

MEDICINE PRICES IN UGANDA

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 Sub Saharan Africa out-of-pocket expenditure constitute 34% of health expenditure (WHO 2002).

In September 2004, the Ugandan Ministry of Health was supported by the World Health Organisation (WHO), Health Action International-Africa (HAI-A) and the HAI-A partner in Uganda, Health Promotion for Social Development (HEPS), 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*¹, the Ministry assessed the affordability of key medicines, analyzed the prices and availability of a 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 and availability in all the three sectors. 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 - UGANDA

Uganda is classified as a low income country by the World Bank with a per capita GDP of US\$271 (2000). Per capita public health spending was US\$12 (MoH statistical annex 2002); per capita public sector medicines expenditure is estimated at U\$1.6 (2004/5) with an estimated medicines expenditure need of U\$3.5 excluding the pentavalent vaccines and antiretroviral medicines which are mainly funded by donors.

Since 1972, the number of public, non-governmental and private health facilities has increased by 400 percent and the population has more than doubled. In spite of this, a 1993 inventory of health units found that geographical access to health care is limited to 49 percent of the population, i.e. population living within 5 kilometres (about one hour's walking distance) of a health facility providing both curative and preventive health services (World Bank quoting Ministry of Health). Rural communities are particularly affected because health facilities are mostly located in urban centres. There are 12 regional referral hospitals (which also act as District Hospitals in the areas where they are located) and 2 national referral hospitals (Mulago and Butabika). Mulago and Mbarara Hospitals also act as University Teaching Hospitals. The public and mission sector provides health care to around 60% and 40% of the population respectively.

Currently there are 5 large-scale pharmaceutical manufacturers and 5 small-scale pharmaceutical manufacturers. There are 2939 public health facilities from which drugs may be dispensed, 215 private pharmacies and 2600 drug shops. Of the private pharmacies, nearly 80% are in the three major towns of Kampala, Jinja and Mbarara.

Medicine budgets have been decentralized, with guidelines to protect them at all service delivery levels. However, demand for essential medicines far exceeds supply, not least because of the rapid increase in service utilization following the abolition of cost sharing in 2001. Additional funding and a policy recommendation to dedicate 50% of the non-wage budget to essential medicine at the lower levels of care have not been enough to stem high stock-out rates which compromise the quality of care.

The majority of the medicines and equipment for government health units are obtained from National Medical Stores (NMS). The main source of funding for drugs is the poverty alleviation funds sent to the district under primary health care. Only when drugs and equipment are out of stock, can these units source elsewhere. The missionary hospitals source their drugs and health supplies from Joint Medical Stores (JMS) which is also partly supported by the government.

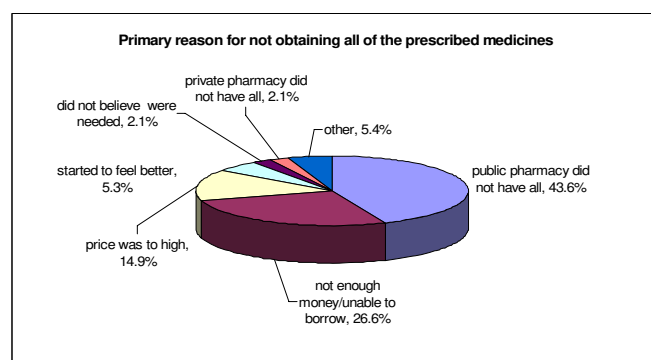
Government health facilities can only go to other sources when the drugs are out of stock from both NMS and JMS.

Medicines are provided free of charge in public health facilities and are charged for in the mission sector.

The importation, registration and quality control of medicines is regulated by the National Drug Authority (NDA).

A household survey carried out in 2002² found that that for a majority of Ugandans, the first consultation when they are sick is done at the clinic or hospital in the public health care facilities or private sector.

The chart below illustrates that in 87% occasions when medicines were not obtained that price and/or availability of medicines was a factor.



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 up to 20 medicines specific to Uganda. 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 Uganda. Both medicines on and off patent and on and off the national essential medicines list were represented.

In all, 45 medicines were surveyed in 4 regions in Uganda: Kampala District; and Eastern; Northern; and Western regions.

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. Patient prices can be expected to be higher than the prices paid by governments, but these surcharges should be minimal and relatively consistent across medicines and facilities.

¹ <http://www.haiweb.org/medicineprices/>

² Uganda Pharmaceutical Sector Baseline Survey, MoH, 2002

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.

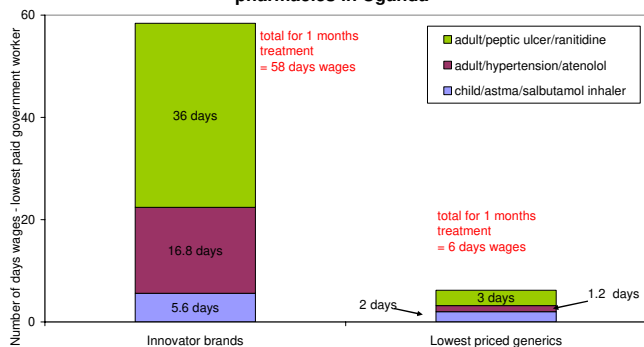
AFFORDABILITY TO PATIENTS

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 Ugandan Shillings 2,500 (US\$1.31) per day. 38% of Ugandans live under the poverty line. Hence a large proportion of Ugandans are worse off than the lowest paid government worker and consequently the affordability for many Ugandans will be lower than what is presented for this worker.

Overall, medicines were found to be unaffordable to a large proportion of the population; purchasing treatments for chronic conditions was found to require many more days' work than purchasing treatments for acute conditions.

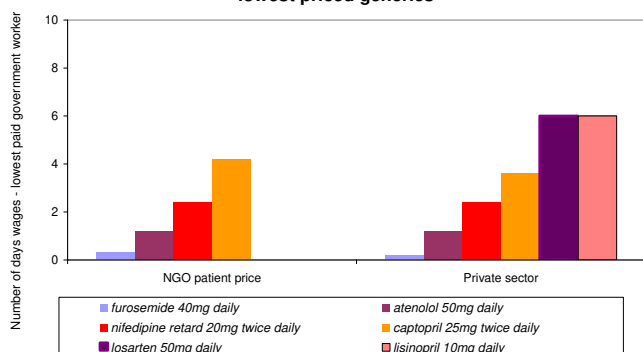
The burden is especially great for a family needing treatment for several conditions at the same time, e.g. using the lowest priced generic medicines, it would take at least 6 days' wages for the lowest paid unskilled government worker to purchase a medicines for a child with asthma, an adult with hypertension and an adult with a peptic ulcer³; treatment with innovator brand medicines would require 58 days salary for a months treatment – clearly unaffordable in both cases. The chart below presents the breakdown for each of the medicines in innovator and generic forms

Number of days work needed to buy a months treatment in private pharmacies in Uganda



It was found that there are significant differences in affordability between medicines within a therapeutic category. The chart below illustrates these differences for six lowest priced generics used for treatment of hypertension – monotherapy – if more than one drug is used, the numbers shown are additive. Where medicines are available in more than one sector, the patient prices are relatively similar; there being much greater differences between therapeutic choices and/or antihypertensive class.

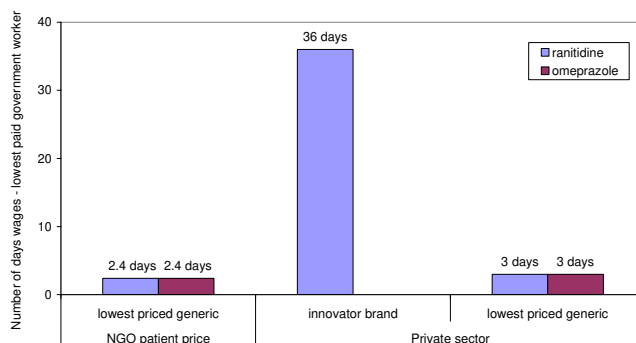
Number of days wages required for 1 month treatment of hypertension - lowest priced generics



³ Number of days wages for lowest paid government worker to buy 1 months of medicines. This family has the following medicines requirements each month: 1 salbutamol inhaler for a child with asthma; infection; 30 atenolol tablets 50mg for an adult with hypertension; 60 ranitidine tablets 150mg for 1 adult with peptic ulcer

Treatment of peptic ulcers requires at least two and a half days salary for omeprazole or generic ranitidine necessary for a month's treatment. An additional 5 hours salary would be required to purchase from the private sector rather than the NGO sector. Whilst medicines are provided free of charge in the public sector neither medicine was widely found despite ranitidine being found at National Medical Stores. If innovator brand ranitidine was prescribed, recommended, dispensed or sold, 36 days salary would be necessary to purchase a months course – an additional 33 days work.

Number of days wages required for 1 month treatment of a peptic ulcer



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, private retail pharmacies, and non-governmental facilities.

PUBLIC SECTOR PROCUREMENT PRICES

Public sector procurement prices for the lowest priced generic medicines were found to be 0.71 times the international reference prices. In other words, Uganda is procuring medicines at 29% less than the published international market prices of non-profit generic medicine suppliers.

Number of times more expensive: public procurement prices compared to international reference prices		
Price (MPR)	Innovator brand ⁴	Lowest priced generic ⁵
No. of medicines included in analysis	2	25
Median MPR	0.49	0.78
25 th percentile	0.28	0.67
75 th percentile	0.71	0.95

n= 45 medicines

Two medicines were procured at less than half the international reference price, and one was procured for more than 50% above the international reference price. Two innovator products were found, fluconazole as part of the Diflucan Donation Programme and salbutamol inhaler. The prices of these four products are listed in the table below.

Number of times more expensive: public procurement prices compared to international reference prices – lowest priced generics	
atenolol (generic)	2.51
chloroquine (generic)	0.46
fluconazole (innovator) ⁶	0.06
ketoconazole (generic)	0.35
salbutamol inhaler (innovator)	0.92

Two medicines on the essential drugs list were not found at the national medical stores: diclofenac 25mg and nifedipine retard 20mg.

⁴ Innovator brands are not generally procured for use in the public sector

⁵ 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.

⁶ The innovator fluconazole product was valued so as to be able to calculate and charge a handling fee at the National Medical Stores

PUBLIC SECTOR FACILITIES

Medicines are provided free of charge in Uganda.

28 of the 45 medicines studied were on the essential drug list of Uganda; the median availability of those medicines on the essential drugs list was found to be 55% (n=20 facilities). It should be noted that from within these 28, some of the medicines would only be expected to be at the referral and district hospital level and not at some of the lower level facilities that were surveyed.

Every facility was found to stock both chloroquine and sulphadoxine pyrimethamine, and no facility was found to stock salbutamol inhaler, which was in available at the National Medical Store.

PRIVATE SECTOR PATIENT PRICES

Out of the 45 medicines surveyed, innovator brand products were found for 17 of them in private retail pharmacies.

At private retail pharmacies, patient prices for the lowest priced generics were found to be 2.6 times the international reference price. The prices charged to patients for the lowest priced generic medicines ranged from 0.28 times the international reference price for losartan to 16.09 times the international reference price for albendazole.

For innovator brands, patient prices were found to be 13.6 times the international reference price. The prices charged to patients for the innovator brand medicines ranged from 1.68 times the international reference price for artemether to 118 times the international reference price for albendazole.

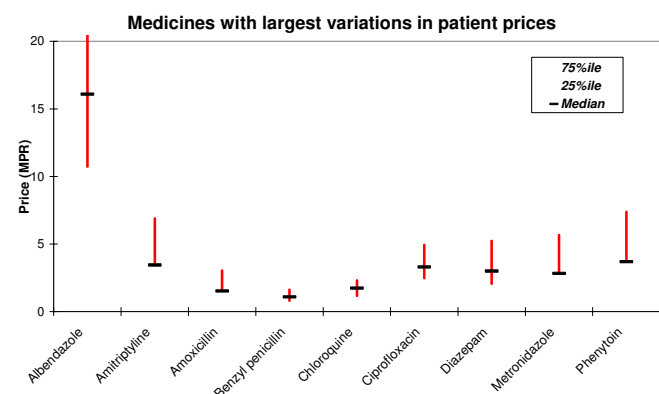
Number of times more expensive: patient prices for medicines at private retail pharmacies compared to international reference prices		
Price (MPR)	Innovator brand	Lowest priced generic
No. of medicines included	11	38
Median MPR	13.6	2.6
25 th percentile	7.5	1.7
75 th percentile	25.6	3.6

n= 20 facilities; 45 medicines

Availability at private retail pharmacies	Innovator brand	Lowest priced generic
Median availability	0	80
25 th percentile	0	50
75 th percentile	15	90

n= 20 facilities; 45 medicines

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



The following table shows those generic medicines for which patients at private retail pharmacies are charged at least fifteen times published international prices for the lowest priced generic and/or 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.

Number of times more expensive: patient prices for medicines at private retail pharmacies compared to international reference prices			
Medicine	Lowest priced generic (LPG)	Innovator brand (IB)	Number of times more expensive IB: LPG
albendazole	16.1	118.0	7.3
amoxicillin	1.5	15.2	10.1
atenolol	5.6	78.2	14.0
carbamazepine	2.6	19.7	7.6
fluconazole 200mg	13.0		
fluconazole 150mg	13.1		
glibenclamide	6.38		
ranitidine	2.6	31.5	12.1
sulfadoxine-pyrimethamine	3.4	13.6	4.0

n= 20 facilities

When comparing the price difference between innovator brand medicines and lowest priced generic medicines matched pairs of medicines where the same medicines were found in both groups, innovator brands were found to be 5.2 times more expensive than the lowest priced generic (n=11 medicines). The table below shows the differential between the price patients at private retail pharmacies are charged for the innovator brand and the lowest priced generic equivalent for the six medicines with the greatest differences. It can be seen that some of the innovator brands were widely available (i.e. in 1 or 5 pharmacies or more, up to 80%) and hence likely to have a noteworthy market-share, despite having a high brand premium to the price.

For sulphadoxine-pyrimethamine, the innovator brand was found in 80% of pharmacies and was four times more expensive than the lowest priced generic; at the time of the survey there were 24 generic products being registered in Uganda.

Patient prices and availability at private retail pharmacies for innovator brands compared to lowest priced generic equivalents			
Number of times more expensive innovator brand: lowest priced generic		Availability	
		Innovator brand	Generic
7.3	albendazole	60%	100%
10.1	amoxicillin	25%	100%
14.0	atenolol	25%	60%
7.6	carbamazepine	20%	80%
12.1	ranitidine	20%	80%
4.0	sulfadoxine-pyrimethamine	80%	100%

n= 20 facilities

The study included all first line HAART⁷ medicines. Three of the six medicines were found in a single retail pharmacy in Kampala.

NON-GOVERNMENTAL SECTOR PROCUREMENT PRICES

NGO sector procurement prices for the lowest priced generic medicines were found to be 0.87 times international reference prices. In other words, procurement is 13% 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	1	29
Median MPR	1.04	0.87
25 th percentile		0.73
75 th percentile		1.01

n= 45 medicines

One medicine was procured at less than half the international reference price and two were procured for more than 50% above the international reference price. one innovator product was found, salbutamol inhaler. These prices of these four products are listed in the table below.

Number of times more expensive: NGO procurement prices compared to international reference prices – lowest priced generics	
albendazole (generic)	4.31
atenolol (generic)	1.97
omeprazole (generic)	0.25
salbutamol (innovator brand)	0.74

NON-GOVERNMENTAL SECTOR PATIENT PRICES

In the non-governmental sector, the price charged to patients for lowest priced generics was found to be 2.69 times the international reference price. Patient prices ranged from 0.53 times the international reference price for omeprazole to 12.34 times the international reference price for albendazole. No innovator brands were found.

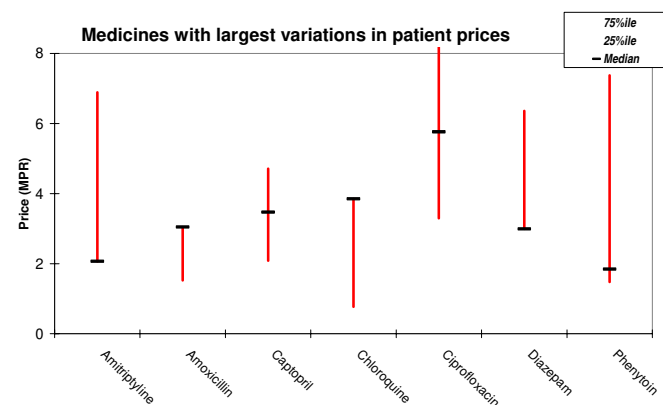
Number of times more expensive: patient prices for medicines at non-governmental facilities compared to international reference prices		
Price (MPR)	Innovator brand	Lowest priced generic
No. of medicines included	0	29
Median MPR		2.69
25 th percentile		2.07
75 th percentile		3.47

n= 20 facilities; 45 medicines

Availability at non-governmental facilities	Innovator brand	Lowest priced generic
Median availability	0	45
25 th percentile	0	15
75 th percentile	0	75

n= 20 facilities; 45 medicines

In non-governmental facilities, the prices patients were 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 generic medicines for which patients at NGO facilities are charged at least five times published international

prices for the lowest priced generic and/or 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.

Number of times more expensive: patient prices for medicines at NGO facilities compared to international reference prices	
Medicine	Lowest priced generic (MPR)
albendazole	12.34
atenolol	5.63
ciprofloxacin	5.76
glibenclamide	6.38
sulphadoxine=pyrimethamine	6.11

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:
NGO patient prices (n= 27 medicines)	3.2	NGO procurement prices
NGO procurement prices (n= 25 medicines)	1.2	Public sector procurement prices
Private retail patient prices (n=29 medicines)	1.0	NGO patient prices

While NGO sector procurement prices were 20% more than for public sector procurement prices for lowest priced the NGO sector procurement price of some medicines was as much as 4.4 times the public procurement price; in a number of instances due to JMS stocking blister packaged medicines whereas NMS stocked bulk containers.

Number of times more expensive: NGO sector procurement prices compared to public sector procurement prices (lowest priced generic)	
carbamazepine	1.8
ceftriaxone	1.5
chloroquine	2.2
cotrimoxazole	1.5
ketoconazole	1.8
Metformin	0.71 (JMS had lower price)
rifampicin + isoniazid	4.4

Patient prices in the private sector were generally the same as those in the NGO sector; the table below shows that some were the same price and some were more expensive in the private sector and some were more expensive in the NGO sector.

Number of medicines where NGO prices were	
same as private sector prices	9
less expensive than the private sector prices	9
more expensive than the private sector prices	11

n= 20 facilities; 29 medicines

69% of medicines were the same or more expensive in NGO facilities than in the private sector; 40% were more expensive in the NGO sector. The table below lists those medicines which were more expensive in the NGO sector than the private sector.

Number of times more expensive in NGO than in private sector	
amoxicillin	2.0
benzyl penicillin	2.5
captopril	1.2
cephalexin	1.1
chloroquine	2.2
ciprofloxacin	1.8
co-trimoxazole	2.0
co-trimoxazole suspension	1.2
furosemide	1.3
metronidazole	1.5
sulfadoxine-pyrimethamine	1.8

The table below examines where patient prices are perhaps more expensive than is necessary.

Number of times mark-up above median mark-up NGO patient price: NGO procurement price ⁸		
For those items where NGO prices were	Number of times mark-up greater than median	Out of (number of medicines)
same as private sector prices	2	9
less expensive than the private sector prices	6	9
more expensive than the private sector prices	3	11

The mark-up was greater than the median for the majority of the medicines where the NGO prices were already at or below the private sector price – perhaps cross-subsidizing other medicine prices or services; prices could be potentially be lower for these items.

For five out the eleven medicines where the NGO patient was more expensive than the private sector price, the mark-ups were below the median value, perhaps indicating the cross-subsidy mentioned above and/or that the JMS price was higher than it could be and perhaps higher than the private sector prices; for each of the five medicines JMS was procuring at between 17% and 127% more than NMS. The five medicines are amoxicillin; benzyl penicillin; chloroquine; and cotrimoxazole tablets and suspension.

Patients need medicines to not only be affordable, but also available. The table below presents the availability across all sectors for those medicines on the national essential drugs list with less than 50% availability⁹.

% Availability	Public sector facilities (n=20)	Private retail pharmacies (n=20)	NGO sector (n=20)
Amitriptyline	15%	75%	60%
Atenolol	10%	60%	40%
Betamethasone Cream	10%	85%	15%
Captopril	20%	75%	50%
Carbamazepine	40%	80%	45%
Cephalexin	0%	50%	20%
Co-trimoxazole suspension	15%	80%	40%
Fluconazole 200mg	15% ¹⁰	45%	0%
Glibenclamide	25%	85%	60%
Metformin	25%	85%	50%
Omeprazole	0%	95%	45%
Ranitidine	5%	80%	30%
Salbutamol inhaler	0%	95%	10%

Atenolol, fluconazole 200mg and glibenclamide are medicines which were not widely found in the public sector and previously identified in this paper as being apparently more expensive than what could be achieved in the private and/or NGO sector; atenolol is also procured at higher than expected prices by both the public and mission sector procurement systems.

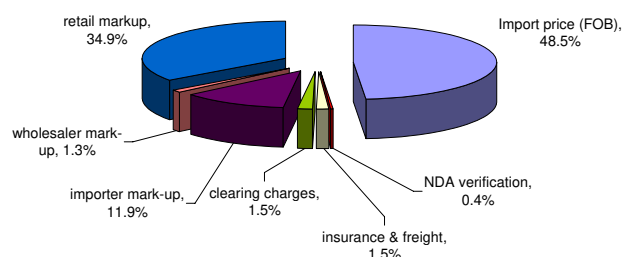
PRICE COMPONENTS

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 branded medicine, the import price represents around 48% of the final patient price, with the other major contributors to the final price being the retail mark-up contributing of around 35% of the final price and the importer mark-up contributing 12%.

The following two charts present these two situations graphically.

Typical proportions of add-ons of final patient price for an innovator brand product in the private retail pharmacy



RECOMMENDATIONS FROM COUNTRY REPORT AND STAKEHOLDER MEETING

A summary of the recommendations is provided below, for a fuller explanation see the full survey report:

Develop a medicines pricing policy and monitor its implementation; potential aspects of the policy could include price/margin control and reference pricing.

Develop mechanisms and approaches to disseminate price information to the public on a regular basis.

Develop a policy on generic prescribing and substitution, for all sectors

Promote the use of generics to health professional and the public, including assurances on quality issues. Civil Society Organizations to sensitize communities through sensitization and education

Promote adherence to the national standard treatment guidelines

Advocate on price issues as a barrier to access to medicines at the national and sub-regional (East African Community) levels

Strengthen the demand driven ordering system in the public sector to improve availability and efficiency

Strengthen National Medical Store's management information

Reinforce training in drug quantification at all levels.

Investigate why some essential medicines such as salbutamol inhaler are found at the National Medical Stores but not available at the lower level facilities

Explore the possibilities of a pooled procurement system for the two procurement agencies (JMS and NMS) especially for medicines which are being purchased at greater than the international reference price

Conduct a specific study on the availability and prices of ARVs in the three sectors.

Expedite accreditation mechanism thereby ensuring that more private pharmacies that supply ARVs

Facilitate the fast-track registration by the National Drug Authority of essential generic medicines where few are registered to encourage generic competition

⁸ NGO patient prices are 3.2 times more expensive than NGO procurement prices

⁹ the low availability in the public sector could be because some of the medicines are only intended to be at referral centres and not at some of the lower levels of care which were included in the survey

¹⁰ innovator brand availability as part of a donation programme

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 from the private and NGO sectors 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 seem to be at higher prices than others and than they could be when compared to the international reference price.

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

Some key medicines which were not widely available at all in the public sector were apparently more expensive than need be in the private and NGO sectors.

It appears that prices in the NGO sectors for some medicines are perhaps set at a potentially higher otherwise as the final price is the same or more as the private sector and at the same time are apparently marked-up more than average from the available JMS procurement price.

Medicines prices in the NGO sector are very similar to medicines prices in the private retail pharmacy sector; NGO facilities being largely in the rural areas and retail pharmacies being largely in the urban areas. NGO facilities in the rural areas are therefore offering a service, in terms of price, almost equivalent to the private pharmacies in the urban areas despite being subsidized by government.

Drugs shops were not included in the study, which together with the public and NGO facilities are important suppliers of medicines to patients in the rural areas; an evaluation of their actual and potential role in the supply of medicines, including pricing of medicines could be very informative.

Some key essential medicines including atenolol, fluconazole 200mg and glibenclamide were not widely found in the public sector and were apparently more expensive than what could be achieved in the private and/or NGO sector.

PUBLIC SECTOR

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

Some key essential medicines were not widely found in the public sector; there is room for improvement in the availability of medicines for the patient in the public sector.

PRIVATE SECTOR

Some branded medicines were widely available and hence were likely to have noteworthy market share despite having a high brand premium compared to the generic equivalent

NGO SECTOR

Availability in the NGO sector was generally greater than in the public sector.

Prices in NGO facilities were similar to that of the private retail pharmacies.

Most medicines were the same or more expensive in NGO facilities than in private sector pharmacies;

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

A small number of medicines were markedly cheaper at the national medical stores compared to Joint Medical Stores

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FURTHER INFORMATION

For further information, contact: Dr Jean Marie Trapsida, Coordinator EDM, WHO Regional Office for Africa, Brazzaville, Republic of Congo, trapsidaj@afro.who.int; Dr. Gilles Forte, Coordinator, Department of Technical Cooperation on Essential Drugs and Traditional Medicine, WHO Geneva, forteg@who.int; Mr Patrick Mubangizi, Regional Coordinator, Health Action International (HAI) Africa, PO Box 66054-00800 Nairobi, Kenya, pmubangizi@haiafrica.org