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Medicineprice sin Africa

Analysis of findings from 11 countries in the WHO African region

Cameroon, Chad, Ethiopia, Ghana, Kenya, Mali, Nigeria, Senegal, Tanzania, Uganda, and Zimbabwe

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[1] Regional Office for Africa and Department of Technical Cooperation in Essential Medicines and Traditional Medicine, Geneva

Acronyms

ARI	Acute Respiratory Infection
ACT	Artemisinin-based Combination Therapy
CIF	Cost Insurance Freight
COMESA	Common Market of Eastern and Southern Africa
DDP	Delivery Duty paid
DFID	Department for International Development
EAC	East African Community
ECOWAS	Economic Community of West African States (CEDEOA)
EMCCA	Economic and Monetary Community of Central Africa (CEMAC)
EXW	Ex Works (price ex factory)
FOB	Free on Board
GNI	Gross National Income
HAI	Health Action International
INCOTERMS	International Commercial terms: http://www.export911.com/e911/export/comTerm.htm
IRP	International Reference Price
LPG	Lowest Priced Generic
MPR	Median Price Ratio
MSG	Most Sold Generic
MSH	Management Sciences for Health
NGO	Non-governmental Organisation
NPO	National Professional Officer
OB	Originator Brand[2]
SADC	Southern Africa Development Community
SP	Sulfadoxine - pyrimethamine
UEMOA	Union Economique et Monétaire Ouest Africaine (also see WAEMU)
US$	United States Dollar
VAT	Value Added Taxes
WAEMU	West African Economic and Monetary Union (also see UEMOA)
WHO	World Health Organisation

[2] Referred to as Innovator Brand in the manual: "Medicine Prices, A new approach to measurement"; www.haiweb.org/medicineprices

Executive summary

The development and implementation of an effective medicine pricing policy is a key element for improving the affordability of medicines in countries. This report presents a comparative analysis of the findings from pricing surveys undertaken in 11 countries of sub-Saharan Africa during 2004-5, based on more than 27,000 pieces of price information collected from 850 pharmacy outlets and health facilities across the countries. The 11 countries have a combined population of 390 million, which represents half of the total population of sub-Saharan Africa; the countries being Cameroon, Chad, Ethiopia, Ghana, Kenya, Mali, Nigeria, Senegal, Tanzania, Uganda, and Zimbabwe.

This report successively examine the procurement and patient prices, availability, affordability and price components in different parts of the pharmaceutical distribution system, including in the public and private sectors.

The main findings from the surveys are as follows:

Procurement prices in the public sector

- 7 out of 10 countries achieved procurement prices that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.
- Nigeria and Senegal paid more for medicines than the other countries.
- Some countries paid much than others for some medicines, e.g. hydrochlorothiazide where the range is from 0.51 times the international reference price in Cameroon to 19.18 in Nigeria – a factor of 38 times.

Procurement prices in the NGO/not-for-profit sector

- 3 out of 5 countries achieved procurement prices that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.
- Procurement prices in the NGO/cost recovery sector were generally marginally higher than in the public sector
- In Senegal and Nigeria, the NGO procurement prices were 30% and 80% lower than the prices achieved in the public sector procurement respectively

Patient price in the public sector

- The prices that patients pay varied quite widely between public health facilities in most of the countries with small variations only seen in Cameroon, Ethiopia and Mali.
- Nigeria, Senegal and Chad had the highest patient prices in the public sector.

Patient prices in the private sector

- Patient prices of in the private sector were often 2-3 times more than those in the public sector
- Originator brands[3] were generally 3.4 times the price of the lowest priced generic medicines.
- The prices patients paid in private pharmacies for generics in Cameroon, Chad, Mali and Senegal were much higher than the prices paid in the other countries. Cameroon and Senegal displayed the highest prices for both originator and lowest priced generic medicines.
- Patient prices of generics in the private sector were 4.6 times more expensive than those of the public sector in Cameroon.
- A course of the most available sulphadoxine-pyrimethamine in Cameroon, Chad and Senegal would cost more than US$ 2 per course compared with less than US$ 50 cents in Ethiopia, Ghana, Nigeria, Tanzania and Uganda.

Patient price in the NGO cost-recovery sector

- In general terms, patient prices for generic medicines in the NGO sector were more than in the public sector.

[3] Referred to as Innovator Brand in the manual: "Medicine Prices, A new approach to measurement" www.haiweb.org/medicineprices

- Cameroon had the largest difference between the NGO/cost recovery sector and the public sector generic patient prices: 3.1 times; whilst in Ethiopia, Ghana and Senegal, prices were just 10% higher than the public sector prices.
- Both Chad and Senegal which were in the top three in terms of high patient prices of in the public and private sectors, and Cameroon which was in the top three of high private sector prices – are all in the top three in terms of high NGO/cost-recovery sector patient prices.

Availability of medicines

- Availability of the essential medicines surveyed was often inadequate in all sectors especially the public sector. For some chronic diseases such as diabetes, in some of the medicines were not widely available in either the public or private sectors.
- Availability of generics was generally higher than that of brands in all sectors - however in Cameroon, Senegal and Chad in the private sector, originator brands were more available than generics

Affordability of medicines

- Several days, weeks or even months wages could be needed to procure medicines for a month of a family's medicines needs – in an example illustrated in this report: for generic medicines, a minimum of 5 days work would be needed to buy the months needs of medicines in Tanzania up to 39 days in Cameroon; and for originator brands, a minimum of 17 days work in Senegal up to 106 days in Ghana
- Medicines were generally unaffordable in the private sector, but also in many cases in the public and NGO/cost recovery sector for the majority of the population, especially for chronic diseases.
- In some countries, the degree of affordability for some life-saving medicines was identical in the public and private sectors despite very different procurement prices
- Treatment of a single episode of an acute respiratory tract infection (ARI) in infants could require 3% of a monthly salary of the lowest paid unskilled government worker from the private sector in Nigeria or the dispensing doctor sector in Nigeria; a large proportion of the population living below this worker.
- In Cameroon, a patient can be treated with glibenclamide for diabetes in the public sector at a cost equivalent to half a day's pay for the lowest paid unskilled government worker, but if the medicine is not available there the patient is forced to resort to the private sector where the cost of treatment is almost 15 times higher costing the equivalent of one quarter of a months salary.

Components of price

- High mark-ups (wholesale and retail/facility mark-ups) are applied in both the public and private sectors at the distribution level and, where applicable, taxes and tariffs which are added to the procurement prices, significantly increase the patient prices in most of the countries surveyed; prices are often two to three times the ex-factory price by the time they get to the patient in the public, NGO/cost-recovery sector and in the private sector

Overall conclusion

1. Most governments procure medicines at competitive prices

2. Availability of the essential medicines surveyed as a whole was unsatisfactory in all sectors

3. Many medicines are unaffordable to the majority of the population

4. Understanding the components of the final price is difficult but essential to understand the real reasons for high prices or low availability

5. There are many positive examples identified by these surveys, other countries can learn from these positive experiences through an in depth study of the full country survey reports[4]

[4] The country reports can be found at http://www.afro.who.int/dsd/survey_reports/index.html; http://www.haiafrica.org/ and the data (and reports) can be found in the HAI Medicines Prices database at www.haiweb.org/medicineprices.

Summary of countries recommendations

In their analysis, the countries highlighted findings and made recommendations for improving the situations that were identified. The most frequent of these were related to:

- Improving availability of medicines in the public sector through improved estimation of needs at all level and more efficient management of the public sector distribution chain and more predictable financing
- Promoting the distribution and dispensing of generic medicines
- Providing patients with better information on generic medicines
- Cutting customs duties and taxes on essential medicines
- Providing patients with better information on medicines prices through health facilities
- Introducing price policies for essential medicines to make them more affordable.

These recommendations, which were made within the framework of the analyses carried out by each of the countries, are consistent with this inter-country analysis. The most important among them is undoubtedly the need to develop and introduce a policy on medicine prices.

The introduction of such policies, whose purpose would be to bring down prices while assuring availability. The policies chosen for each country are likely to vary but are likely to include policies for originator brand (patent protected) medicines, other policies for generic medicines and policies on mark-ups and additional charges. For originator brand products for which there are no therapeutic alternatives price controls may be necessary based on the therapeutic value of the product. In addition flexibilities within the TRIPS agreement may be necessary. For generic products, measures to promote generic uptake and competition through price information would be necessary. Policies to remove taxes and duties on medicines are likely to be advocated as these are inequitable as only the sick pay these taxes. Mark ups by wholesalers and retailers (pharmacists) are likely to require careful monitoring and where regulation is practicable countries may require regressive margins being applied.

Context

Weak medicines supplies systems are a key factor in the inaccessibility and high prices of medicines. High prices are particularly burdensome to patients in developing countries where most medicines are paid for out-of-pocket by individual patients.

The development and implementation of an effective medicine pricing policy is a key element for improving the affordability of medicines in countries. In order to understand the price patients and governments pay for medicines, Ministries of Health with support of the World Health Organisation (WHO) and Health Action International (HAI) carried out a series of medicine price surveys, to gain a better understanding of the prices of medicines and their constituent parts in countries and to enable countries to obtain the necessary elements for developing medicine pricing policies.

National pricing surveys were undertaken between March 2004 and June 2005 in 12 sub-Saharan African countries (Cameroon, Chad, Ethiopia, Ghana, Kenya, Mali, Nigeria, Senegal, South Africa, Tanzania, Uganda, and Zimbabwe). The surveys were based on an original methodology: Medicine Prices: a new approach to measurement[5] developed by the World Health Organization and Health Action International (HAI). The surveys were supported by the WHO[6] and Health Action International Africa (HAI-A) with the financial support of the European Commission and the UK Department for International Development (DFID).

These surveys were conducted in public sector facilities, private retail pharmacies and, as appropriate to the country situation, mission/NGO facilities, the dispensing doctor sector, and/or private hospitals. Using the WHO/HAI methodology: Medicine Prices: a new approach to measurement.

This report is a comparative analysis of the pricing survey findings from 11 countries of the African region. The South Africa survey was planned to cover only one province - as a result, the South African survey cannot necessarily be considered nationally representative and hence its findings are not presented in this multi-country analysis.

An advisory group was established in each country to oversee the survey and in most countries a stakeholder meeting was held to discuss the preliminary findings. Subsequently the reports were finalised and endorsed by the respective ministries of Health. WHO and HAI-Africa provided support throughout with a number of regional meetings, including:

- the first in July 2004 to train the survey managers in the survey methodology to enable them to manage their country survey
- the second after the data was collected in January 2005 to advise survey managers on data cleaning, analysis and report writing
- the third in September 2006 to support countries' effort to develop/implement appropriate medicines pricing policies and strategies to improve availability and affordability of essential medicines

The country reports can be found at http://www.afro.who.int/dsd/survey_reports/index.html; http://www.haiafrica.org/ and the data (and reports) can be found in the HAI Medicines Prices database at www.haiweb.org/medicineprices.

Procurement and patient prices, availability, affordability and price components are examined in different parts of the pharmaceutical distribution system, including in the public and private sectors. The report concludes with a comparative analysis of the policy recommendations proposed by survey countries.

[5] http://www.haiweb.org/medicineprices
[6] WHO Regional Office for Africa and the Department for Technical Cooperation in Essential Medicines and Traditional Medicine, Geneva

Methodology

The methodology used for all the surveys is that described in the HAI/WHO manual: "Medicine Prices, a new approach to measurement" (2003)[7]. The methodology involves a systematic survey of patient prices (and public sector procurement prices) for a selection of important medicines from a sample of registered pharmacies in the public, private or other sector (e.g. NGO) in four regions of a country. For each medicine, data is collected for the originator brand and the lowest priced generic equivalent (price and availability on the day of the survey). The prices are then compared with a set of international reference price benchmarks. Affordability is assessed as the number of days the lowest paid unskilled government worker needs to work to pay for a course of treatment. All the component costs ('add-ons') in the distribution chain from manufacturer to patient are also collected (taxes, mark-ups etc.) and their impact on the final patient price assessed.

Further reference to the methodology has been kept to a minimum and inclusion was determined on the grounds of being deemed essential for the comprehension of the results presented. For an exhaustive description of the methodology, refer to the manual.

Areas and sectors of analysis

The surveys covered the public and private sectors, as well as an additional sector which included – depending on the country - the NGO sector, cost-recovery pharmacies, or the dispensing doctors sector. Conditions in these sectors were assessed against five parameters: procurement prices, patient prices, and availability, affordability and price components. This analysis will consider these five parameters in turn.

For each of these parameters, survey data collectors were required to record details for three categories of medicines: the Originator Brand[8] (OB), the Most Sold Generic equivalent (MSG)[9] in the country, and the Lowest Priced Generic equivalent (LPG) in the medicine outlet surveyed.

Table 1. Parameters and sectors surveyed which are presented in this report

	Public sector (a)	Private sector	NGO sector	Cost recovery pharmacies
Procurement price	√		√	
Patient price	√	√	√	√
Availability	√	√	√	√
Affordability	√	√	√	√
Price components	√	√	√	

(a) Public sector patient prices were not collected in Uganda as medicines in this sector are dispensed free of charge.

Table 2. Break-down of sectors surveyed (by country) which are presented in this report

	Patient prices				Procurement prices	
	Public sector	Private pharmacies	NGO sector	Cost recovery pharmacies	Public sector	NGO sector
Cameroon	√	√	√		√	
Chad	√	√	√		√	
Ethiopia	√	√		√	√	
Ghana	√	√	√		√	√
Kenya	√	√	√		√	√
Mali	√	√		√	√	
Nigeria	√	√			√	√
Senegal	√	√	√		√	√
Tanzania	√	√	√		√	
Uganda	√	√	√		√	√
Zimbabwe	√	√			√	

[7] www.haiweb.org/medicineprices

[8] Referred to as Innovator Brand in the manual: "Medicine Prices, A new approach to measurement" www.haiweb.org/medicineprices

[9] The concept of the MSG equivalent has subsequently been discontinued due to methodological difficulties and will not be further discussed in this analysis.

All countries collected procurement price data in the public sector. In addition, Ghana, Kenya, Nigeria, Senegal and Uganda, recorded procurement prices in the NGO sector.

Secondly, all countries recorded the price paid by patients in the public and private sectors. Some of them, additionally survey patient prices in the NGO sector, the cost-recovery pharmacy sector or the dispensing doctor sector[10]. Indirect costs such as cost of transport to the facility and additional charges such as dispensing fees were not taken into account. Even though this approach facilitates cross-country comparisons, it must be borne in mind that estimates of the affordability of medicines using this methodology are likely to underestimate the problems of financial access.

Thirdly, as well as recording patient prices, data collectors made a note of whether or not, medicines included in the survey were available on the day they visited surveyed outlets. Data on the availability is an important element in the analysis of the affordability of medicines, since low cost treatments must also be available otherwise patients are forced to resort to higher priced medicines.

Fourthly, the affordability of a subset of medicines belonging to six therapeutic classes (anti-diabetic, anti-malarial, anti-infective, anti-hypertensive, anti-ulcer and anti-asthmatic) was measured by comparing the price paid by the patient to the daily wage of the lowest-paid unskilled government worker. The report also the affordability of medicines was also assessed by considering the proportion a monthly income a person living on less than US$1 per day would have to spend to purchase a medicine.

Finally, where possible, a break-down of price components was provided to evaluate the structure of retail prices and the elements which together make up the final patient price. Price components can be grouped into four main categories: factory price, procurement price, taxes and tariffs, and distribution mark-ups.

Medicines surveyed

The medicines surveyed included a standardised core group of up to 30 medicines that were surveyed in all countries and a supplementary group of up to 20 medicines selected individually by each country. The core group was selected based on global burden of disease, availability of standard formulations and their importance. Medicines in the supplementary group were selected because of the importance and/or frequency of their use in treating important common health problems in the applicable country. Both medicines on and off patent and on and off the national essential medicines lists were represented. The table below describes the sectors and number of core medicines surveyed and supplementary medicines studied in the 11 countries.

Table 3. Number of medicines surveyed by country

Country	Core list	Supplementary list	Total number of medicines surveyed
Cameroon	19	17	36
Chad	13	9	22
Ethiopia[11]	26	21	47
Ghana	30	19	49
Kenya	30	15	45
Mali	8	29	37
Nigeria	26	3	29
Senegal	21	28	49
Tanzania	30	14	44
Uganda	25	20	45
Zimbabwe	29	13	42

[10] The findings of the prices and availability of medicines in the dispensing doctor sector – measured in Nigeria and Zimbabwe are not presented in this report. Details can be found in the individual survey reports which can be found at http://www.afro.who.int/dsd/survey_reports/index.html; http://www.haiafrica.org/ or www.haiweb.org/medicineprices

[11] The medicine prices survey in Ethiopia collected price and availability information for 47 medicines; however the national report and this summary paper presents the findings of 26 of those medicines which are included on the List of Medicines for Ethiopia.

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 (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 most of the surveys were taken from the 2003 Management Sciences for Health (MSH) International Medicine Price Indicator Guide[12]. 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.

As the international reference prices serves external standard for evaluating local prices and in order to enable comparison of MPR values between all of the surveys, the MPR has been adjusted to a single reference point, the international reference price of 2003. For each of the medicines included, the data on the price ratios obtained from the two surveys not using the 2003 MSH International Medicine Price Indicator Guide (Cameroon and Senegal) were adjusted to the MSH reference prices of 2003.

Presentation of affordability information

The notion of affordability is analyzed on the basis of two criteria. Firstly, following the HAI/WHO methodology, affordability is expressed as the number of days the lowest paid unskilled government worker would have to work to afford the patient cost of medicines used for the treatment of a given illness, such as a chronic disease (asthma, diabetes and hypertension) or an acute disease episode (malaria and ARI). Secondly, the cost of medicines is compared to the monthly income of individuals living on less than US$1 per day[13]. Both methods of assessing affordability presented here are likely to underestimate the degree of financial inaccessibility of medicines in the sample countries. This is due to a series of factors:

- In the case of presenting the cost of medicines as a proportion of income of someone earning US$1 per day, this overestimates the income of individuals who are living below the threshold of US$1 per day. In other words, this figure ignores the depth of poverty that may exist below the US$1 per day threshold.

- Secondly, someone living on US$1 a day (or indeed less) will in practice not have US$1 per day in disposable income for discretionary spending on medicines. The US$1 in income will also have to finance housing, food, clothing and other basic non-discretionary expenditure items. Therefore, the amount of money left over that could in the event of illness be spent on medication is likely to be significantly lower than US$1 per day and rather close to 10 % of this amount. Thus, comparing the cost of treatment against an income of US$1 will significantly over-estimate financial ability to pay.

- Thirdly, the poverty threshold established by an income equivalent to US$1 per day underestimates typical seasonal fluctuations in income experienced by poor people in developing countries that are linked to the agricultural cycle. Thus, a household may earn US$365 per year, but may not have US$1 in disposable income every day, but may instead go through periods of the year of having significantly less income than that. Since illness can strike at any time of the year, families may be faced with severe financial constraints which are not reflected in the arithmetic average of having US$1 per day in income.

- Fourthly, any measure of individual income is likely to overestimate affordability as it does not take into account the number of dependents that need to be fed, clothed and sheltered by the

[12] http://erc.msh.org/
[13]. World Bank Development Indicators, 2006

breadwinner. In addition, illness and the need to purchase medicine may affect more than one household member at any given time creating multiple pressures on household income.

All four points raised above in relation to the measure of income equivalent to US$1 per day are equally applicable to measuring affordability against the income of the lowest paid unskilled government worker. Indeed, it may be argued that using the income of the lowest paid government worker is an overestimate of the income obtained by large sections of the population, who earn significantly less than the lowest paid government worker.

These methodological considerations should be kept in mind when considering the relative affordability of treatments presented in the following analysis. Notwithstanding these, it is argued here that the measures of affordability presented in the present analysis help to give a rough indication of the extent of the affordability problem in the selected countries.

Presentation of information on the components of price

The price of medicines is a key factor in determining whether medicines are accessible or not to patients in low-income countries. The final patient price is the end product of a cumulative system of mark-ups which are added to the initial ex-manufacturer price. These include insurance and freight costs, import fees, taxes and tariffs, VAT, distribution margins including wholesale and retail margins. In addition, in some countries a dispensing fee is added to the final patient price. This cumulative system of margins is illustrated with a hypothetical example in Table 4.

Table 4. Illustration of cumulative margins (hypothetical example)

	Rate	Add-on	Price	Cost structure
Ex-works price			***100,0***	***48,1%***
Delivery on board	*4,0%*	*4,0*	*104,0*	*1,9%*
Transportation, Insurance & Freight	*7,0%*	*7,0*	*111,0*	*3,4%*
Clearing & local transportation charges	*3,0%*	*3,3*	*114,3*	*1,6%*
Importer mark-up (*)	*15,0%*	*16,7*	*127,7*	*8,0%*
Import duty (*)	*2,0%*	*2,0*	*113,0*	*1,0%*
V.A.T & other charges (*)	*7,0%*	*7,9*	*120,9*	*3,8%*
DDP price			***120,9***	
Wholesaler mark-up	*15,0%*	*18,1*	*139,0*	*8,7%*
Retailer mark-up	*30,0%*	*41,7*	*180,8*	*20,1%*
Dispensing fees (*)	*15,0%*	*27,1*	*207,9*	*13,0%*
Patient price			***207,9***	***100,0%***

Note : (*) when applicable

An understanding of the price components that make up the final price paid by patients is important for a number of reasons:

- The way in which margins are applied to the ex-manufacturer or import price may create perverse incentives for importers, distributors and retailers to stock high cost products, since percentage margins will render higher revenue if applied to a higher base price.

- Knowledge of the retail price structure is also an important first step in determining the competitiveness of the pharmaceutical distribution chain. In the absence of competitive pressures, rent-seeking behaviour may ensue leading to higher prices and lower affordability. Policy options may then be targeted to increase the affordability of medicines. The aim of facilitating patient access to medicines must however be counterbalanced against the competing aim of ensuring the financial viability of private interests (i.e. wholesalers and retailers) involved in the distribution of medicines.

- Taxes and tariffs tend to be fixed in most countries, however, the subsequent price components may either be fixed or deregulated.

- In countries were prices are regulated, the import price, different charges and duties and distribution margins are the result of negotiations between the Ministry of Health and the relevant stakeholders to fix the amount of margins and the final patient price.

- In countries where medicine prices are deregulated, the level charges and margins respond the realities of the market including the degree of competition. However, it is a well known fact that competition in the pharmaceutical sector is imperfect for a number of reasons. Demand is expressed through a principal (patient) agent (prescriber/dispenser) relationship, and may be influenced by financial priorities of a third-party payer where such coverage exists. Furthermore, asymmetrical information between the principal and the agent means that the principal does not command sufficient market information to have an impact on competition.

Sampling

Data is collected in a systematic way in order to ensure that the findings are representative of the country or region in which the survey is being conducted. The methodology recommends that a small sample of facilities should be selected in at least four geographic areas: the main urban centre and three other administrative areas. Once these areas were selected, a sample of facilities and medicines outlets was selected – mainly in the public, private and mission sectors; a minimum of 5 outlets were selected from each geographic areas for each sector. Table 5 describes the number of facilities surveyed per sector per country. In a number of the surveys a larger sample size than the minimum was selected; however in a number of surveys for some of the sectors, the sample size was below the recommended size (other sector in Chad and public sector in Zimbabwe).

Where survey findings demonstrate 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 no more than 50 medicines were included in the surveys, a finding of high prices or low availability of even 3 or 4 medicines – which is at least 6% to 8%[14] of those studied – could indicate a greater problem and requires further investigation.

Table 5. Number of facilities surveyed per sector by country

Country	Public	Private	Other[15]
Cameroon	18	20	20
Chad	24	11	8
Ethiopia	34	25	29
Ghana	28	28	28
Kenya	53	58	44
Mali	21	20	23
Nigeria	42	44	38
Senegal	23	21	18
Tanzania	32	48	31
Uganda	20	20	20
Zimbabwe	8[16]	27	23

[14] The actual percentage depends upon the number of medicines studied in the particular survey

[15] see table 2 for a description per country

[16] Only 8 facilities were surveyed as only hospitals charged for medicines; availability information was not collected at the other lower level facilities as was done in similar situations in other countries.

Scope of survey

Prices collected and outlets surveyed

While reliable information regarding medicine prices is crucially important for the development of adequate pricing policies, such information is generally difficult to obtain in developing countries. Through the present medicine surveys, a substantial amount of price information was collected including more than 27,000 medicine prices. It is in this context, that the price surveys can be seen as an important element in bridging the existing informational gap relating to medicine prices in developing countries.

These prices were collected in 850 pharmacy outlets or health facilities. The majority of prices come from the private sector (53 %). However there were significant exceptions to this trend, with Chad (31 %) Mali (38 %) and Ethiopia (39 %) collecting less prices in the private sector. The second most important sector in terms of the number of prices collected is the "other"[17] sector with an average of 25 % of all prices surveyed being obtained in this sector. Prices collected in the public sector represent only 22 % of the total with the following countries collecting less than the mean: Uganda (17 %) Tanzania (16 %), Zimbabwe (12 %) and Kenya (10 %). It is not surprising that the number of medicines found in the public and mission sectors were less than found in the public sectors as the range of medicines stocked in these sectors is usually based on the countries essential medicines list. As the list of medicines surveyed included medicines not on the essential medicines list, it was expected that these medicines would not be widely found in those sectors.

Medicines surveyed

As detailed in the HAI/WHO methodology, all countries complemented the core list of medicines with an individually chosen supplementary list of medicines.

An analysis of the lists surveyed by country shows that the total number of medicines surveyed per country, ranges from 22 to 49. Only seven countries surveyed more than 40 medicines (out of a maximum of 50): Senegal (49), Ghana (49), Ethiopia (47) Uganda (45), Kenya (45), Tanzania (44), and Zimbabwe (42).

The combined supplementary list contained 91 different medicines. For a comprehensive list of all medicines surveyed by country.

Just seven countries -Kenya (30), Ghana (30), Tanzania (30), Zimbabwe (29) Nigeria (26), Ethiopia (26) and Uganda (25), collected 25 or more medicines from the core list. Chad and Mali collected prices for less than one third of core list medicines. In two countries Mali (78 %) and Senegal (57 %) the proportion of medicines surveyed from the supplementary list outweighs that of the core list.

Five products (captopril tablets, cotrimoxazole suspension, glibenclamide tablet, salbutamol inhaler and sulfadoxine/pyrimethamine tablets were surveyed in all 11 countries; 23 products were found in 8 or more of the 11 countries and 42 products were surveyed by just one country.

As there are only a small number of medicines surveyed from the core list in two countries (Chad, and Mali), the comparative analysis presented is sometimes restricted to a smaller subset of countries whose data is more comparable.

Price outliers

Survey results were checked for data inconsistencies and for the purpose of this analysis, prices were considered to be potential outliers if the difference between the lowest and highest price of the same lowest priced generic in a given sector was more than ten times. Notwithstanding this, the proportion of outliers identified to total prices collected was low and is not considered to have a significant bearing on the analysis presented.

[17] The Other sector comprises NGO, or mission cost recovery pharmacies or dispensing doctor sector

Findings

This section successively examines the procurement and patient prices, availability, affordability and price components in different parts of the pharmaceutical distribution system, including in the public, private and not-for-profit/cost recovery sectors.

Procurement prices of the lowest priced generic in the public sector

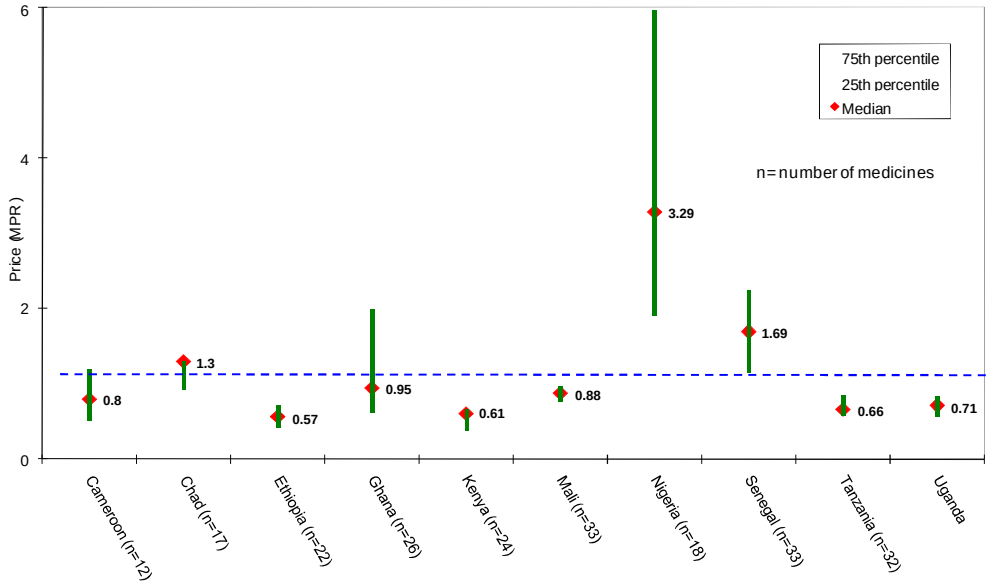
Procurement prices were largely collected at the central level from the procurement office or the national medical stores; in some countries prices were collected at the regional level. The analysis of procurement prices in the public sector presented is based on data from ten countries[18]. The results are expressed as MPR to the international reference price, and indicate the number of times they are higher or lower than the international reference price.

Figure 1 presents the public sector procurement prices for the lowest priced generic medicines for ten countries are presented along with the 25th and 75th percentiles to demonstrate the median and the spread of the prices for the individual medicines. For example in Cameroon the median price ratio is 0.83; this means medicines, on average, are procured at 17% less that the published international market prices of non-profit generic medicine suppliers.

Price ranged from 3.3 times more expensive than the international reference price in Nigeria to 0.6 times (i.e. 40% less) the international price in Kenya. It is worth highlighting that seven out of ten countries had price ratios that were below 1.0[19] - this indicates that these countries were able to procure medicines at prices below those indicated by the international reference price and suggests good public procurement efficiency in terms of purchase prices achieved.

In a number of countries achievement of the international reference price was more consistent that in others – e.g. there is much more variation in Ghana, Nigeria and Senegal than in the others.

Figure 1. Procurement prices in the public sector (MPR, LPG, core & supplementary)



Out of the medicines surveyed in the 10 countries presented, the majority of medicines were generally procured at below the international reference price. A few medicines were procured at higher prices and there were also some marked differences for the same medicines between countries, even when they were procured below the international reference price. For example,

[18] Procurement price data could not be satisfactorily validated for Zimbabwe and is excluded from the analysis

[19] The procurement prices are compared to the international reference prices provided by the MSH Medicine Price Indicator Guide. In this process countries compare their procurement prices which are, depending on each case, FOB(Free on Board), CIF (Cost Insurance Freight) or DDP (Delivered Duty Paid, with international reference prices which in most cases are EXW (ex-works) or FOB prices. However, depending on their geographical circumstances (coastal or landlocked countries) the price gap between an EXW or FOB price and a DDP price may range from 15 % to 20 %

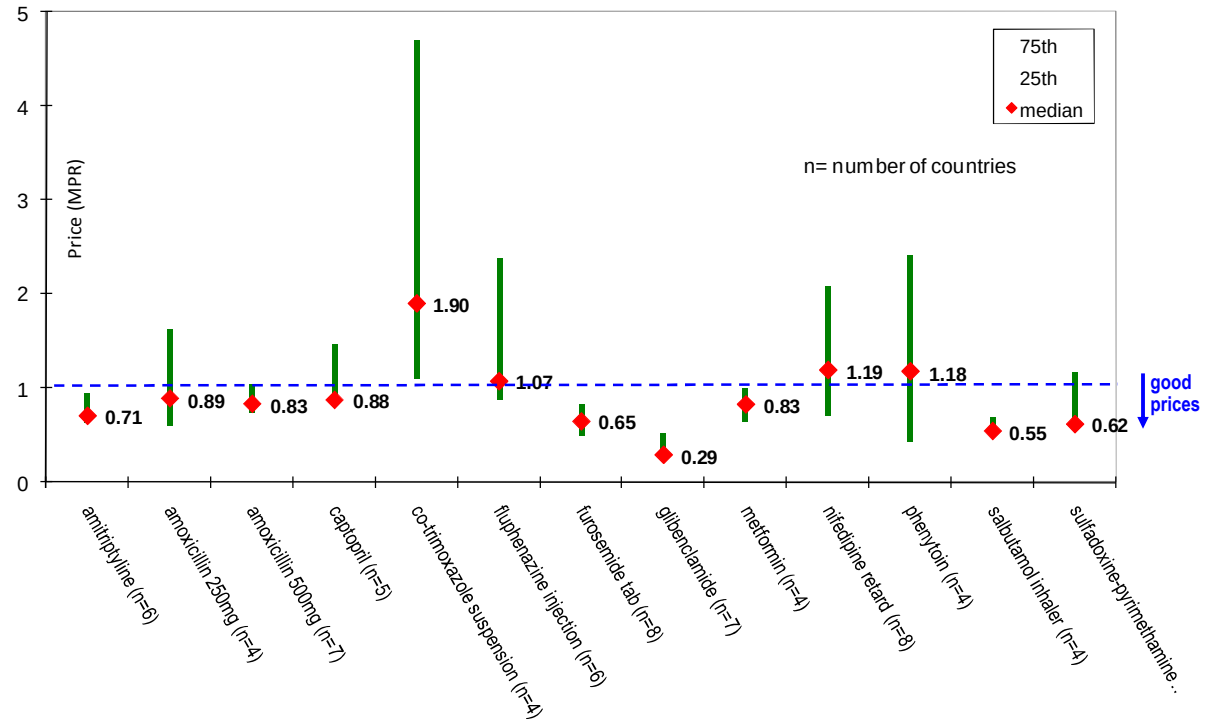
with hydrochlorothiazide, the range is from 0.51 in Cameroon to 19.18 in Nigeria – a factor of 38 times (Table 6).

Table 6. Procurement prices of selected medicines (MPR, LPG)

Median price ratio	Cameroon	Chad	Ethiopia	Ghana	Kenya	Mali	Nigeria	Senegal	Tanzania	Uganda	Ratio max: min
Aciclovir	1.87		0.23				6.21			1.09	27
Atenolol			0.49				11.26		1.29	2.51	23
Captopril			0.41		2.81	1.14	4.13	1.01	0.83		10
Ciprofloxacin	2.04	1.19	0.61	2.12			7.09	1.34	0.47	0.77	15
Clotrimazole cream			0.46	3.92			1.90		0.31		13
Diazepam	0.59	0.84	0.46	0.80	0.28		1.93	3.06	0.23	0.79	13
Glibenclamide	0.71	1.29	0.94	1.64		1.11	17.36	8.60	0.61	0.85	28
Hydrochlorothiazide	0.51	1.22	0.61				19.18		2.33		38
Nifedipine Retard	0.16		0.19	1.04	1.24		5.22		0.58		33
Phenytoin	0.63		0.43	2.05	0.44				0.84	0.66	5
Ranitidine			0.29		0.64		4.53			0.74	16
Tetracycline eye ointment		3.46	0.36		2.21	0.52					10

The prices paid for some medicines vary much more than others between countries; e.g. the prices paid for cotrimoxazole suspension and phenytoin vary much more than salbutamol inhaler (Figure 2).

Figure 2. Procurement prices across 10 countries for selected medicines (MPR, LPG)



Nigeria and Senegal are generally paying more for medicines than the other countries and the prices achieved vary the most (Figure 1 and Table 6).

A few countries were procuring a very small number of originator brand medicines, however these largely were for donation programme medicines (e.g. fluconazole, nevirapine) or originator brand medicines priced at very similar levels to generic medicines (e.g. salbutamol inhaler in Uganda).

A similar analysis approach could assist countries in identifying those medicines where better prices could be obtained, at a basic level by sharing information on sources and prices of the medicines or perhaps through pooled procurement. The total expenditure made for a particular

medicine is the unit cost multiplied by the volume. For those medicines with large volumes, reducing the unit cost by a factor of two for example can lead to very significant cost savings.

Summary of key findings

- 7 out of 10 countries achieved procurement prices that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.
- Nigeria and Senegal paid more for medicines than the other countries.
- Some countries paid much than others for some medicines, e.g. hydrochlorothiazide where the range is from 0.51 times the international reference price in Cameroon to 19.18 in Nigeria – a factor of 38 times.

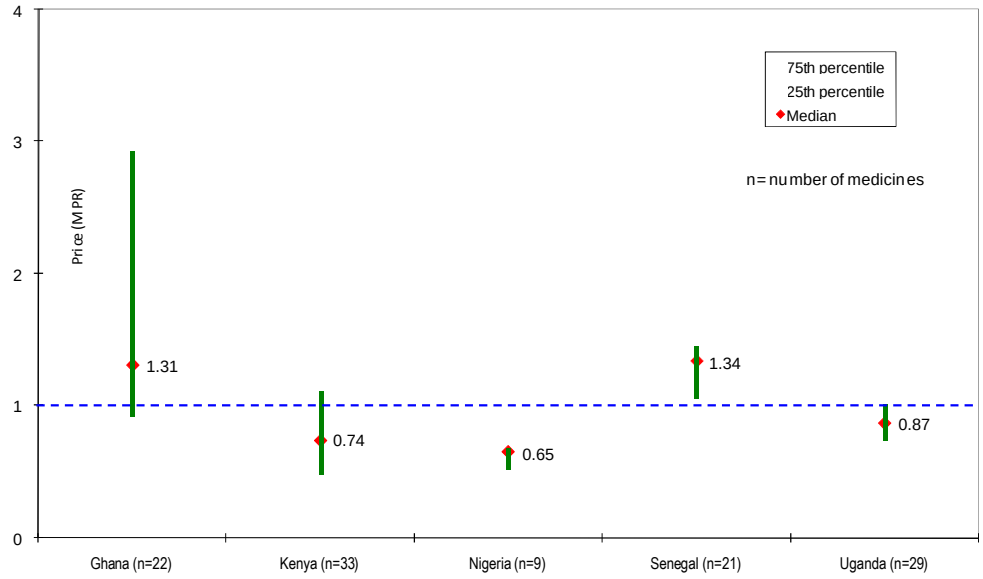
Procurement prices of the lowest priced generic in the NGO/cost-recovery sector

An analysis of the procurement prices in the NGO/cost-recovery sector was possible in five countries: Ghana, Kenya, Nigeria, Senegal, and Uganda.

Similar to the picture emerging from the analysis of public sector procurement prices, in three of the five countries, NGO/cost-recovery procurement prices were under 1.0 times the international reference price and Nigeria and Uganda more consistently achieve the international price for a selection of medicines than Ghana and Kenya (Figure 3).

Most of the NGO procurement agencies were procuring a very small number of originator brand medicines; however these largely were for medicines for HIV and AIDS and for originator brand medicines priced at very similar levels to generic medicines (e.g. salbutamol inhaler in Uganda).

Figure 3. Procurement prices in the NGO sector (MPR, LPG, core & supplementary)



Summary of key findings

- 3 out of 5 countries achieved procurement prices in the NGO/cost-recovery sector that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.

Comparing public sector and NGO/cost-recovery sector procurement prices

In three of the five countries where procurement prices were collected in both the public and NGO sectors, when prices for the same medicines are compared, prices were 20-40% higher in the NGO sector. In Senegal and Nigeria the NGO procurement prices were lower than the prices achieved in the public sector (table 7).

Noteworthy is the contrast between Nigeria's public sector and NGO procurement performance, when the same medicines are compared, the NGO sector prices where 5 times less than achieved by the public sector.

Table 7. Ratio NGO/cost recovery procurement price: public sector procurement price

	Ratio
Ghana	1.4
Kenya	1.2
Nigeria	0.2
Senegal	0.7
Uganda	1.2

Summary of key findings

- Procurement prices in the NGO/cost recovery sector were generally marginally higher than in the public sector
- In Senegal and Nigeria, the NGO procurement prices were 30% and 80% lower than the prices achieved in the public sector procurement respectively

Patient prices in the public, private and NGO/cost-recovery sectors

An analysis of patient prices of the lowest priced generic was possible in the public, private and NGO/ cost-recovery and dispensing doctor sectors. For most countries, originator brands were only found in the private sector and hence most of the analysis of this category of medicine is largely restricted to the private sector. As in the previous section, prices are expressed in ratios to the international reference price.

One would reasonably expect the patient price to be somewhat higher than the public sector procurement price reflecting mark-ups accumulated in the distribution chain. However, what is notable is the great variation in the number of times the patient price is higher than the procurement price within and between all sectors.

Patient prices in the public sector

Patient prices ranged from being free of charge in Uganda to being almost 4 times the international reference price in Chad. For those countries charging for medicines there is a factor of 3 difference in the patient price between the lowest and highest Tanzania/Ethiopia and Chad. The prices that patients pay vary quite widely between public health facilities in most of the countries with small variations only seen in Cameroon, Ethiopia and Mali (Figure 4).

This is also demonstrated specifically for ciprofloxacin in Figure 5; with much higher and more variable prices seen in Cameroon, Mali and Nigeria – contrary for Cameroon and Mali to the overall small variation in these countries.

Figure 4. Variation of the patient prices in the public sector (MPR, LPG)

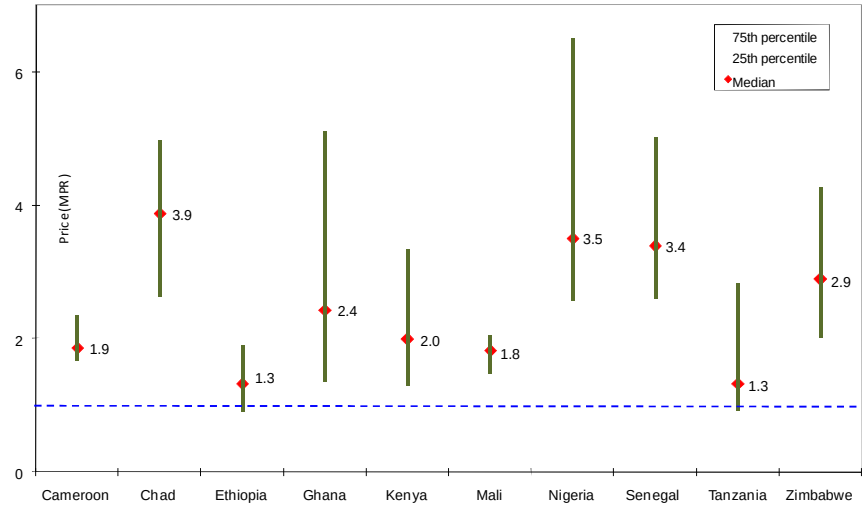
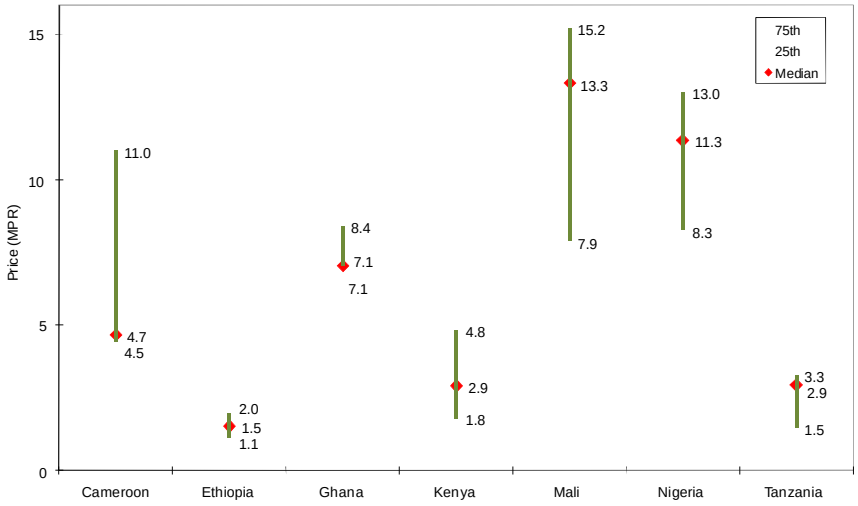
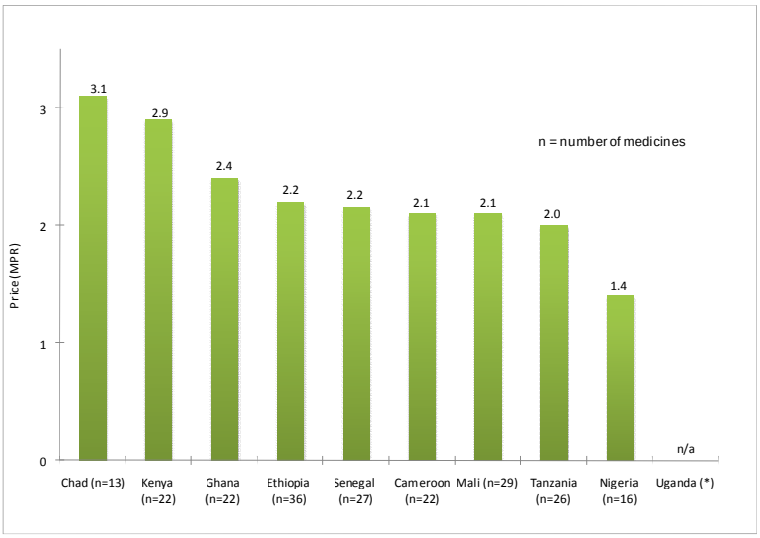


Figure 5. Patient price of ciprofloxacin tablets in the public sector (MPR, LPG)



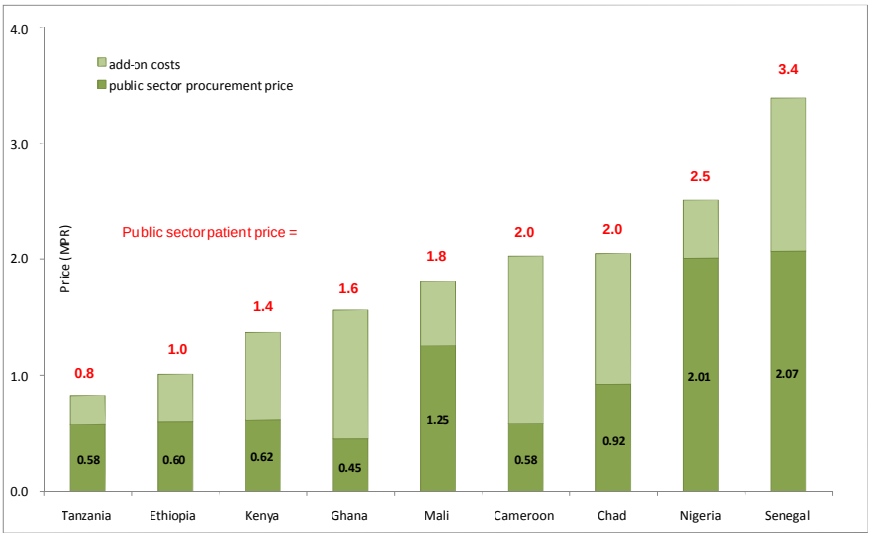
Unsurprisingly, the three countries with the most elevated procurement price ratios in the public sector (Nigeria, Senegal and Chad) also have the highest patient price ratios (Figure 8). Despite this, these countries do not necessarily display the largest mark-up between procurement and patient price. Of these three, Chad is among the countries with the highest difference between procurement and patient price (Figure 6). Meanwhile Nigeria is on the other extreme of the spectrum with the median patient price ratio 40% higher than the procurement price ratio. This suggests that high patient prices in Chad are connected to high mark-ups, whereas in Nigeria high patient prices are linked to high procurement prices which inflate the base to which mark-ups are added. As described above the proportion of add-on between the procurement price and patient price varies widely; Figure 7 demonstrates this specifically for cotrimoxazole suspension.

Figure 6. Multiples the patient price is of the procurement price in the public sector (MPR, LPG, core & supplementary lists)



(*) In Uganda medicines are dispensed free of charge in the public sector.

Figure 7. Public sector patient and procurement prices of cotrimoxazole suspension (MPR, LPG)



Summary of key findings

- The prices that patients pay varied quite widely between public health facilities in most of the countries with small variations only seen in Cameroon, Ethiopia and Mali.
- Nigeria, Senegal and Chad had the highest patient prices in the public sector.

Patient prices in the private sector

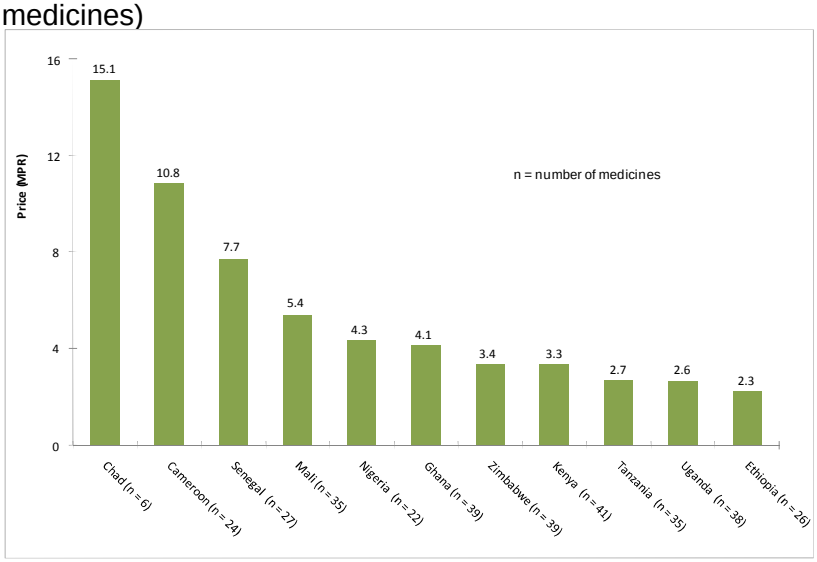
Lowest priced generics

In general terms, patient prices for generic medicines in the private sector were more elevated that in the public sector; this is not a surprising outcome due to the profit motive in this sector.

Patient prices across all countries were 4.1 times the international reference price.

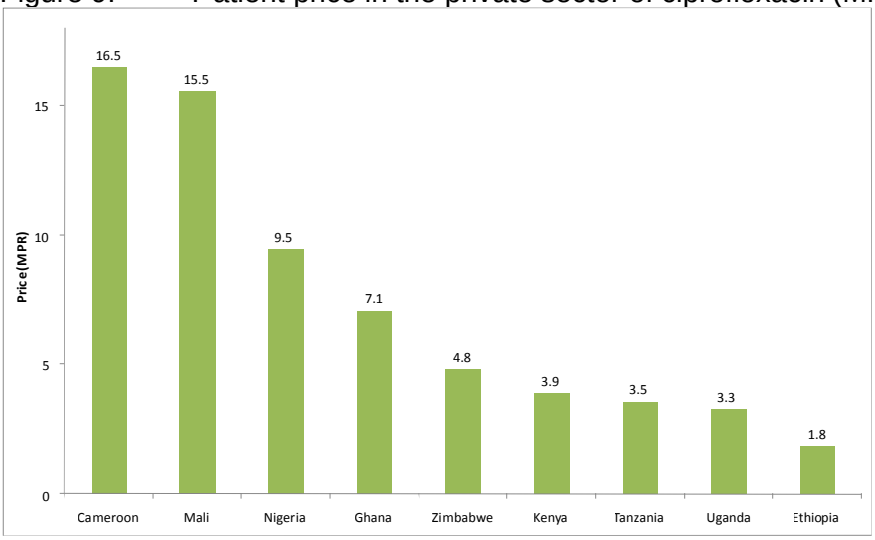
The prices patients paid in private pharmacies in Cameroon, Chad, Mali and Senegal were much higher than the prices paid in the other countries. Patient prices ranged from being just over twice the international reference price in Ethiopia to more than fifteen times in Chad (Figure 8). Figure 9 demonstrates this specifically for ciprofloxacin tablets – which demonstrates generally higher multiples of the international price than the basket of medicines - however the order of the countries in a list of descending prices is very similar (Figures 5 & 9).

Figure 8. Patient prices the private sector (MPR, LPG, core & supplementary list medicines)



Interesting to note is the fact that that both Chad and Senegal which were in the top three in terms of high patient prices of lowest priced generics in the public sector are also in the top three in terms of high private sector patient prices of generics (Figures 4 & 8).

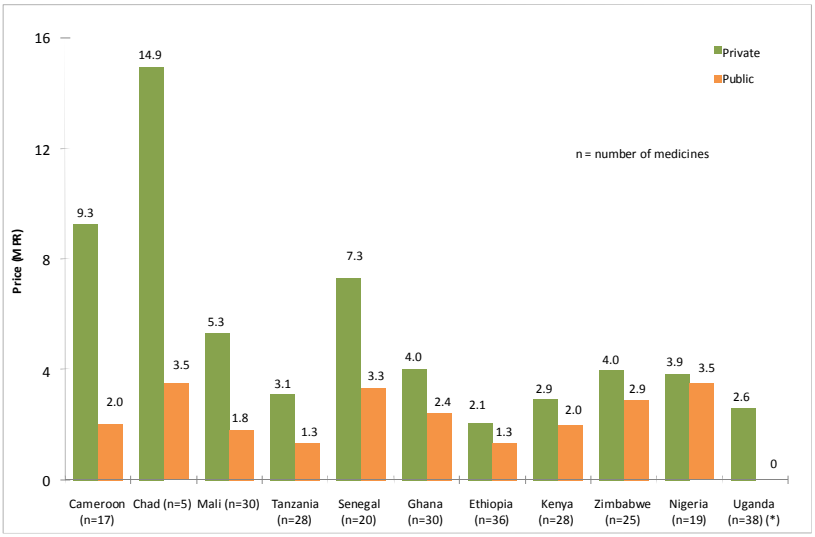
Figure 9. Patient price in the private sector of ciprofloxacin (MPR, LPG)



Notwithstanding this, some countries display very high disparity between the private and public sectors lowest priced generic patient prices. Cameroon has the highest difference between the two sectors, with private sector generic patient prices being 4.6 times more expensive than

those of the public sector; whilst in Nigeria private sector prices were just 10% higher than the public sector prices (Figure 10).

Figure 10. Patient prices in the private and public sectors (LPG, core & supplementary lists, matched pairs of the same medicines)



(*) Medicines are dispensed free of charge in the public sector in Uganda

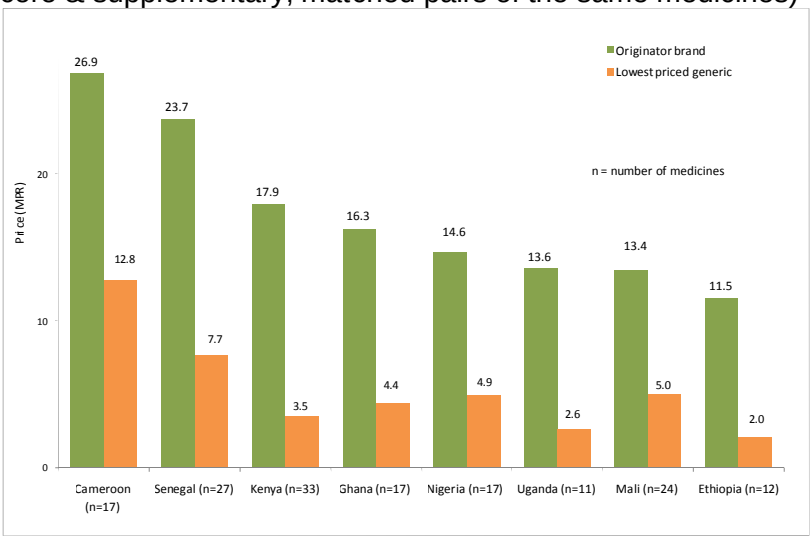
In countries where the price differential between the two sectors is particularly large, it is especially important to ensure medicines are available for purchase in the lower-priced public sector given the unaffordable nature of the private sector alternative.

Originator Brands

The median price ratio across all countries was 17.25 times the international reference price. A direct comparison between generic and originator medicines in the private sector reveals a large price difference between generics and originator brands in the private sector in all countries – across the 8 countries presented in Figure 16, originator brands were 3.4 times the price of the lowest priced generic medicine.

Cameroon and Senegal again display the highest price ratios of all the surveyed countries for both originator and lowest priced generic medicines (Figure 11).

Figure 11. Patient price of originator brand and generic version in the private sector (MPR, core & supplementary, matched pairs of the same medicines)[20]

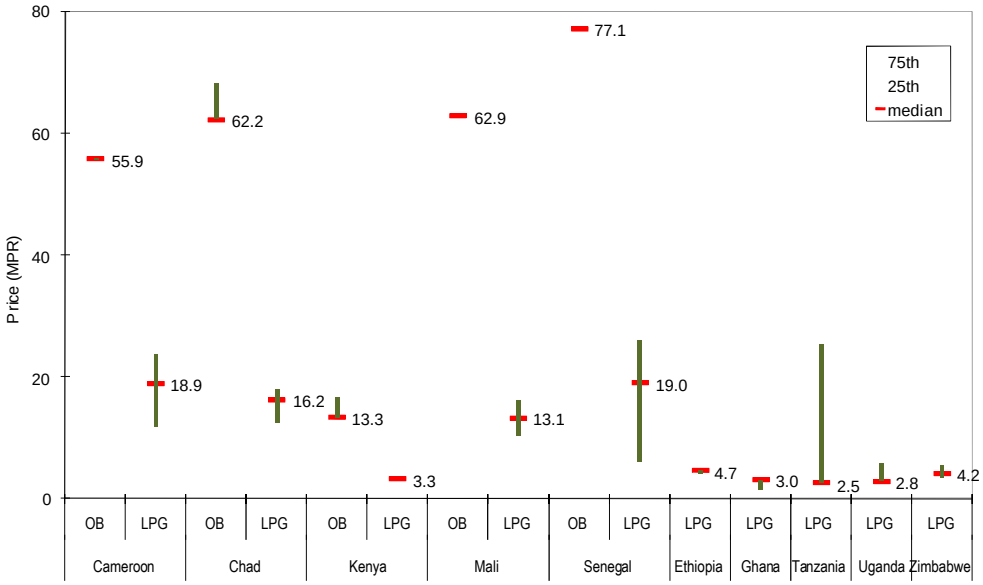


[20] Chad ,Tanzania and Zimbabwe are not included as there were only 3 or 4 originator brand/generic medicine matched pairs

Specific medicine examples

Metronidazole tablets demonstrates particularly high prices for both originator and generic versions in a number of countries with the originator brand being on average 4 times the price of the lowest priced generic (for countries where both were found). Countries where the originator brand was not found generally had much lower prices than those countries where it was found. Originator brand prices varied in most countries much less than it did for generics; prices varied the least in countries with the lowest generic prices (Figure 12).

Figure 12. Patient price of metronidazole tablets in the private sector (MPR, OB and LPG)



Sulphadoxine-pyrimethamine (SP) tablets illustrate very interesting dynamics between countries and between the originator and generic versions of the medicines. Of all the medicines studied, SP showed the highest and widest SP availability across all countries and often is available in all sectors; the highest availability being in the private sector where it is sometime more available than the lower priced generic.

Figure 13 presents a chart of availability against the price of originator and generic SP for the eleven countries. Assuming that if a pharmacy stocks an item, that it expects to sell it and high originator brand availability corresponds to a significant market share with the generic. Cameroon, Chad and Senegal all have very high originator brand prices and yet higher or similar availability than the generic version; all 3 countries also have very high generic prices when compared to the rest of the countries. Six countries (Ethiopia, Ghana, Nigeria, Tanzania, Uganda and Zimbabwe) have the more expected higher availability of the generic compared to the originator brand; Kenya has a very similar availability of the originator and generic version.

A course of the most available SP in Cameroon, Chad and Senegal would cost more than US$ 2 per course compared with less than US$ 50 cents in Ethiopia, Ghana, Nigeria, Tanzania and Uganda (minimum US$ 20 cents, maximum US$ 2.75).

Figure 13. Patient price of sulphadoxine-pyrimethamine tablets in the private sector (MPR, OB & LPG)

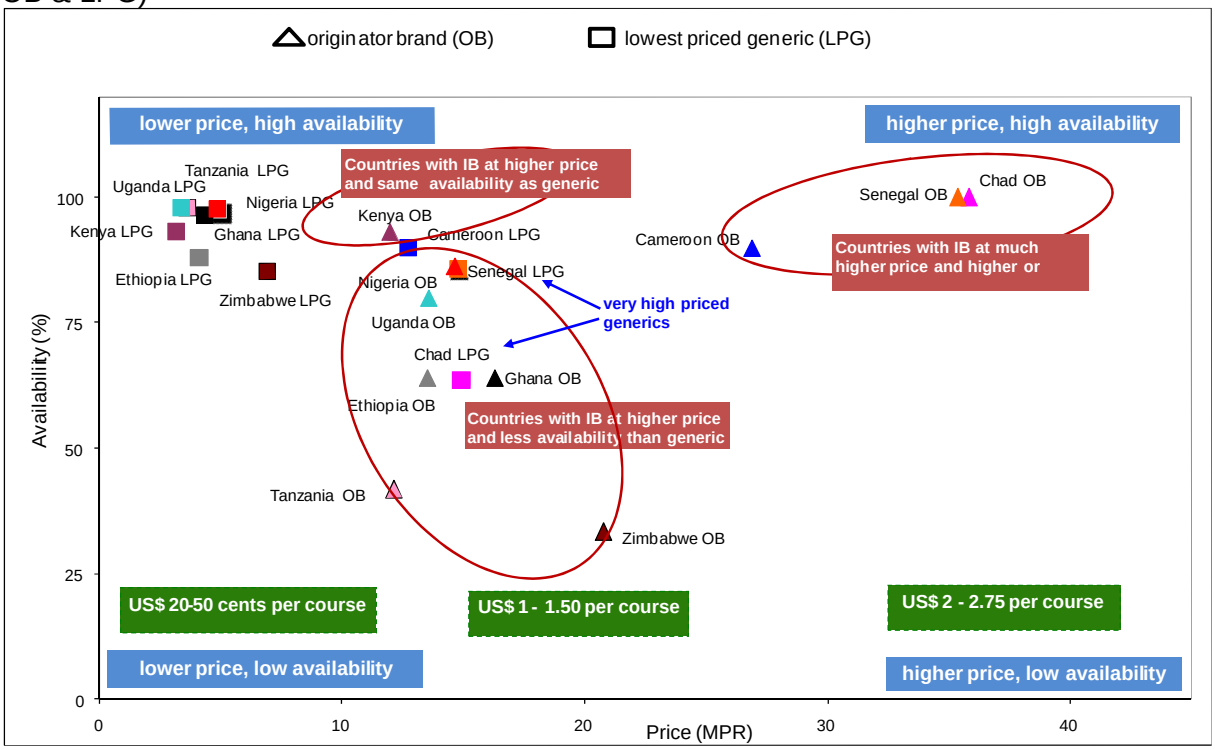
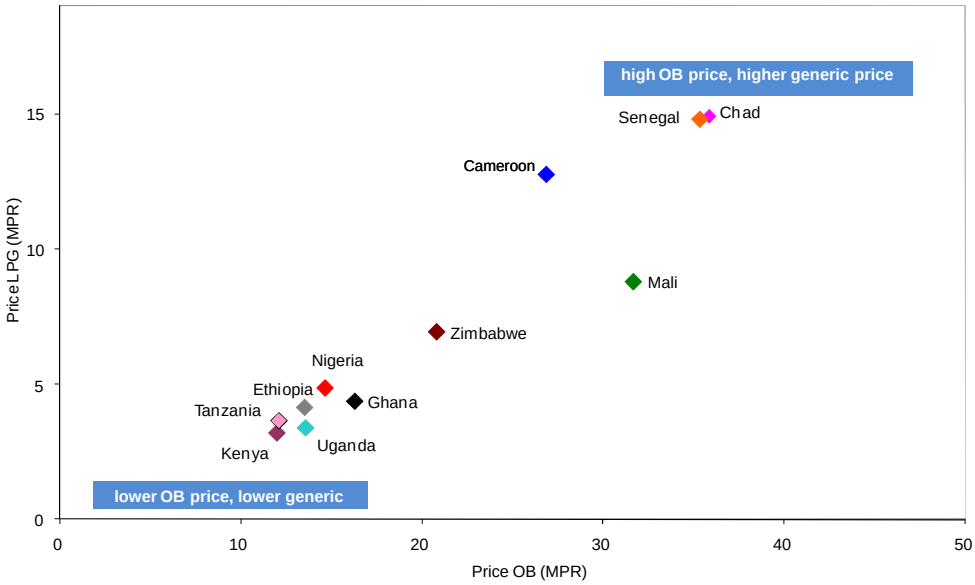


Figure 14 presents a chart of the price of originator brand SP against the lowest priced generic and demonstrates a relationship between high generic/high originator brand price and low generic/low originator brand price.

Figure 14. Patient price of sulphadoxine-pyrimethamine tablets in the private sector (MPR, OB & LPG)



These analyses underscore the importance of an effective generic policy as these are generally lower-priced and therefore more affordable than originator brands.

Summary of key findings

- Patient prices of in the private sector were often 2-3 times more than those in the public sector
- Originator brands[21] were generally 3.4 times the price of the lowest priced generic medicines.
- The prices patients paid in private pharmacies for generics in Cameroon, Chad, Mali and Senegal were much higher than the prices paid in the other countries. Cameroon and Senegal displayed the highest prices for both originator and lowest priced generic medicines.
- Patient prices of generics in the private sector were 4.6 times more expensive than those of the public sector in Cameroon.
- A course of the most available sulphadoxine-pyrimethamine in Cameroon, Chad and Senegal would cost more than US$ 2 per course compared with less than US$ 50 cents in Ethiopia, Ghana, Nigeria, Tanzania and Uganda.

[21] Referred to as Innovator Brand in the manual: "Medicine Prices, A new approach to measurement" www.haiweb.org/medicineprices

Patient price in the NGO and cost-recovery sector

Nine countries measured patient prices in the NGO or cost recovery sector; in the case of Ethiopia and Mali, Figures relate to the cost-recovery pharmacy sector.

Patient prices ranged from being 50% more than the international reference price in Ethiopia to almost 6 times the international reference price in Cameroon (Figure 15). Figure 16 presents the prices specifically for medicines for epilepsy where the differential for carbamazepine between the lowest price in Ghana and the highest price in Tanzania was 2.9 times; and for phenytoin between the lowest price in Kenya and the highest price in Tanzania was 12 times.

Figure 15. Patient prices of lowest priced generic in the NGO and cost recovery sectors (MPR, core & supplementary lists)

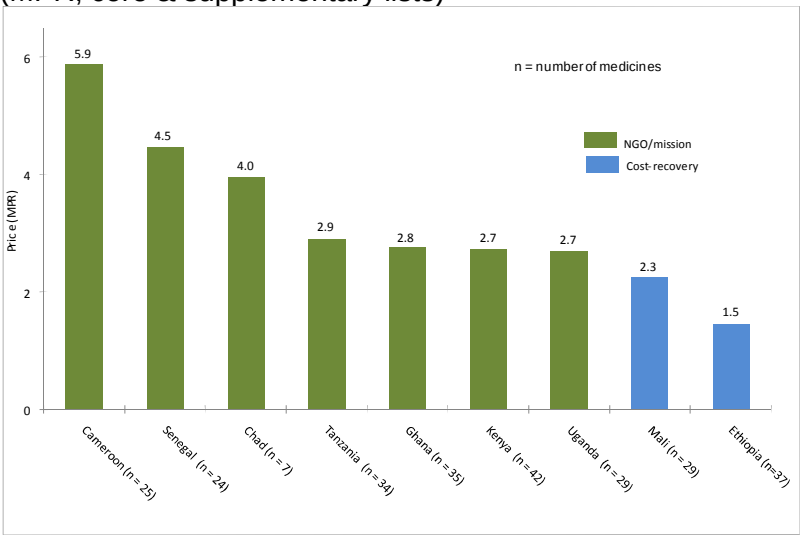
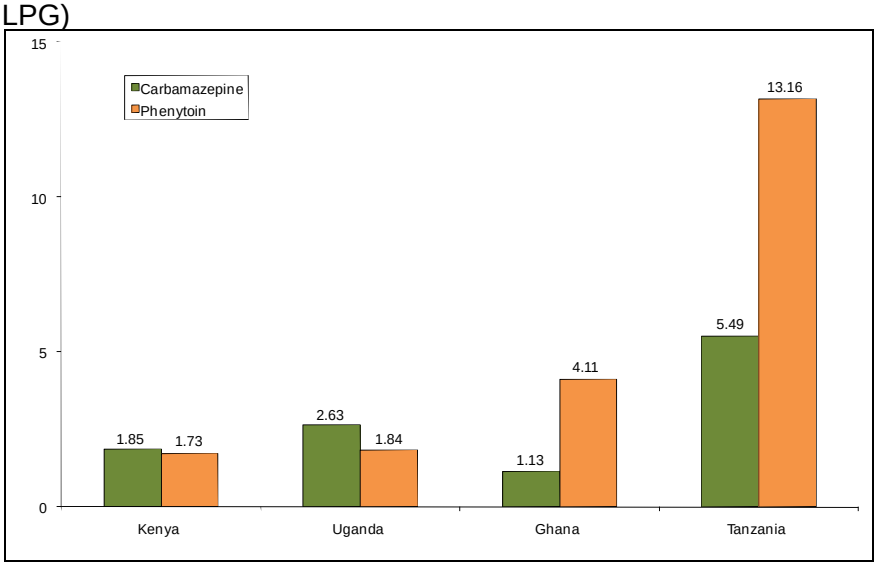


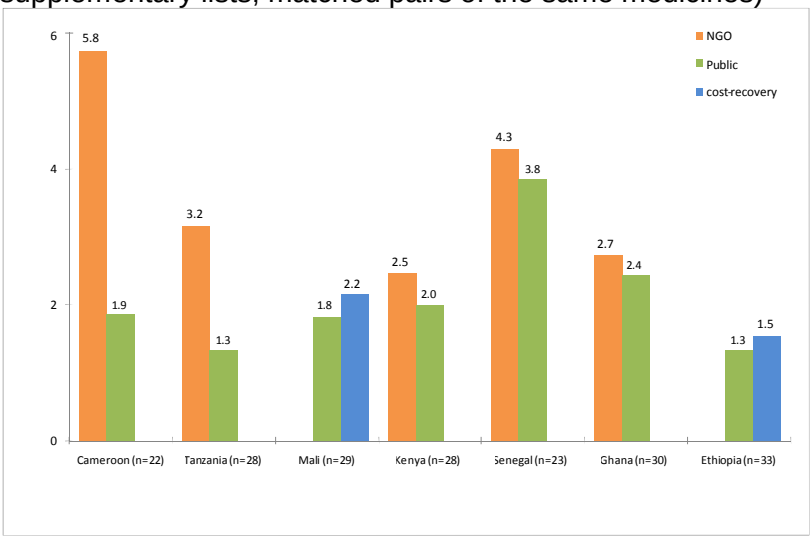
Figure 16. Patient price of medicines for epilepsy in the NGO/cost-recovery sector (MPR, LPG)



In general terms, patient prices for generic medicines in the NGO sector were more than in the public sector. Cameroon has the highest difference between the two sectors, with private sector generic patient prices being 3.1 times more expensive than those of the public sector; whilst in the NGO/cost-recovery sector prices in Ethiopia, Ghana and Senegal were just 10% higher than the public sector prices (Figure 17)[22].

[22] Chad is not included as there were only 7 medicines found in both the NGO/public sector matched pairs

Figure 17. Patient price in the NGO/cost-recovery and public sectors (LPG, core & supplementary lists, matched pairs of the same medicines)



Interesting to note is the fact that both Chad and Senegal which were in the top three in terms of high patient prices in the public and private sectors, and Cameroon which was in the top three of high private sector prices – are all in the top three in terms of high NGO/cost-recovery sector patient prices.

The NGO/cost recovery sector is therefore in between the public and private sectors in terms of medicine prices charged to patients.

NGO/cost recovery procurement versus patient prices

A comparison of how procurement prices compare to patient prices in the NGO/cost recovery sector is possible in four countries (Ghana, Kenya Senegal and Uganda), which surveyed both procurement and patient prices in this sector (Figure 18). Figure 19 presents the prices specifically for cotrimoxazole suspension

Figure 18. Procurement and patient prices in the NGO/cost-recovery sector (LPG, MPR, core & supplementary list, matched pairs of the same medicines)

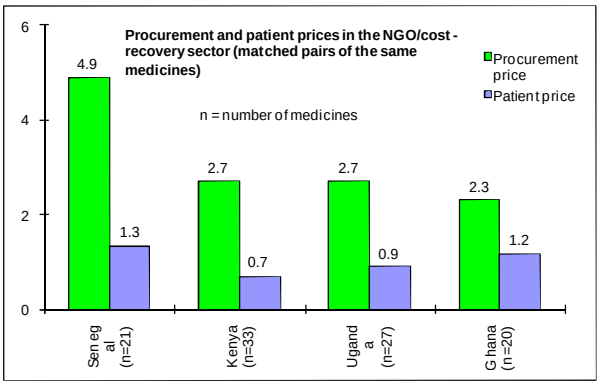
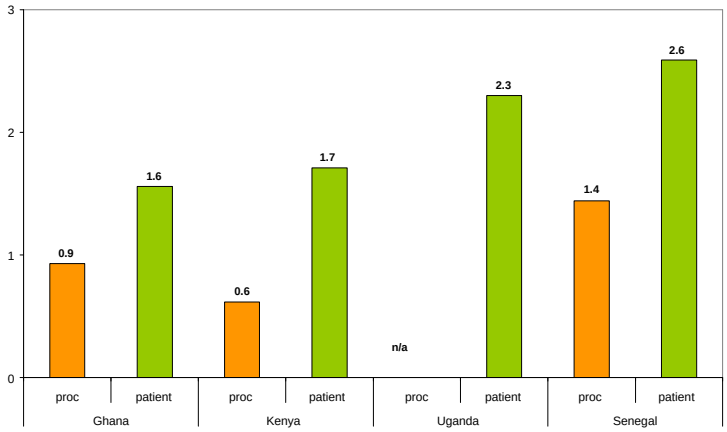


Figure 19. Procurement and patient prices in the NGO/cost-recovery sector for cotrimoxazole suspension (LPG, MPR)



The analysis of the data collected in this sector, reveals a notable mark-up between procurement prices achieved and patient prices charged. In Ghana the difference between procurement and patient price was lowest (2.0 times) compared to the highest of 3.9 times in Kenya. These add-ons are higher than that observed in the public sector which ranged between 1.4 times in Nigeria and 3.1 times in Chad; Kenya being 2.9 times and Ghana being 2.4 times (Figure 6).

There may be an argument to suggest that the higher difference between procurement and patient price in the NGO/cost-recovery sector compared to that in the public sector is due to the fact that the NGO/cost-recovery sector needs to find resources to cover general operating costs and the some of the differences between countries reflecting different policies of Ministries of Health to subsidise the operations of the NGO sector.

Summary of key findings

- In general terms, patient prices for generic medicines in the NGO sector were more than in the public sector.
- Cameroon had the largest difference between the NGO/cost recovery sector and the public sector generic patient prices: 3.1 times; whilst in Ethiopia, Ghana and Senegal, prices were just 10% higher than the public sector prices.
- Both Chad and Senegal which were in the top three in terms of high patient prices of in the public and private sectors, and Cameroon which was in the top three of high private sector prices – are all in the top three in terms of high NGO/cost-recovery sector patient prices

Availability of medicines

The above analysis of patient prices has revealed a significant price differential between the private sector on the one hand and the public and non-for profit sector on the other. However, for patients to be able to access affordable treatments, medicines must not only be adequately priced, but must also be available in the public sector. Otherwise, patients may be forced to resort to more expensive alternative treatments or seek treatment in another, more expensive sector, or be forced to forfeit treatment altogether. Therefore, the data collected on availability provides important complementary information for the assessment of the overall affordability of medicines.

Median availability

In general terms availability was found to be higher in the private sector than the other sectors regardless of the type of medicine; this is partly not surprising as the list of medicines surveyed deliberately contained medicines both included and not on the national essential medicines list. As both the public and NGO/cost-recovery sector are likely largely to stock medicines on the essential medicines list, it would not be expected for them to stock other medicines. Furthermore supplementary medicines were more readily available than medicines from the core list. The higher median availability of supplementary medicines is unsurprising, since countries were encouraged to include medicines in this list which reflected national or local disease and treatment priorities.

However, crucially, availability of essential medicines was still often poor in the public and NGO sectors where medicines are generally more affordably priced.

This situation is particularly problematic since those countries displaying low availability are often also those with a high proportion of the population facing endemic malaria risk. For example, the proportion of the population at risk is 94 % in Cameroon, 83 % in Nigeria, 80 % in Mali, and 79 % in Chad. Availability Figures are generally better in the private sector and is generally lower in the NGO/cost-recovery sector.

An analysis was carried out for glibenclamide and metformin for the treatment of type 2 diabetes - this example shows, that in the case of this chronic disease, the public sector is not fulfilling its role and the private sector is not offering a real alternative other than in a limited number of cases and at far higher prices (Table 8).

Table 8. Availability of the glibenclamide & metformin by sectors

	Public sector				Private sector			
	Glibenclamide		Metformin		Glibenclamide		Metformin	
	LPG	OB	LPG	OB	LPG	OB	LPG	OB
Mali	5%				45%	55%		
Senegal	9%		0%		5%	86%	0%	100%
Tanzania	13%		16%		38%		46%	2%
Chad	17%		0%		0%	82%	0%	36%
Uganda	25%		25%		85%		85%	
Ghana	39%	7%	32%		93%	54%	93%	29%
Cameroon	44%		6%		35%	55%	0%	85%
Nigeria	45%	7%	29%	14%	75%	32%	36%	50%
Kenya	76%		45%		71%	62%	66%	
Ethiopia	79%		12%		100%	52%	80%	
Zimbabwe	100%		100%		100%	4%	96%	
Mean	41%	7%	27%	14%	59%	54%	50%	50%

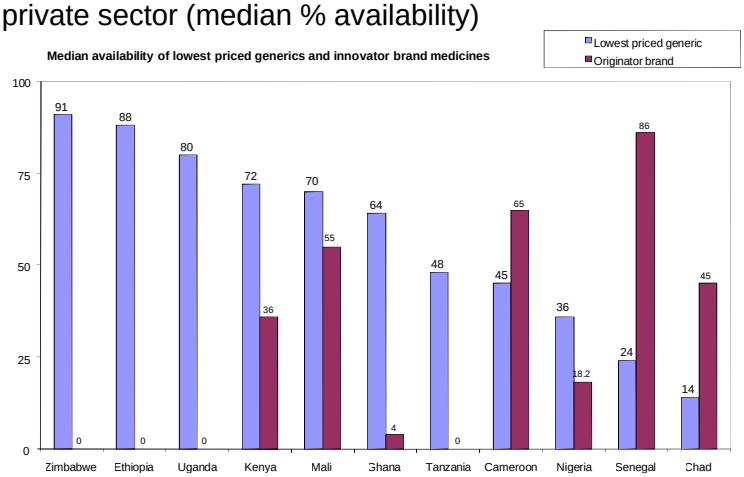
The number of originator brands found was generally limited other than in the private sectors of some countries; most countries had a significant number of originator brands in the private sector, whilst originator brands were almost absent in all sectors of some countries – Tanzania and Zimbabwe (Table 9).

Table 9. Number of originator brand medicines found[23]

	Sector			
	Public	Private	NGO	Dispensing doctor
Cameroon	0	28	0	
Chad	0	15	0	
Ethiopia	0	12	0	
Ghana	3	18	0	
Kenya	1	34	17	
Mali	0	26	0	
Nigeria	7	18		6
Senegal	1	47	1	
Tanzania	0	3	1	
Uganda	0	11	0	
Zimbabwe	3	6		0
Mean		20		

Availability of generics was generally higher than that of brands in all sectors. In the private sector generics were also more widely available in all the countries except Cameroon, Senegal and Chad where originator brands were more available. Five countries had less than a median availability of 50% for generic medicines: Tanzania, Cameroon, Nigeria, Senegal and Chad (Figure 20).

Figure 20. Availability of lowest priced generics and originator brand medicines in the private sector (median % availability)



Summary of key findings

- Availability of the essential medicines surveyed was often inadequate in all sectors especially the public sector. For some chronic diseases such as diabetes, in some of the medicines were not widely available in either the public or private sectors.
- Availability of generics was generally higher than that of brands in all sectors - however in Cameroon, Senegal and Chad in the private sector, originator brands were more available than generics

[23] Where at least 4 data points were found in the outlets (1 data point for procurements)

Inter-sector comparison of price

A number of comparisons between sectors have previously been described previously; table 9 below comprehensively compares the prices of lowest priced generics between sectors where the same medicines were found in both sectors; the highest ratio is highlighted by being shaded.

Table 10. Comparison of the prices between sectors (ratio, LPG, matched pairs of the same medicines)

For lowest priced generics:	Were this many times more expensive:											Than:
	Cameroon	Chad	Ethiopia	Ghana	Kenya	Mali	Nigeria	Senegal	Tanzania	Uganda[24]	Zimbabwe	
Public sector patient prices	2.1	3.1	2.2	2.4	2.9	2.1	1.4	2.1	2.0			**Public procurement prices**
Private retail patient prices	4.6	4.3	1.6	1.7	1.5	2.9	1.1	2.2	2.3		1.4	**Public sector patient prices**
NGO patient prices				2.0	3.6			3.6		3.2		**NGO procurement price**
NGO patient prices	0.5	0.3	0.7	0.7	0.7	0.4		0.5	1.1	1.0		**Private retail patient prices**
NGO patient prices	3.1	0.9	1.1	1.1	1.2	1.2		1.1	2.4			**Public sector patient prices**
NGO procurement price				1.4	1.2		0.2	0.7		1.2		**Public procurement prices**

The pricing of generic and originator brand metronidazole tablets in the private sector has been previously described (Figure 12), Figure 21 additionally compares the private sector prices with the public and NGO/cost-recovery sector for the generic version; Figure 22 presents the patient price of generic salbutamol inhaler across the same three sectors. Patient pricing of metronidazole is much more consistent (or even the same) across all sectors in Kenya, Ghana, Uganda and Tanzania than in Senegal, Cameroon, Chad and Mali – where the private (and often NGO/cost-recovery price) is much higher than in the public sector. Likewise the patient pricing of salbutamol inhaler is generally quite similar between the public, private and NGO/cost-recovery sectors.

In Ghana and Kenya, the patient prices of a number of essential medicines in the public sector were exactly the same or almost the same in all sectors, Figure 23 presents the example of Ghana. Interesting a number of these medicines had a marked higher than average difference between patient prices and procurement prices in the public sector and a lower than average difference between patient prices and procurement prices in the NGO sector.

[24] Medicines were provided free of charge to patients in the public sector

Figure 21. Comparison of the price of metronidazole tablets between sectors (MPR, LPG)

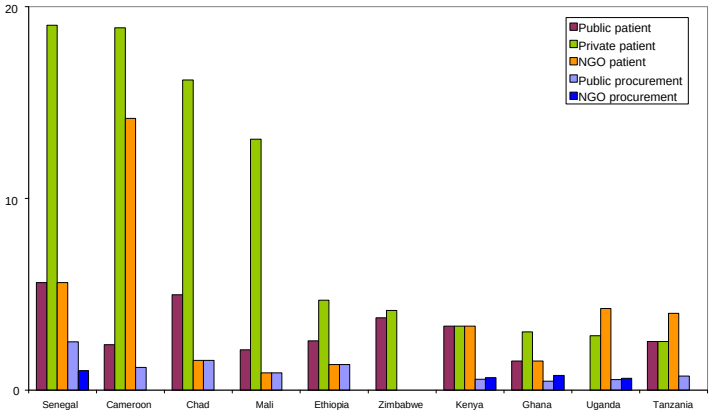


Figure 22. Comparison of the price of salbutamol inhalers between sectors (MPR, LPG)

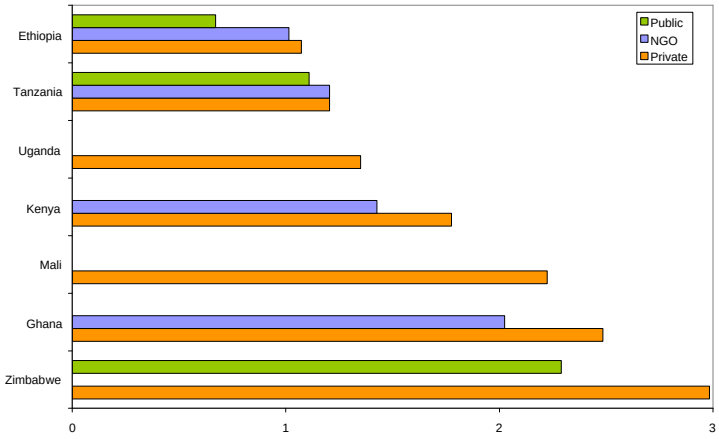
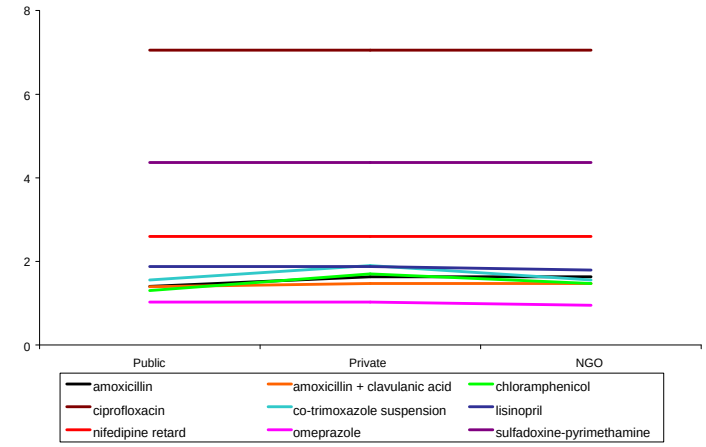


Figure 23. Price of selected medicines across all sectors in Ghana (MPR, LPG)



Affordability of medicines

In general terms, medicines were found to be more affordable in the public than in the other sectors. This is in line with the earlier finding that public sector patient prices are generally closer to the international reference price than those found in all other sectors, since the affordability measure is in essence an alternative way of expressing the survey results. Instead of using the international reference price as a comparator, here, patient prices are compared to the daily wage of the lowest-paid unskilled government worker. Despite the public sector generally being more affordable there are exceptions to this in some countries and the degree of affordability can in some instances is identical in the public and private sectors.

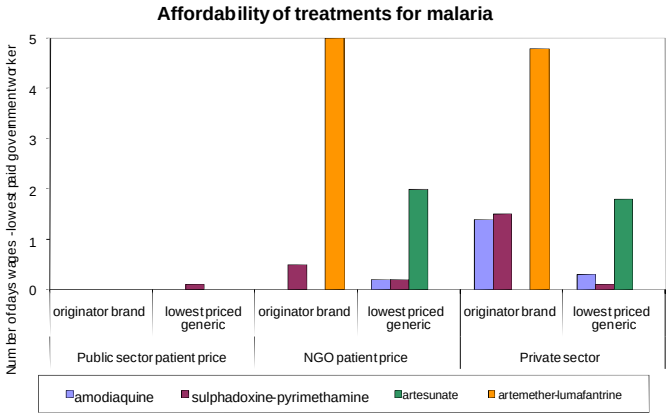
A second general observation is again in line with the findings of the patient price analysis and shows that that in the private sector, affordability is better when it comes to LPGs compared to branded products and the difference is sizeable.

Treatment of malaria

In Kenya, at the time of the study, sulphadoxine-pyrimethamine was the recommended treatment for uncomplicated malaria, which has currently being changed to the Artemisinin-based Combination Therapy (ACT) artemether + lumefantrine. Figure 24 demonstrates the affordability of malaria medicines with the implementation of the new ACT (artemether + lumefantrine) compared to the previous 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. Whilst the policy change occurred some time ago, and is highly available free of charge in the public sector - because of the high prices of ACT in the private sector, SP is still commonly used.

Available evidence indicates that ACT 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, especially since in most countries, the majority of treatment courses are bought out-of-pocket – even in poor communities.

Figure 24. Affordability of treatments for malaria in Kenya (Number of days wages of the lowest paid government worker for a treatment course)



Treatment of acute respiratory tract infection (ARI) in infants

The highest treatment costs were found in the private sector in Cameroon and in the dispensing doctor sector in Nigeria, and accounted for one day's salary or 3 % of monthly income in both countries. This stood in contrast to a median across all countries of 0.3 day salary (or 1 % of monthly income) for treatment obtained in the public sector (Figures 25 & 26).

In line with the findings on patient prices, affordability in the NGO sector is slightly worse than in the public sector (median day's salary of 0.4 compared to 0.3 in the nine countries that surveyed the NGO sector).

There are important inter-country differences in the affordability of treatment in the NGO sector. The biggest difference in treatment affordability in this sector was found between Cameroon and Senegal, with treatment in Cameroon being eight times less affordable than in Senegal. The positive values for Senegal may have been boosted by the fact that the daily wage of the lowest paid government worker is much higher (US$ 5.82) than the median for the other ten countries (US$ 1.47) (Figure 27).

Figure 25. Affordability of treatment regimen for paediatric ARI in the public and private sectors using cotrimoxazole suspension (LPG, Number of days wages of the lowest paid government worker for a treatment course)

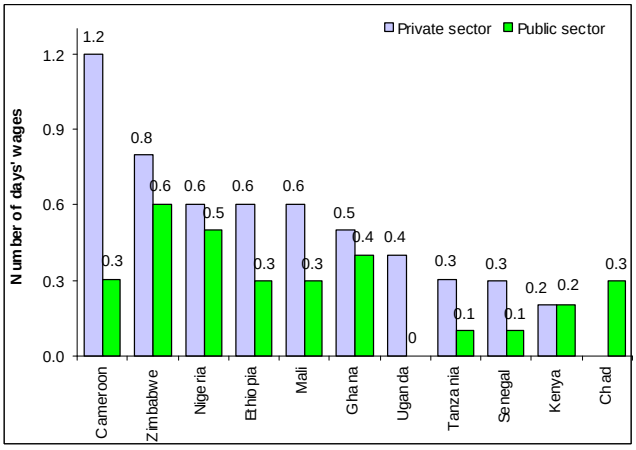


Figure 26. Affordability of treatment regimen for paediatric ARI in the public and dispensing doctor sector using cotrimoxazole suspension (LPG, Number of days wages of the lowest paid government worker for a treatment course)

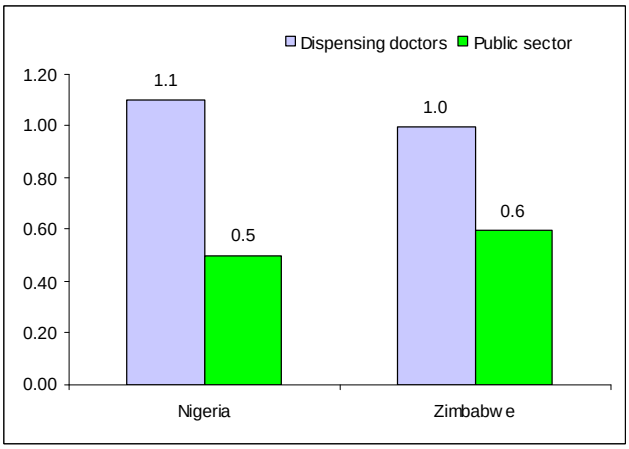
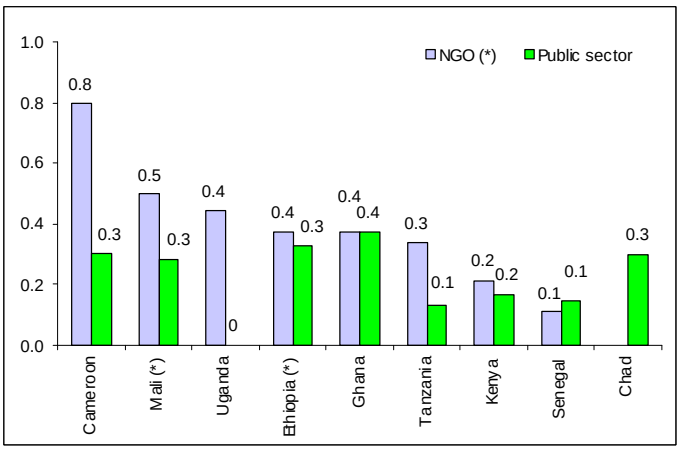


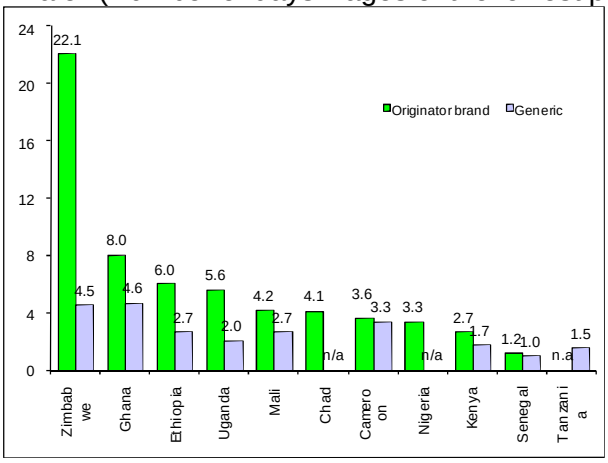
Figure 27. Affordability of treatment of paediatric ARI in the public and NGO sector using cotrimoxazole suspension (LPG, Number of days wages of the lowest paid government worker for a treatment course)



Treatment of chronic diseases – asthma, diabetes and hypertension

There are large differences between and within countries in the affordability of a salbutamol inhaler for asthma. For the generic the inter-country differences are of the same order of magnitude but the cost of treatment is significantly lower. In the case of Ghana it represents a little less than 5 days worked (or 16 % of monthly income) compared to one and a half days worked (8% of monthly income) in Tanzania. In the case of originator brands there are important inter-country differences: the cost of treatment is three times higher in Ghana (8 days worked or 30 % of the monthly salary of someone living on US1$ a day) than in Kenya (under 3 days or 9 % of monthly income). In Zimbabwe the cost of treatment represents 22 days worked or close to 100 % of the monthly income (Figure 28).

Figure 28. Affordability of asthma treatment regimen in private sector using salbutamol inhaler (Number of days wages of the lowest paid government worker for 1 months treatment)



In some countries (most notably in Cameroon) there are significant differences in affordability of generic glibenclamide for the treatment of type 2 diabetes between the public and private sectors, with the private sector being more out of reach financially than the public sector. However in several countries, notably in Nigeria Ghana, Ethiopia and Zimbabwe affordability is close to identical in the two sectors. (29 & 30).

Figure 29. Affordability of treatment regimen for diabetes in the private sector using glibenclamide (Number of days wages of the lowest paid government worker for 1 months treatment)

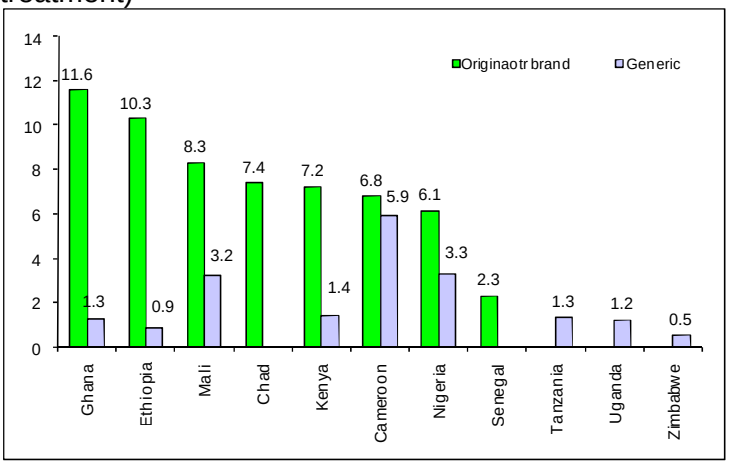
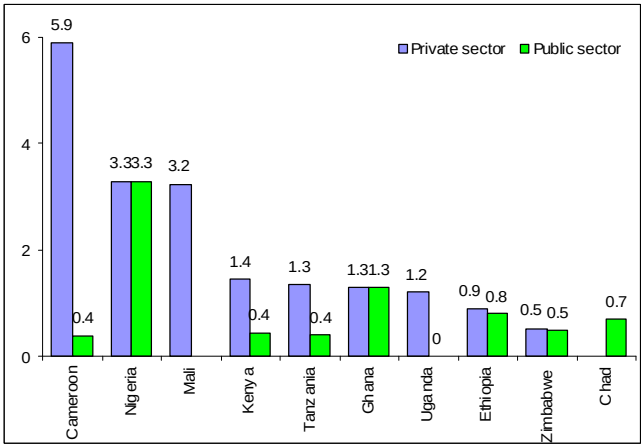


Figure 30. Affordability of treatment regimen for diabetes in the private & public sectors using glibenclamide (LPG, Number of days wages of the lowest paid government worker for 1 months treatment)



This case illustrates the importance of ensuring that availability of medicines in the public sector is high. In Cameroon, a patient can be treated in the public sector at a cost equivalent to half a day's pay, but if the medicine is not available there (in Cameroon, availability of generic glibenclamide is only 44 % in the public sector, or put differently, it is available in less than one in two health facilities) the patient is forced to resort to the private sector where the cost of treatment is almost 15 times higher.

Likewise, there are important inter-country differences in the affordability of treatment. For example, the cost of treating diabetes with public sector generics is five times higher in Nigeria than in Cameroon or Kenya. This has to be contrasted with the conditions of relative poverty in these countries, with 75 % of people in Nigeria living on less than US$1 a day, compared to 17% and 23% in Cameroon or Kenya respectively. This underscores the fact that there is no correlation between the price of medicines and the socio-economic situation of a country. It also highlights the importance for an effective pricing policy to be put in place.

There are significant differences in affordability between medicines within a therapeutic category. Figure 31 illustrates these differences for five lowest priced generics used for treatment of hypertension– monotherapy – purchased from private pharmacies - if more than one medicine is used, the numbers shown are additive. Figure 32 illustrates the affordability of the different regimens between the sectors in Ghana - 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.

Figure 31. Affordability of medicines for hypertension (Number of days wages of the lowest paid government worker for 1 months treatment)

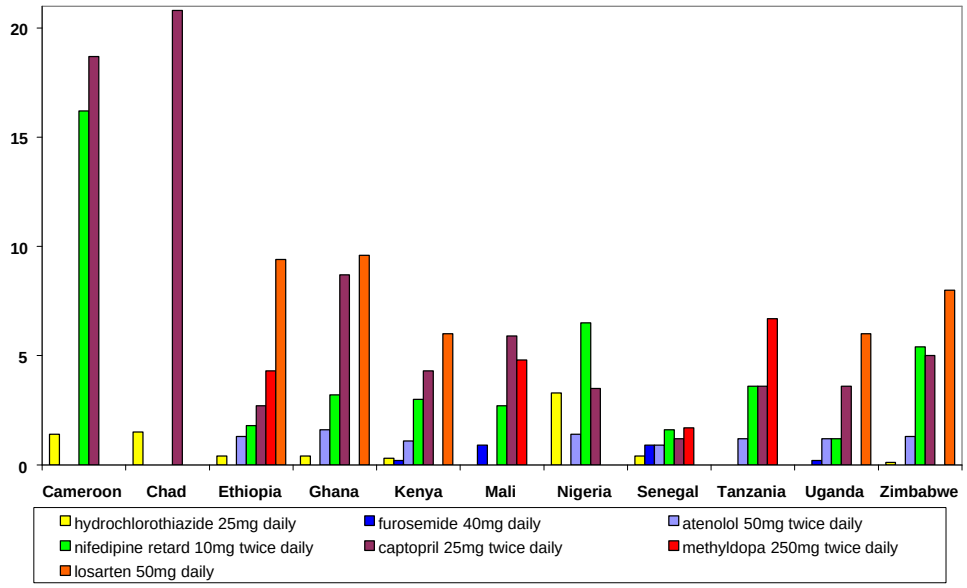
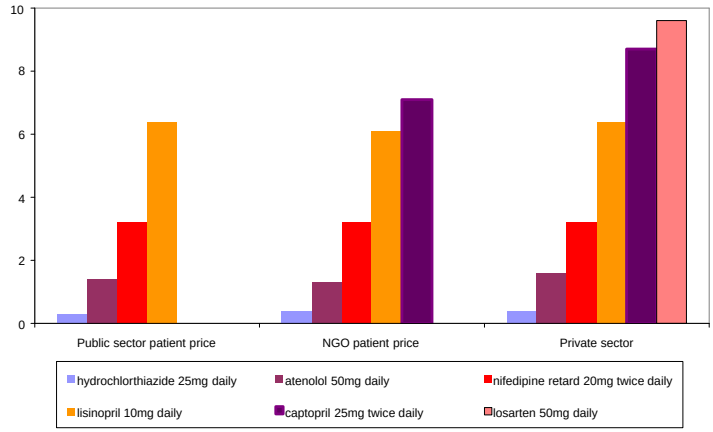


Figure 32. Affordability of treatments for hypertension (Number of days wages of the lowest paid government worker for 1 months treatment) - Ghana



Affordability for a family with more than one illness

What has been described above concerns the affordability of medicines for a single illness or condition in a family and as described in the introduction to the affordability section, what is presented is likely to underestimate the degree of financial inaccessibility of medicines in the sample countries. However when the impact of buying a number of medicines for a family is considered, even with the underestimation of financial inaccessibility, the situation is dire. Figures 33 and 34 present the number of days the lowest paid government worker would have to work to buy generic and originator brand medicines respectively in private pharmacies for a family with the medicines[25],[26] following needs:

- a child with asthma
- an adult with diabetes
- an adult with a peptic ulcer

[25] Medicine needs for 1 month: 1 salbutamol inhaler for the child with asthma; infection; 60 glibenclamide tablets 5mg for the adult with diabetes; 60 ranitidine tablets 150mg for the adult with a peptic ulcer.
[26] Where originator brands or generics were not found generic substitution of the originator or generic was performed.

For generics, a minimum of 5 days work would be needed to buy the months needs of medicines in Tanzania up to 39 days in Cameroon; and for originator brands, a minimum of 17 days work in Senegal up to 106 days in Ghana. Figure 35 presents a breakdown of the contribution of each of the medicines to the affordability for the family for Ghana.

Figure 33. Affordability of generic medicines for a families medicines needs in private pharmacies (Number of days wages of the lowest paid government worker for 1 months treatment)

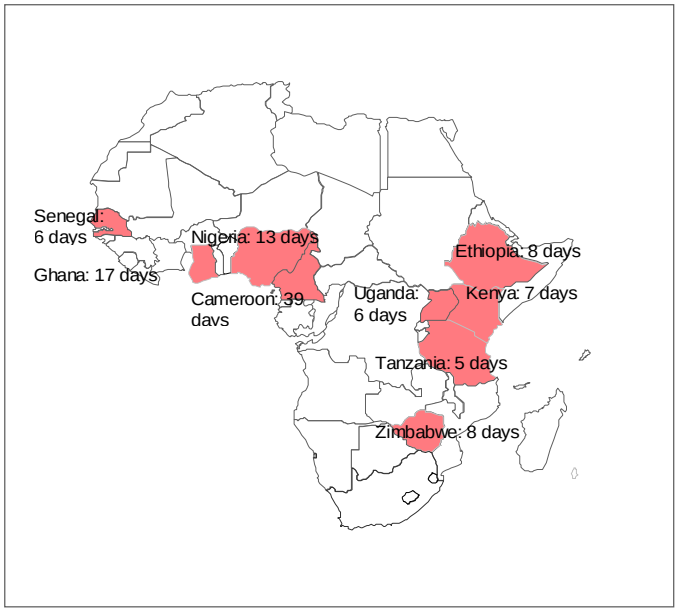


Figure 34. Affordability of originator brand medicines for a families medicines needs in private pharmacies (Number of days wages of the lowest paid government worker for 1 months treatment)

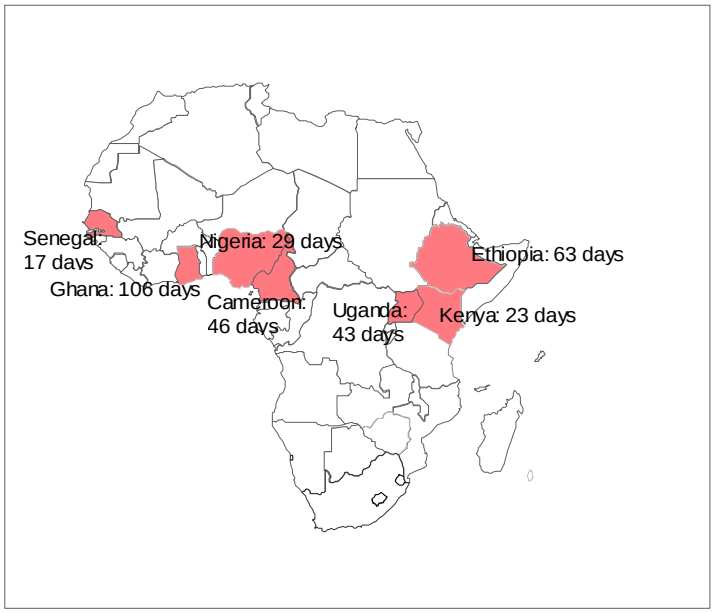
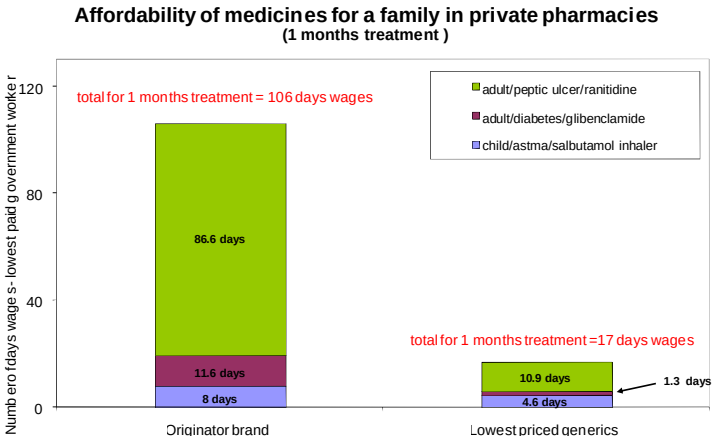


Figure 35. Affordability of medicines for a families medicines needs in private pharmacies in Ghana (Number of days wages of the lowest paid government worker for 1 months treatment)



Summary of key findings

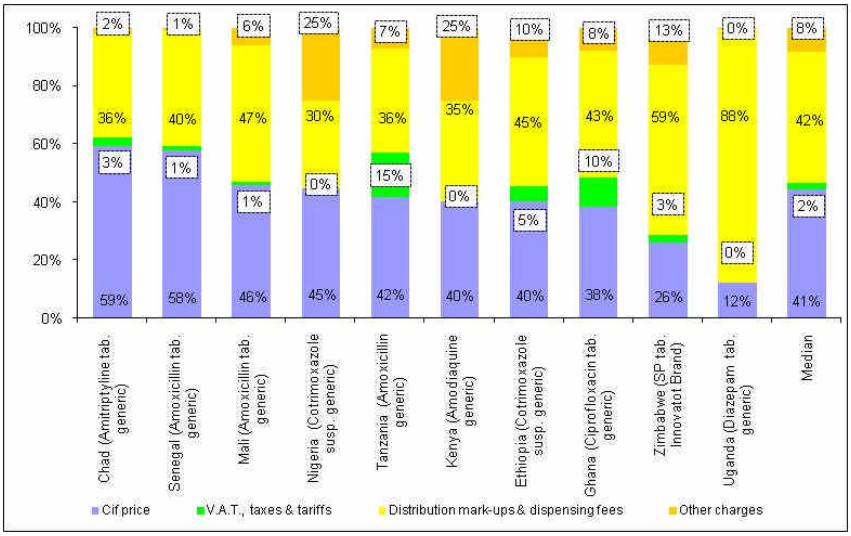
- Several days, weeks or even months wages could be needed to procure medicines for a month of a family's medicines needs – in an example illustrated in this report: for generic medicines, a minimum of 5 days work would be needed to buy the months needs of medicines in Tanzania up to 39 days in Cameroon; and for originator brands, a minimum of 17 days work in Senegal up to 106 days in Ghana
- Medicines were generally unaffordable in the private sector, but also in many cases in the public and NGO/cost recovery sector for the majority of the population, especially for chronic diseases.
- In some countries, the degree of affordability for some life-saving medicines was identical in the public and private sectors despite very different procurement prices
- Treatment of a single episode of an acute respiratory tract infection (ARI) in infants could require 3% of a monthly salary of the lowest paid unskilled government worker from the private sector in Nigeria or the dispensing doctor sector in Nigeria; a large proportion of the population living below this worker.
- In Cameroon, a patient can be treated with glibenclamide for diabetes in the public sector at a cost equivalent to half a day's pay for the lowest paid unskilled government worker, but if the medicine is not available there the patient is forced to resort to the private sector where the cost of treatment is almost 15 times higher costing the equivalent of one quarter of a months salary.

Price components

Private sector retail prices

The structure of retail prices is the private sector is described in Figure 36. The proportion of the final price made up by distribution margins (wholesale and retail) are similar to that of the CIF price (median values of 42 % and 41 % respectively). However, in two countries the proportion accounted for by distribution margins is much higher than this median. In Zimbabwe the distribution margins account for 59 % versus the CIF component of 26 % and in Uganda distribution margins are 88 % versus the CIF price of 12 %. In two countries the situation is reversed with the CIF price accounting for more of the end price than the distribution margins: Nigeria (distribution margins: 30 % vs. CIF price: 45 %) and Kenya (distribution margins: 35 %; CIF value: 40 %). This is due in part to the significant margins paid to importers (included in the category of 'other charges' in the graph) which amount to 12 % in Nigeria and 19 % in Kenya.

Figure 36. Break down of the patient price components (imported medicines, private sector)



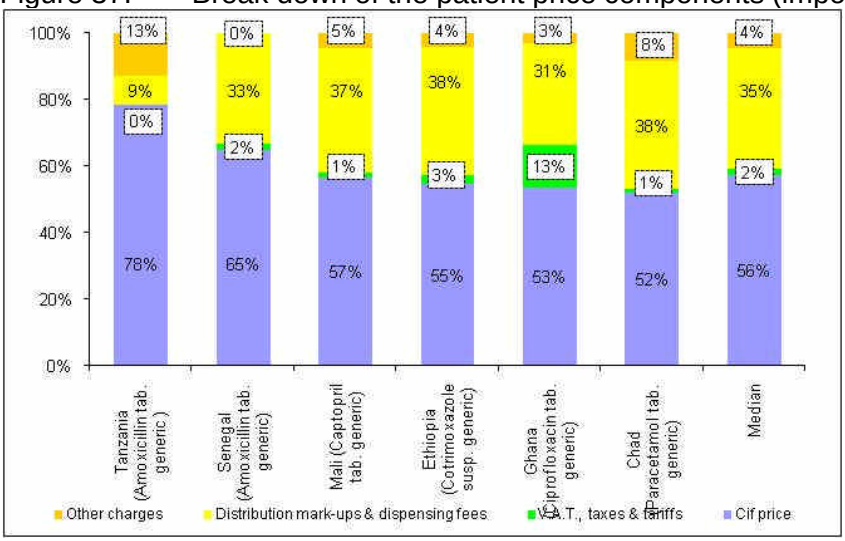
The proportion of taxes and customs duties is relatively moderate with a median value of 2 % of the final price (range: 0 -15 %). In a majority of countries essential generic medicines are exempt from taxes and tariffs and VAT in an effort to increase access to these medicines. However, these exemptions are not universal, and import duties and taxes are still applied in Tanzania (import taxes: 35 % of the CIF price in the private sector) and Ghana (10% import taxes of the CIF price and VAT of 13 % both in public and private sectors). In the countries belonging to the WAEMU trade bloc (Mali and Senegal) and EMCCA (Cameroon and Chad) exemptions are in place but community taxes applied within the trade blocs and are payable by importers but are reimbursed by the state. These represent from 1 % (EMCCA[27]) to 2.5 % (WAEMU[28]) of the CIF price.

[27] Custom statistic levy 1 %.
[28] Custom Statistic Levy 1 %, Community Withdrawal 0,5 %, Solidarity Community Withdrawal 1 %.

Public sector retail prices

The price structure in the public sector (Figure 37) is characterised by a smaller proportion accounted for by distribution mark-ups than that found in the private sector (median: 35 %; range: 9-38%).

Figure 37. Break down of the patient price components (imported medicines, public sector)



With the exception of Tanzania (9 % in the public sector versus 36 % in the private sector), the differences between the two sectors range between two and ten percentage points. Chad (38 % in the public versus 36 % in the private sector), Senegal (33 % in the public versus 40 % in the private sector), Ethiopia (38 % in the public versus 45 % in the private sector), Mali (37 % in the public sector versus 47 % in the private sector) and Ghana (31 % in the public versus 43 % in the private sector).

This situation warrants two comments:

- If the distribution margins are relatively similar in the public and private sectors, these are applied to lower import prices in the case of the public sector, which explains why patient prices are lower in the public sector and thus through their cumulative nature lead to lower patient prices in the public sector.

- Given that in a majority of countries cost recovery mechanisms, including those under the Bamako initiative are in place, the state no longer finances the acquisition of medicines except those of national priority programmes. Uganda is an exception to this where medicines are provided free of charge in the public sector. To ensure their financial sustainability, the central medical stores must therefore apply distribution margins of between 10 % and 20 %. The same applies to public health facilities that partly finance their activities by charging variable margins of between 20 % and 35 %. Tanzania is an exception to this where in the public sector distribution margins of 10% apply universally.

In relation to Ghana and Ethiopia fiscal taxes and import duties in are charged at standard rates identical to the private sector (import duties: 10 % of the CIF price and VAT rate of 13 %)

Summary of key findings

- High mark-ups (wholesale and retail/facility mark-ups) are applied in both the public and private sectors at the distribution level and, where applicable, taxes and tariffs which are added to the procurement prices, significantly increase the patient prices in most of the countries surveyed; prices are often two to three times the ex-factory price by the time they get to the patient in the public, NGO/cost-recovery sector and in the private sector

Conclusion

This analysis has shown that there is a wide variety of situations not only among the eleven countries that were covered by the survey but also among the three sectors of distribution that were examined, within a single country. This range of situations is attributable first of all, to the specific situation of countries in terms of the major orientations of their medicines policy and secondly, and above all, to their prices policy and the provisions introduced to manage or regulate prices with the aim of making medicines more affordable. The main findings from the surveys are as follows:

Procurement prices in the public sector

- 7 out of 10 countries achieved procurement prices that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.
- Nigeria and Senegal paid more for medicines than the other countries.
- Some countries paid much than others for some medicines, e.g. hydrochlorothiazide where the range is from 0.51 times the international reference price in Cameroon to 19.18 in Nigeria – a factor of 38 times.

Procurement prices in the NGO/not-for-profit sector

- 3 out of 5 countries achieved procurement prices that were below the international reference price suggesting good procurement efficiency in terms of purchase prices achieved.
- Procurement prices in the NGO/cost recovery sector were generally marginally higher than in the public sector
- In Senegal and Nigeria, the NGO procurement prices were 30% and 80% lower than the prices achieved in the public sector procurement respectively

Patient price in the public sector

- The prices that patients pay varied quite widely between public health facilities in most of the countries with small variations only seen in Cameroon, Ethiopia and Mali.
- Nigeria, Senegal and Chad had the highest patient prices in the public sector.

Patient prices in the private sector

- Patient prices of in the private sector were often 2-3 times more than those in the public sector
- Originator brands[29] were generally 3.4 times the price of the lowest priced generic medicines.
- The prices patients paid in private pharmacies for generics in Cameroon, Chad, Mali and Senegal were much higher than the prices paid in the other countries. Cameroon and Senegal displayed the highest prices for both originator and lowest priced generic medicines.
- Patient prices of generics in the private sector were 4.6 times more expensive than those of the public sector in Cameroon.
- A course of the most available sulphadoxine-pyrimethamine in Cameroon, Chad and Senegal would cost more than US$ 2 per course compared with less than US$ 50 cents in Ethiopia, Ghana, Nigeria, Tanzania and Uganda.

Patient price in the NGO cost-recovery sector

- In general terms, patient prices for generic medicines in the NGO sector were more than in the public sector.
- Cameroon had the largest difference between the NGO/cost recovery sector and the public sector generic patient prices: 3.1 times; whilst in Ethiopia, Ghana and Senegal, prices were just 10% higher than the public sector prices.

[29] Referred to as Innovator Brand in the manual: "Medicine Prices, A new approach to measurement" www.haiweb.org/medicineprices

- Both Chad and Senegal which were in the top three in terms of high patient prices of in the public and private sectors, and Cameroon which was in the top three of high private sector prices – are all in the top three in terms of high NGO/cost-recovery sector patient prices.

Availability of medicines

- Availability of the essential medicines surveyed was often inadequate in all sectors especially the public sector. For some chronic diseases such as diabetes, in some of the medicines were not widely available in either the public or private sectors.
- Availability of generics was generally higher than that of brands in all sectors - however in Cameroon, Senegal and Chad in the private sector, originator brands were more available than generics

Affordability of medicines

- Several days, weeks or even months wages could be needed to procure medicines for a month of a family's medicines needs – in an example illustrated in this report: for generic medicines, a minimum of 5 days work would be needed to buy the months needs of medicines in Tanzania up to 39 days in Cameroon; and for originator brands, a minimum of 17 days work in Senegal up to 106 days in Ghana
- Medicines were generally unaffordable in the private sector, but also in many cases in the public and NGO/cost recovery sector for the majority of the population, especially for chronic diseases.
- In some countries, the degree of affordability for some life-saving medicines was identical in the public and private sectors despite very different procurement prices
- Treatment of a single episode of an acute respiratory tract infection (ARI) in infants could require 3% of a monthly salary of the lowest paid unskilled government worker from the private sector in Nigeria or the dispensing doctor sector in Nigeria; a large proportion of the population living below this worker.
- In Cameroon, a patient can be treated with glibenclamide for diabetes in the public sector at a cost equivalent to half a day's pay for the lowest paid unskilled government worker, but if the medicine is not available there the patient is forced to resort to the private sector where the cost of treatment is almost 15 times higher costing the equivalent of one quarter of a months salary.

Components of price

- High mark-ups (wholesale and retail/facility mark-ups) are applied in both the public and private sectors at the distribution level and, where applicable, taxes and tariffs which are added to the procurement prices, significantly increase the patient prices in most of the countries surveyed; prices are often two to three times the ex-factory price by the time they get to the patient in the public, NGO/cost-recovery sector and in the private sector

The overall conclusions are that:

1. Most governments procure medicines at competitive prices

2. Availability of the essential medicines surveyed as a whole was unsatisfactory in all sectors

3. Many medicines are unaffordable to the majority of the population

4. Understanding the components of the final price is difficult but essential to understand the real reasons for high prices or low availability

5. There are many positive examples identified by these surveys, other countries can learn from these positive experiences through an in depth study of the full country survey reports[30]

[30] The country reports can be found at http://www.afro.who.int/dsd/survey_reports/index.html; http://www.haiafrica.org/ and the data (and reports) can be found in the HAI Medicines Prices database at www.haiweb.org/medicineprices.

Review of country policy recommendations

On the basis of the findings highlighted by national medicine price surveys, countries identified a number of broad policy areas for future government action to improve the affordability of medicines. A comparative analysis of these policy recommendations[31] was undertaken to identify potential areas of overlap. Interestingly, despite the wide range of policy recommendations and significant individual differences, recommendations can be grouped into five broad areas of action:

- Almost all countries recommended the development, implementation, or enforcement of a pricing policy. This included one or a combination of the following elements: price controls, increased price transparency, reduction of price variation, and regular price monitoring. The different stages of policy formation (development, implementation or enforcement) recommended by countries reflect differences in existing policy environments in individual countries
- A majority of countries identified policies to increase the use of generic and multi-source medicines as an important element for improving affordability as these had been found to be significantly less expensive than originator brands. Policy elements included the promotion of generic medicines both at the prescription, and dispensing stage as well as educational campaigns to increase the public's acceptance of generics.
- With few exceptions, countries identified the pharmaceutical distribution system as a major target for policy intervention. Policy proposals in this area centred on taxes (including import taxes and sales taxes such as VAT) and distribution margins including wholesale and pharmaceutical mark-ups.
- Most of the surveyed countries proposed policies relating to the procurement of medicines. Pooled procurement within and between countries, as well as between the public and one or all other sectors was a recurrent proposal across a number of countries. An improvement of the effectiveness of the national public procurement agency was also mentioned by several countries. Several countries see a need to improve medicine logistics from the central to the local level to improve stock availability. The mechanisms by which this may be achieved included a move to a demand or "pull" driven system of procurement rather than a supply or push system, as well as an improvement in the informational systems which feed back stock levels to the central level.
- A smaller but still significant group of countries highlighted the need for alternative pharmaceutical financing mechanisms to encourage a move away from out-of-pocket expenditures which are a severe drain on household finances. The mechanisms contemplated by countries centred on forms of prepayment mechanisms which pool financial risks, particularly in the form of community health insurance schemes.

These recommendations, which were made within the framework of the analyses undertaken by each of the countries, are consistent with this inter-country analysis. The most important among them is undoubtedly the need to develop and introduce a policy on prices and regulation of medicines when no such policy exists.

The introduction of such policies, whose purpose is to bring down medicine prices, would make it possible to act in three directions:

1. it would ensure that medicine authorities were more knowledgeable about the operators involved (importers and distributors)

2. it would make it possible to register and negotiate the price of imported medicines

[31] For more information see the national survey reports which can be found at http://www.afro.who.int/dsd/survey_reports/index.html; http://www.haiafrica.org/ and the data (and reports) can be found in the HAI Medicines Prices database at www.haiweb.org/medicineprices.

3. It would make it possible to control and regulate selling prices.

However, in determining these price policies it will be necessary to take into account the specific context of each country, and in particular the mechanisms for financing health expenditure via cost recovery. In the public sector in some countries, part of basic health care is funded by the profit margins on medicines (the Bamako Initiative). Consequently, any attempt excessively to reduce these margins might jeopardize the sustainability of such care. In other sectors (private and NGO/ cost-recovery) too significant a reduction of profit margins could result in wholesalers deciding not to market medicines that offer too little profit, which would means that they would be much harder to come by on the market, and this is clearly not what is sought.