

# MEDICINE PRICES IN KENYA

## MEASURING MEDICINE PRICES

One-third of the global population lacks reliable access to needed medicines. The high price of medicines is a key factor in their inaccessibility. High prices are particularly burdensome to patients in developing countries where most medicines are paid for out-of-pocket by individual patients.

In September 2004, the Kenya Ministry of Health was supported by the World Health Organisation (WHO), Health Action International-Africa (HAI-A) and the HAI-A partners in Kenya, to carry out a national survey of medicine prices. The survey was conducted in the public, private and NGO sectors. Using the WHO/HAI methodology: *Medicine Prices: a new approach to measurement*<sup>1</sup>, the Ministry assessed the affordability of key medicines, analyzed the prices and availability of selected key medicines, and identified price components (taxes, mark-ups etc.) of locally produced and imported medicines. The evidence obtained was used to determine factors contributing to high and variable medicine prices and identify strategies and policies to improve their affordability. This is one of a series of papers summarizing the results of medicine price surveys carried out by countries across Africa and elsewhere in the world.

## BACKGROUND - KENYA

Kenya is classified as a low income country by the World Bank with an estimated GNP per capita of US\$ 453 in 2001. Total health expenditure (public & private) was estimated at US\$ 30 per capita in 2000, with an estimated 76% being private expenditure; total medicines expenditure (public & private) being estimated at US\$7 per capita<sup>2</sup>; public sector medicines budget was about US\$0.51 per capita in 2002.

Health care is provided by the Ministry of Health, Missions/NGO and the private sector; the Mission sector providing around 40% health care. In the public sector and mission sectors, there is a policy of cost sharing with an exemption policy for some needy groups. However there is no policy with respect to what prices are charged and the exemption system is not very accessible for outpatient services. The government health insurance scheme covers only a small percentage of in-patient care. In the public sector there are 1700 health centres and dispensaries; 160 hospitals and two referral hospitals. Access to health centres in the rural areas is poor with many households living more than 10 km from a health facility.

The public sector drug supply system has been reformed through the establishment of the Kenya Medical Supplies Agency (KEMSA) as a body corporate with the mandate of developing and operating a viable commercial service for the procurement and sale of drugs and medical supplies to the public health institutions. Procurement for the Ministry of Health (MOH) is done by MOH Procurement and Supply Division, through KEMSA; external procurement agencies; and by health facilities at provincial and district level. Pharmaceutical supplies are distributed by KEMSA which has a drug storage and distribution system with a central warehouse in Nairobi and a well-developed network of regional depots and district drug stores.

In the private sector there are more than 600 registered retail pharmacies.

## MEDICINES, AREAS AND SECTORS SURVEYED

The medicines surveyed included a standardized core group of 30 medicines that were surveyed in all countries and a supplementary group of 15 medicines specific to Kenya. The core group was selected based on global burden of disease, availability of standard formulations and importance. Medicines in the supplementary group were selected because of the importance and/or the frequency of their use in treating important common health problems in Kenya. Both medicines on and off patent and on and off the national essential medicines list were represented.

In all, 45 medicines were surveyed in the 53 public health facilities; 57 private sector outlets and 47 mission/NGO health facilities.

Areas measured in each sector	Public facilities	Private outlets	NGO facilities
Affordability to patients	√	√	√
Procurement price	√		√
Price to patients	√	√	√
Availability to patients	√	√	√

## PRESENTATION OF PRICE INFORMATION

The WHO/HAI survey methodology presents prices as median price ratios (MPR). The MPR is the ratio of the local price divided by an international reference price converted into the same currency. As such, the reference price serves as an external standard for evaluating local prices. An MPR of 1 means the local price is equivalent to the reference price whereas an MPR of 2 means the local price is twice the reference price. The international reference prices used for this survey were taken from the *2003 Management Sciences for Health (MSH) International Drug Price Indicator Guide* (<http://erc.msh.org/>). The MSH guide pulls together information from recent price lists of large, non-profit generic medicine suppliers and thus reflects the prices governments could be expected to pay for medicines.

## INTERPRETATION OF FINDINGS

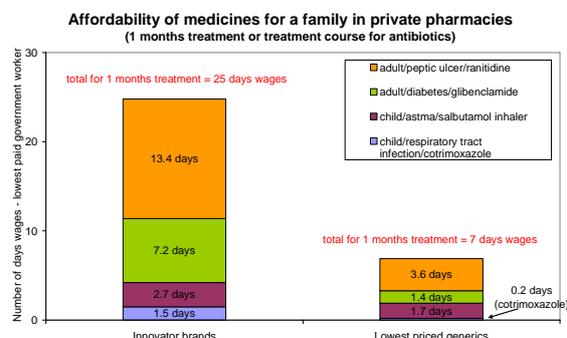
Where survey findings point to the high cost or poor availability of a few specific medicines, they are named in this paper. However, these are unlikely to be isolated incidents. As only around 50 medicines were included in this survey, a finding of high prices or low availability of even 3 or 4 medicines – or 6% to 8% of those studied – could indicate a greater problem and requires further investigation.

## AFFORDABILITY

In this paper, affordability is calculated in terms of the number of days the lowest paid unskilled government worker would have to work to pay for one treatment course for an acute condition or one month's treatment for a chronic condition. At the time of the survey, the lowest paid unskilled government worker earned KSh 166 (US\$2.045) per day. According to the World Development Report 2005, 58.3% of the Kenyan population lives on less than US\$2 per day. More than half of the population lives on less than the salary of the lowest paid government worker and hence the affordability for many Kenyans will be lower than for this worker.

Overall, affordability of treatments for chronic conditions was much less than affordability of treatments for acute conditions.

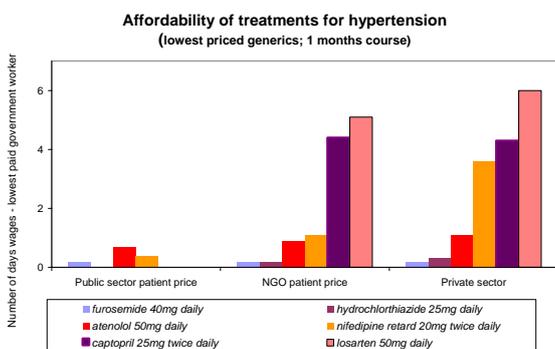
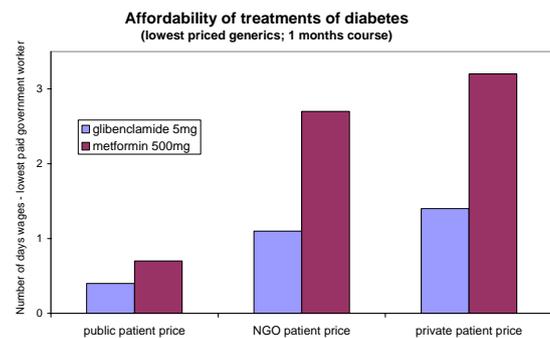
The burden is especially great for a family needing treatment for several conditions at the same time, e.g. using the lowest priced generic medicines, it would take just under 7 days' wages for the lowest paid unskilled government worker to purchase a salbutamol inhaler for a child with asthma, a course of cotrimoxazole suspension for a child with a respiratory tract infection, glibenclamide tablets for an adult with diabetes and ranitidine tablets for an adult with a peptic ulcer; innovator brands would need 25 days work for a months supply for equivalent medicines.



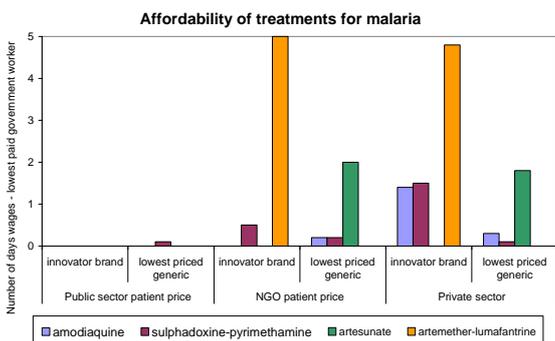
The survey also found marked differences in affordability between medicines within a therapeutic category. The two graphs below illustrate these differences for two lowest priced generics used to treat diabetes and hypertension. While there may be clinical advantages of one treatment option over the other, for patients paying out-of-pocket

<sup>1</sup> <http://www.haiweb.org/medicineprices/>  
<sup>2</sup> World Medicines Situation, WHO 2004

and in particular when a medicine is not available in the public sector, patients may be unable to afford the preferred treatment.



At the time of the study, sulphadoxine-pyrimethamine was the recommended treatment for uncomplicated malaria, which is currently being changed to artemether + lumefantrine. The chart below demonstrates the affordability of malaria medicines with the implementation of the new malaria drug policy of artemether + lumefantrine compared to the current sulphadoxine-pyrimethamine.



The new regimen is around 50 times more expensive in the private sector than the old regimen in the public or private sectors – or an additional 4 ½ days work for branded artemether + lumefantrine (there is no generic) compared with the lowest priced generic sulphadoxine-pyrimethamine.

Cost-effectiveness analyses indicate that antimalarial treatment is generally highly cost-effective, even in the most resource-poor countries. In practice, however, the costs of treating malaria patients with the most effective antimalarials may well not be affordable for communities or households. With such policy changes, it is essential that measures are taken to ensure continued access to malaria treatment.

The price of medicines is a key aspect of their affordability. In this survey, public procurement prices were assessed as were the prices charged to patients at public sector facilities, in the private sector, and non-governmental facilities.

## PUBLIC SECTOR PROCUREMENT PRICES

Public sector procurement prices for the lowest priced generic medicines were found to be 0.61 times international reference prices. In other words, Kenya is procuring medicines at 39% less than the international market prices of non-profit generic medicine suppliers.

Nine of the 24 medicines were procured at lower than half the international reference price; However, two medicines were procured for more than twice the international reference price; as such, Kenya is paying 2.81 and 2.21 times published international market prices for captopril and tetracycline eye ointment.

Number of times more expensive: public sector procurement prices compared to international reference prices		
Price (MPR)	Innovator brand <sup>3</sup>	Lowest priced generic <sup>4</sup>
No. of medicines included	0	24
Median MPR		0.61
25 <sup>th</sup> percentile		0.38
75 <sup>th</sup> percentile		0.66

n= 45 medicines

## PUBLIC SECTOR PATIENT PRICES

At public sector facilities, patient prices for the lowest priced generic medicines were found to be 1.99 times international reference prices. Patient prices ranged from 0.26 times (or 74% less than) the international reference price for amoxicillin + clavulanic acid to 13.18 times the international reference price for chlorpheniramine.

Number of times more expensive: public sector patient prices for medicines compared to international reference prices		
Price (MPR)	Innovator brand (MPR)	Lowest priced generic
No. of medicines included <sup>5</sup>	1	28
Median MPR	3.61	1.99
25 <sup>th</sup> percentile		1.29
75 <sup>th</sup> percentile		3.33

n=29 facilities<sup>6</sup>; 45 medicines

38 of the 45 medicines studied were on the essential drug list of Kenya. The median availability of those medicines on the Kenya Essential Drugs List was found to be 65% (n=53 facilities). It should be noted that from within these 38, some of the medicines would only be expected to be at the referral hospital level and not at some of the lower level facilities that were surveyed.

The following medicines were found to have an availability of greater than 80%: amodiaquine, amoxicillin, carbamazepine, chlorpheniramine, cotrimoxazole suspension, diazepam, doxycycline, furosemide, gentamycin injection, metronidazole, sulphadoxine-pyrimethamine, tetracycline eye ointment and tinidazole.

Both innovator brand and generic version ceftriaxone injection was found the public sector, the patient price of the generic version being 38% lower than the innovator brand price.

The following table shows those medicines for which patients at public facilities are charged at least 3 times published international prices for the lowest priced generic and/or innovator brand. A difference of 3 times or more between the international reference price and the price charged to patients in the public sector makes these medicines seem particularly expensive than what could be available or achieved.

Number of times more expensive: public sector patient prices compared to international reference prices		
Medicine	Lowest priced generic (MPR)	Innovator brand (MPR)
albendazole	12.61	
ceftriaxone injection	2.24	3.61
chlorpheniramine	13.18	
diazepam	5.27	
doxycycline	4.18	
gentamycin	3.69	
glibenclamide	3.5	
metformin	3.33	
sulphadoxine-pyrimethamine	3.19	
tinidazole	3.33	

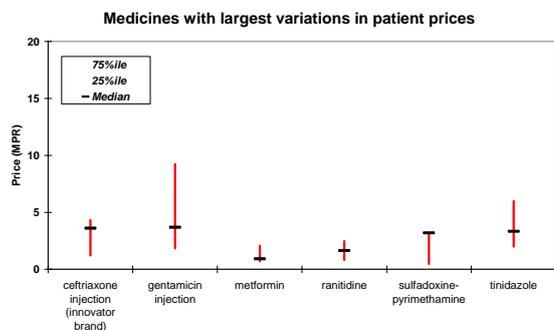
There are no national guidelines on how medicines prices should be determined in the public sector and it was found that the prices patients are charged for lowest priced generic medicines varied from facility. In some cases, the prices varied by many multiples. Those medicines with the greatest variation in price are shown below.

<sup>3</sup> Innovator brands are not generally procured for use in the public sector

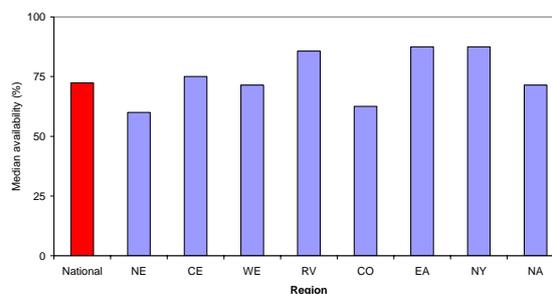
<sup>4</sup> The lowest priced generic equivalent was determined facility-by-facility and was the lowest priced generic equivalent product available for sale at each facility included in the survey. In determining public procurement prices, the lowest priced generic at the national medical store or on the national tender document was used.

<sup>5</sup> Patient prices were analyzed only in cases where at least 4 data points were available, i.e. price data were collected from at least four facilities.

<sup>6</sup> Not all facilities were included in this analysis as some facilities provided medicines free of charge or provided medicines at a flat-rate fee.



Availability of the lowest priced generic



## PRIVATE SECTOR PRICES

58 private pharmacies, private clinics and private hospitals were surveyed. Out of the 45 medicines surveyed, innovator brand products were found for 34 of them in the private sector.

In the private sector, patient prices for the lowest priced generics were found to be 3.33 times the international reference price. The prices charged to patients for the lowest priced generic medicines ranged from 0.43 times the international reference price for losarten to 20.42 times the international reference price for fluconazole.

For innovator brands, patient prices were found to be 17.75 times the international reference price. The prices charged to patients for the innovator brand medicines ranged from 1.85 times the international reference price for losarten to 140.07 times the international reference price for ciprofloxacin.

Number of times more expensive: private sector patient prices for medicines compared to international reference prices		
Price (MPR)	Innovator brand	Lowest priced generic
No. of medicines included	34	41
Median MPR	17.75	3.33
25 <sup>th</sup> percentile	10.01	1.78
75 <sup>th</sup> percentile	57.49	5.08

n= 58 facilities; 45 medicines

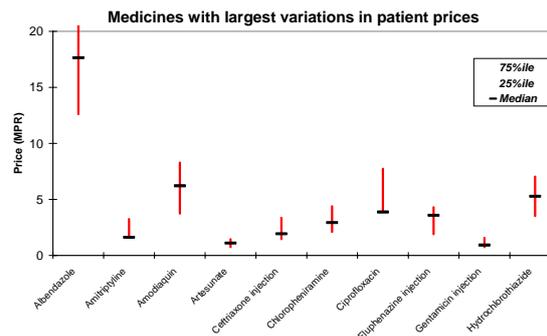
Availability in the private sector		
	Innovator brand	Lowest priced generic
Median availability	36.2%	72.4%
25th percentile	6.9%	51.7%
75th percentile	58.6%	84.5%

n= 58 facilities; 45 medicines

In the private sector, the median availability of those medicines on the Kenya Essential Drugs List was found to be 81.9% (n=58 facilities).

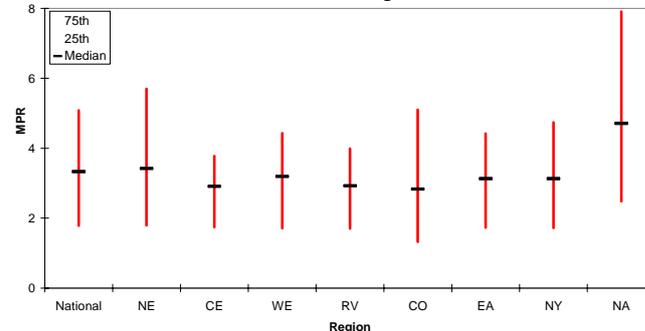
The availability of innovator brands and generics varied widely between the regions<sup>7</sup>

In the private sector, the prices patients are charged for medicines varied from facility to facility. In some cases, the prices varied by many multiples. The lowest priced generics medicines with the greatest variation in price are shown below.



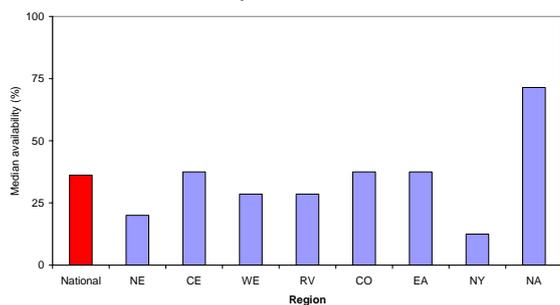
Price of innovator and generic medicines, in general, vary within a region and between regions, the level of variation also varied between regions; the following chart shows the medians and variation in price of the medians across the 8 regions of Kenya. The median MPR being 60% higher in Nairobi than in Central, Coast and Rift Valley Provinces.

Variation in MPR for lowest priced generic between the regions

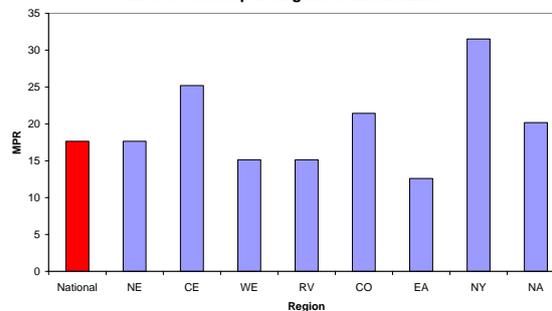


The prices of individual medicines vary between regions. Below is the example of generic albendazole

Availability of innovator brands



MPR of lowest priced generic albendazole



The following table shows those generic medicines for which patients in the private sector are charged at least five times the published international prices for the lowest priced generic and innovator brand. A difference of five times or more between the international reference price and the price charged to patients makes these medicines seem particularly expensive than what could be available or achieved.

<sup>7</sup> Coding on regional variation charts: Nairobi Province (NA); Coast Province (CO); Eastern Province (EA); North Eastern Province (NE); Central Province (CE); Rift Valley Province (RV); Nyanza Province (NY); Western Province (WE)

Number of times more expensive: private sector patient prices for medicines compared to international reference prices		
Medicine	Lowest priced generic (MPR)	Innovator brand (MPR)
aciclovir	5.08	27.36
albendazole	17.65	98.84
amodiaquine	6.21	31.07
atenolol	7.94	67.48
captopril	5.59	13.52
diclofenac	9.65	57.90
fluconazole	20.42	75.05
glibenclamide	12.00	60.02
nifedipine retard	5.70	28.48

When comparing the price differential between innovator brand medicines and lowest priced generic medicines (for matched pairs of medicines where only the same medicines found in both groups are compared), innovator brands were found to be 5.09 times more expensive than the lowest priced generic (n=33 medicines).

The table below shows the differential between the prices patients are charged in the private sector for the innovator brand and the lowest priced generic equivalent for the ten medicines with the greatest differences. It can be seen that some of the innovator brands were widely available and hence likely to have a noteworthy market-share, despite having a high brand premium to the price; e.g. 43% of the private sector outlets stocked innovator brand furosemide despite it being 50 times (5000%) more expensive than the lowest priced generic

Patient prices and availability in the private sector for innovator brands compared to lowest priced generic equivalents			
Number of times more expensive innovator brand: lowest priced generic		Availability	
		Innovator brand	Generic
amitriptyline	8	22.4%	72.4%
atenolol	8.5	36.2%	60.3%
ciprofloxacin	36.2	48.3%	87.9%
clotrimazole cream	14	39.7%	98.3%
diazepam	16	31.0%	82.8%
doxycycline	20	12.1%	96.6%
furosemide	50	43.1%	93.1%
omeprazole	7.5	55.2%	79.3%
phenytoin	10	39.7%	67.2%
tinidazole	30	51.7%	86.2%

n= 58 facilities

## NON-GOVERNMENTAL SECTOR PROCUREMENT PRICES

NGO sector procurement prices for the lowest priced generic medicines were found to be 0.74 times international reference prices. In other words, NGO procurement prices are 26% less than the published international market prices of non-profit generic medicine suppliers.

Number of times more expensive: NGO procurement prices compared to international reference prices		
Price (MPR)	Innovator brand	Lowest priced generic
No. of medicines included in analysis	3	33
Median MPR	2.92	0.74
25 <sup>th</sup> percentile	1.94	0.48
75 <sup>th</sup> percentile	3.16	1.11

n= 45 medicines

Of the 45 medicines surveyed, nine medicines were procured at less than half the international reference price and five products were procured for more than 50% above the international reference price; three innovator brand products were procured: ceftriaxone, nevirapine and zidovudine. The prices of the nine products are summarized below.

Number of times more expensive: NGO procurement prices compared to international reference prices (lowest priced generics unless otherwise specified)	
aciclovir	1.99
ceftriaxone (innovator brand)	3.41
ceftriaxone	2.88
glibenclamide	2.04
nevirapine (innovator brand)	2.92
ranitidine	3.12
tetracycline eye ointment	2.29
zidovudine (innovator brand)	0.97

## NON-GOVERNMENTAL SECTOR PATIENT PRICES

In the non-governmental sector, the price charged to patients for lowest priced generics was found to be 2.73 times the international reference price. Patient prices ranged from 0.37 times the international reference price for losartan to 14.84 times the international reference price for fluoxetine.

In this sector, the price charged to patients for innovator brands was found to be 8.52 times the international reference price. Patient prices ranged from 0.93 times the international reference price for indinavir to 100.86 times the international reference price for albendazole.

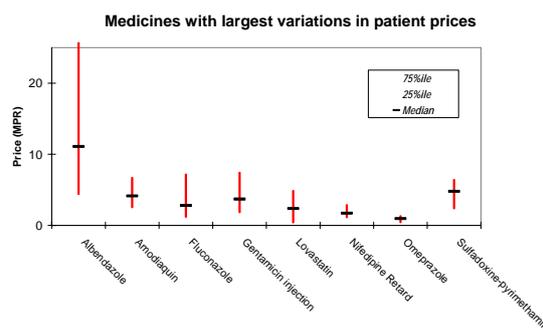
Number of times more expensive: patient prices for medicines at non-governmental facilities compared to international reference prices		
Price (MPR)	Innovator brand	Lowest priced generic
No. of medicines included	17	42
Median MPR	8.52	2.73
25 <sup>th</sup> percentile	4.03	1.71
75 <sup>th</sup> percentile	17.30	3.83

n= 43 facilities<sup>8</sup>; 45 medicines

Availability at non-governmental facilities		
	Innovator brand	Lowest priced generic
Median availability	6.8	45.5
25 <sup>th</sup> percentile	4.5	20.5
75 <sup>th</sup> percentile	11.4	86.4

n= 44 facilities; 45 medicines

In NGO facilities, the median availability of those medicines on the Kenya Essential Drugs List was found to be 61.4% (n=44 facilities), whereas the prices patients are charged for medicines varied from facility to facility for some medicines. Those lowest priced generics with the greatest variation in price are shown below.



The following table shows those medicines for which patients at NGO facilities are charged at least 5 times the published international prices for the lowest priced generic and/or innovator brand. A difference of 5 times or more between the international reference price and the price charged to patients in the public sector makes these medicines seem particularly expensive than what could be available or achieved.

Number of times more expensive: NGO sector patient prices compared to international reference prices	
Medicine	Lowest priced generic (MPR)
albendazole	11.09
atenolol	6.62
captopril	5.64
chlorpheniramine	8.79
diclofenac	7.94
fluoxetine	14.84
glibenclamide	9.00

<sup>8</sup> Not all facilities are included in this analysis as some facilities provided medicines free of charge or provided medicines for a flat-rate fee

## INTER-SECTORAL COMPARISONS

The table below compares the prices of lowest priced generics between sectors where the same medicines were found in both sectors.

For lowest priced generics:	Were this many times more expensive:	Than:
Public sector patient prices (n=22 medicines)	2.88	Public sector procurement prices
NGO sector patient prices (n= 33 medicines)	3.58	NGO sector procurement prices
NGO sector procurement prices (n= 22 medicines)	1.21	Public sector procurement prices
Private sector patient prices (n=28 medicines)	1.48	Public sector patient prices
Private sector patient prices (n=25 medicines)	1.19	NGO sector patient prices
NGO sector patient prices (n=28 medicines)	1.24	Public sector patient prices

For innovator brands, the private sector patient prices was almost the same (1.03 times) as the NGO sector (n=14 medicines).

While NGO sector procurement prices were 21% more than for public sector procurement prices for lowest priced generics, the NGO sector procurement price of some medicines was up to 10 times the public sector procurement price, whereas for some of the medicines, the prices achieved were lower.

Number of times more expensive: NGO sector procurement prices compared to public sector procurement prices (lowest priced generic)	
carbamazepine	2.8
ceftriaxone injection	9.9
fluphenazine injection	2.0
furosemide	2.5
nifedipine retard	0.15 (NGO price was less)
omeprazole	0.3 (NGO price was less)
quinine injection	0.6 (NGO price was less)
ranitidine	4.9
sulphadoxine-pyrimethamine	2.4

While public sector patient prices for lowest priced generics were almost three times the public sector procurement prices, the public sector patient price of some medicines was as much as 42 times the public procurement price; this may relate to items being sourced from the private sector instead of public sector procurement sources.

Number of times more expensive: patient prices at public sector facilities compared to public sector procurement prices (lowest priced generic)	
amitriptyline	6.0
ceftriaxone injection	7.7
chlorpheniramine	41.7
diazepam	18.5
doxycycline	6.5
furosemide	10.4
gentamicin injection	6.1
ibuprofen	4.7
metronidazole	5.9

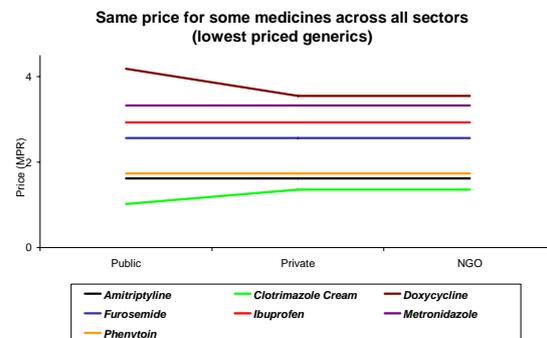
Though patient prices in the private sector were generally 48% higher than those in the public sector, some medicines were up to eight times more expensive. However 10 medicines were the same or lower in the private sector. The similarity of medicine prices between the sectors is presented later.

Number of times more expensive: private sector patient prices compared to public sector facilities (lowest priced generic)	
amoxicillin+ clavulanic acid	7.9
carbamazepine	3.0
glibenclamide	3.4
ranitidine	3.0

Though patient prices in the private sector were generally 19% higher than those in the NGO sector, some medicines were up to six times more expensive; however 19 medicines were the same or lower in the private sector. The similarity of medicine prices between the sectors is presented later.

Number of times more expensive: patient prices in the private sector compared to NGO facilities (lowest priced generic)	
Fluconazole	7.3
Lovastatin	2.1
Nifedipine Retard	3.3

The patient prices of some medicines in the public sector were exactly the same or almost the same in all sectors; the chart below illustrates this for 7 medicines.



Medicines need to be affordable, but also available - however low the price list may be, it is not helpful unless the medicine is on the shelf. Some medicines were not widely available in either public or private sectors while others were more widely available in the private sector. In some cases, this increased availability was accompanied by a small or no difference in patient prices whereas in other cases the prices charged to patients in the private sector were much higher – up to 2.5 times the price for omeprazole. The following table presents availability in the public and private sectors, and the percentage difference in patient prices at public facilities versus the private sector for lowest priced generics.

Lowest priced generic	% Availability		Number of times more expensive: patient prices in the private sector compared to public facilities
	Public sector facilities (n=53)	Private sector (n=58)	
albendazole	20.8%	84.5%	1.4
atenolol	7.5%	60.3%	
ciprofloxacin	9.4%	87.9%	1.3
diclofenac	3.8%	36.2%	
omeprazole	9.4%	79.3%	2.4

Medicines from the Kenya Essential Drugs List were widely found in all sectors.

Availability of medicines on the Kenya Essential Drugs List	
Sector	Median % availability
Public sector (n= 29 facilities)	65%
Private sector (n= 58 facilities)	81.9%
NGO sector (n= 44 facilities)	61.4%

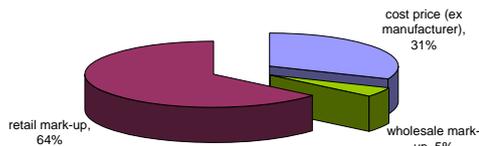
Some medicines, across all sectors are apparently at elevated prices, and than they could be when compared to the international reference price e.g. albendazole, atenolol, captopril, chlorpheniramine, diclofenac, and glibenclamide.

Three antiretroviral medicines were included in the survey; only nevirapine was widely found at 58.5% of public facilities and 50% of NGO facilities; it was only found at 1 of the 58 private outlets surveyed.

## PRICE COMPONENTS

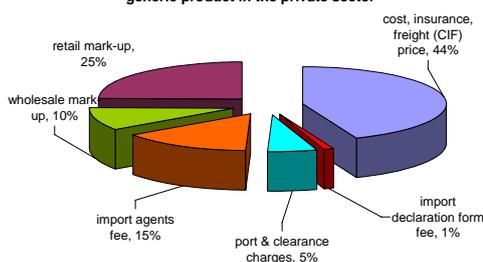
Examining the components that make up the price of medicines is an important step in determining how to reduce their cost. The final price paid for a medicine whether by the government or a patient reflects the manufacturers selling price plus all the intervening price additions. These additions include the cost of importing, distributing and dispensing the medicine. In the private sector, for a locally produced product in Kenya, the manufacturer's selling price represents around 31% of the final patient price and the wholesaler and retailer mark-ups account for 5% and 64% of the patient price respectively.

Typical proportions of add-ons of final patient price for an locally produced generic product in the private sector



For an imported generic medicine, the cost price in the private sector represents 44% of the final price with wholesale and retail mark-ups accounting for 10% and 25% respectively; the importer mark-up is 15% and port & clearance costs and import declaration fees are 5% and 1% respectively.

Typical proportions of add-ons of final patient price for an generic product in the private sector



## RECOMMENDATIONS FROM COUNTRY REPORT AND STAKEHOLDER MEETING

A summary of the recommendations from the full survey report and stakeholder meeting report is provided below; a fuller explanation can be found in these two reports.

- Develop and implement a medicines pricing policy to achieve a greater level of transparency, uniformity and predictability in the pricing of medicines including the consideration of reference pricing for medicines in the private sector
- Periodically monitor the prices of medicines, as well as aspects of access to monitor the effects of interventions
- Empower consumers by disseminating price information in a meaningful way
- Develop and implement pro-poor interventions aimed at increasing access to essential medicines.
- Promote prescribing and use of medicines by generic name in all sectors by mandating generic prescribing and substitution
- Promote the use of generics to health providers and the public including measures to reassure on the quality of generics
- Enhance the efficiency of the public procurement agency and establish supportive linkages with the mission sector procurement system
- To increase availability improve the estimation of needs and management medicines in public health facilities including moving away from the “push” system - so as to reduce wastage, expiry and theft
- Develop a pricing policy for public sector patient prices of medicines
- Investigate the causes of regional variation

## ANALYSIS

Below is a further analysis of the findings presented in this paper.

### AFFORDABILITY AND ACCESS TO MEDICINES

“Out-of-pocket” purchase of most medicines is not affordable to the majority of the population.

Consideration of price in the choice of medicines could determine whether a patient can obtain a medicine for treatment, or not.

Some medicines, in all sectors seem to be at higher prices than they could be when compared to the international reference price.

There was marked price variation for some medicines within the public, private and NGO sectors - some patients are paying much more than they would be in other facilities or pharmacies.

Some key medicines were not widely available in the public sector.

Some medicines were sold at the same prices in all sectors, despite often been procured at much lower prices in the public and NGO sectors.

The impact of implementing the new malaria policy needs measures to be taken to ensure continued affordable access to effective medicines especially in the private and NGO sectors

### PUBLIC SECTOR

Where patients pay for medicines, the prices were 20% lower in the public sector than in the NGO sector and 30% lower than in the private sectors respectively.

Patient prices were almost 3 times the public sector procurement price, although some medicines, including key essential medicines had much greater differentials

The patient prices of some medicines in the public sector were almost the same as in the private and NGO sectors; this was despite the public sector procurement price being low for some medicines.

The public sector procurement system is paying more than might be necessary for a small proportion of medicines.

### PRIVATE SECTOR

Private sector patient prices were 48% higher than public sector patient prices and 19% higher than NGO sector patient prices.

Innovator brands were on average 5 times the price of the lowest priced generics; some branded medicines were widely available and hence were likely to have noteworthy market share despite having very high brand premiums.

The availability of innovator and generic brands varied between regions, with more innovator brands and fewer generics found in Nairobi; Nyanza Province had the reverse – the highest availability of generics and lowest availability of brands.

### NGO SECTOR

Prices in NGO facilities were greater than in the public sector; prices being closer to those of the private sector; availability in the NGO sector was generally greater than in the public sector.

A significant proportion of innovator brands were stocked by some NGO facilities with very high brand premiums when compared to the lowest priced generic medicines stocked in other NGO facilities, and even stocked by the same NGO facility.

Some medicines procured by the NGO sector were much higher than the corresponding procurement price obtained by the public sector.

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