines by Sector

	PUBLIC SECTOR			PRIVATE SECTOR			MISSION SECTOR		
	Local & import	Local	Import	Local & import	Local	Import	Local & import	Local	Import
Aciclovir 200mg	53%	53%	0%	43%	30%	13%	45%	32%	18%
Albendazole 400mg chew tab	97%	67%	53%	97%	23%	90%	82%	18%	68%
Amoxicillin 250mg disp tab	47%	0%	47%	10%	0%	10%	9%	0%	9%
Amoxicillin 500mg	50%	20%	33%	93%	7%	90%	82%	14%	68%
Atorvastatin 20mg	30%	23%	10%	77%	27%	60%	50%	9%	41%
Azithromycin 200mg/5ml susp.	23%	13%	10%	53%	23%	30%	55%	14%	41%
Azithromycin 250mg	17%	17%	3%	17%	3%	13%	41%	14%	27%
Ciprofloxacin 250mg	80%	47%	33%	7%	3%	3%	36%	23%	14%
Ciprofloxacin 500mg	23%	17%	7%	83%	0%	83%	77%	27%	50%
Clotrimazole 1% topical cream	93%	93%	0%	93%	70%	30%	95%	77%	18%
Cotrimoxazole 240mg/5ml susp.	90%	90%	0%	80%	77%	7%	59%	55%	5%
Cotrimoxazole 480mg	90%	90%	0%	67%	50%	17%	73%	64%	14%
Dihydroartemisinin +piperazine 40mg+320mg	7%	0%	7%	53%	0%	53%	27%	0%	27%
Doxycycline 100mg	90%	90%	7%	93%	57%	40%	95%	59%	36%
Glucose 5% in sodium chloride 0.9% 500ml IV soln.	63%	7%	57%	27%	0%	27%	73%	18%	55%
Hydrocortisone 1% cream/oint	87%	87%	0%	80%	80%	0%	86%	86%	0%
Ibuprofen 200mg	83%	80%	3%	80%	30%	60%	95%	41%	55%
Lamivudine 150mg	93%	0%	93%	0%	0%	0%	59%	0%	59%
Metformin 500mg	83%	80%	3%	90%	50%	73%	95%	64%	36%

	PUBLIC SECTOR			PRIVATE SECTOR			MISSION SECTOR		
	Local & import	Local	Import	Local & import	Local	Import	Local & import	Local	Import
Methyldopa 250mg	73%	10%	67%	73%	33%	43%	91%	18%	73%
Metoclopramide 10mg	87%	87%	0%	57%	57%	0%	59%	59%	0%
Metronidazole 200mg	93%	33%	67%	80%	57%	27%	77%	32%	45%
Metronidazole 200mg/5ml susp	90%	90%	0%	97%	83%	17%	82%	73%	9%
Nevirapine 200mg	93%	0%	93%	0%	0%	0%	59%	0%	59%
Nystatin 100000IU/ml susp	83%	83%	0%	93%	93%	0%	86%	86%	0%
Omeprazole 20mg	77%	47%	30%	100%	27%	87%	95%	32%	64%
Oral rehydration salts sachet (0.5 litre)	37%	20%	17%	83%	80%	3%	59%	55%	5%
Paracetamol 500mg	90%	83%	10%	100%	37%	70%	95%	9%	91%
Silver sulphadiazine 1% cream	73%	60%	23%	93%	50%	53%	77%	59%	18%
Sulfadoxine+pyrimethamine 500mg+25mg	47%	30%	27%	43%	43%	3%	36%	23%	14%
Zinc sulphate 20mg disp tab	60%	60%	0%	87%	50%	40%	68%	45%	23%

Local = locally produced products, Import = imported products, tablet/capsule unless stated

Annex 10: Median Patient Prices, across all Sectors, of Products Manufactured by Selected Kenyan Companies

	DAWA			LAB & ALLIED			COSMOS			BIODEAL			MEDIVET			ELYS		
	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR
Aciclovir 200mg	1	6.67					6	11.67	3.42									
Albendazole 400mg chew tab	1	50.00								21	2.00	0.89						
Amoxicillin 500mg	3	5.00											8	0.20	0.07			
Atorvastatin 20mg							5	5.71	0.52	7	5.00	0.46						
Azithromycin 250mg				6	21.47	1.81	3	25.00										
Azithromycin 200mg/5ml susp.				4	5.00	0.82	4	5.67	0.92									
Ciprofloxacin 250mg																1	50.00	
Ciprofloxacin 500mg																5	15.00	3.93
Clotrimazole 1% topical cream	43	2.50	1.81	11	2.50	1.81										4	4.83	3.50
Cotrimoxazole 480mg				15	1.25	1.02	3	5.00		2	2.50					8	2.00	1.63
Cotrimoxazole 240mg/5ml susp.	13	0.83	1.70							10	1.00	2.04				1	2.00	
Dihydroartemisinin+piperazine 40mg+320mg				2	6.00					10	3.00	2.21						
Doxycycline 100mg							4	6.43	4.73				12	3.29	2.42	25	5.00	3.68
Hydrocortisone 1% cream/oint	15	4.00	1.11	14	2.67	0.74	1	5.33		13	2.00	0.55	9	3.33	0.92	10	3.83	1.06
Ibuprofen 200mg				23	1.67	2.40	14	1.06	1.52	2	1.50					4	1.33	1.92
Metformin 500mg	30	1.50	0.98				22	5.00	3.26	1	2.00							
Methyldopa 250mg	5	5.00	1.51	7	5.00	1.51	5	2.50	0.75	1	10.00							
Metoclopramide 10mg				8	1.50	2.22	49	2.00	2.96									
Metronidazole 200mg	13	1.00	1.60	10	1.83	2.94	9	1.00	1.60	1	3.33							
Metronidazole 200mg/5ml susp	40	0.50	0.91							4	0.75	1.36						
Nystatin 100000IU/ml susp	29	2.00	0.65				1	5.00		9	4.17	1.36	11	1.00	0.33			

	DAWA			LAB & ALLIED			COSMOS			BIODEAL			MEDIVET			ELYS		
	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR	No. prod	Median price Ksh	MPR
Omeprazole 20mg	14	5.00	3.47	12	0.10	0.07												
Oral rehydration salts sachet (0.5 litre)	1	10.00		1	15.00		5	8.00	1.41	15	10.00	1.75				16	10.00	1.76
Paracetamol 500mg	8	1.00	0.22	2	1.00					2	1.33							
Silver sulphadiazine 1% cream	10	4.17	2.03	4	3.67	1.78				1	0.60		23	1.00	0.49	2	0.10	
Sulfadoxine+pyrimethamine 500mg+25mg	13	10.00	2.46	9	10.00	2.46	2	8.33										
Zinc sulphate 20mg disp tab	37	5.00	2.66				2	5.50										

An MPR is given for medicines with >3 price points. Prices in Ksh are for a unit (i.e., a tab or cap, mL of liquid, gram).

tablet/capsule unless stated