Medicine Prices In Nigeria

PRICES PEOPLE PAY FOR MEDICINES

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Acronyms

ART	Antiretroviral Therapy
ARV	Antiretroviral
CIF	Cost, Insurance, Freight
CMS	Central Medical Stores
DRF	Drug Revolving Fund
EDL	Essential Drugs List
FCT	Federal Capital Territory
GDP	Gross Domestic Product
HAI	Health Action International
IB	Innovator Brand
LGA	Local Government Area
LPG	Lowest Priced Generic
MDGs	Millennium Development Goals
MPR	Median Price Ratio
MSG	Most Sold Generic
MSH	Management Sciences for Health
MUP	Manufacturer's Unit Price
NAFDAC	National Agency for Food and Drug Administration and Control
NGO	Non Governmental Organisation
NHIS	National Health Insurance Scheme
NMA	Nigerian Medical Association
PCN	Pharmacists Council of Nigeria
PMG-MAN	Pharmaceutical Manufacturing Group of the Manufacturers' Association of Nigeria
PSN	Pharmaceutical Society of Nigeria
SMUP	Sector Median Unit Price
STG	Standard Treatment Guidelines
US	United States
USD	United States Dollar
WHO	World Health Organisation

Foreword

Nigeria was one of the eight African countries selected to conduct National Medicines Price Survey in 2004 in order to determine the prices people pay for their medicines. The exercise was sponsored by the World Health Organization (WHO) and Health Action International (HAI) following observations that the cost of medicines has been rising faster than overall consumer prices in a number of countries worldwide. The prices of medicines are generally high and are unaffordable for large sectors of the global population making access to essential medicines very difficult.

The situation in Nigeria is not different and this portends a lot of difficulties for us in the health sector in our determination to provide effective healthcare delivery services in line with the objectives of the Millennium Development Goals (MDGs). The availability, affordability and accessibility of essential medicines to the populace irrespective of their income status is critical to the success of our healthcare delivery services. It is for this reason that the Federal Ministry of Health gave its full support to the conduct of the National Medicines Price Survey.

The report of this survey is quite revealing and has confirmed the general concerns being expressed on the high prices of medicines offered to our teeming population. The fact that medicines cost as much as two to sixty four times the prices in the International Market is a cause for great concern. It is apparent that a number of factors are responsible for the observed trend. There is certainly the urgent need to address these factors which include poor drug procurement procedures in the public sector and the high mark-ups by drug importers.

It is indeed gratifying that this survey is coming at a time the government itself is carrying out comprehensive reform programmes aimed at encouraging development in all sectors of the economy. My Ministry will take appropriate action to address the high prices of medicines towards making them available, affordable and accessible. The government will consider the recommendations made in this report by taking appropriate action to develop a National Medicines Pricing Policy. In addition government will review the current medicines procurement system with a view to re-organising it in favour of bulk procurement.

The support of WHO in the planning and execution of this survey is commendable. The Ministry looks forward to continued collaboration with the WHO and other stakeholders in ensuring that the problems of high prices of medicines are adequately addressed. The role and place of medicines in the success of our healthcare delivery services is so crucial that all hands must be on deck to ensure sanity in the importation, manufacture, sale, distribution and use of medicines in Nigeria.

Professor Eyitayo Lambo
Honourable Minister of Health

March 2006

EXECUTIVE SUMMARY

Introduction

In order to ascertain the prices of medicines in Nigeria, a survey was undertaken by the Federal Ministry of Health in collaboration with the World Health Organisation and Health Action International in 2004 using an international standardised methodology. A total of 129 medicine outlets in public and private health clinics as well as private pharmacies were randomly sampled from six states representing the six geopolitical zones in the country. The prices of a basket of 34 prescription medicines were measured. Three State Central Medical Stores and one NGO procurement facility were also assessed in terms of prices at which they procure key medicines.

Results

Patient prices

- Patients pay between 2 to 64 times international reference prices for medicines in various facilities in the public and private sectors of Nigeria.
- Prices in the public sector were almost identical with those in the private pharmacies
- Private health clinics were shown to charge up to 184% more than the public health facilities and 193% more than private retail pharmacies.
- Innovator brands were found to cost between 2 to 7 times the lowest priced generic equivalents.
- There was wide variability of prices of the same medicines between facilities, sectors and different types of the same product.

Procurement Prices

- Prices range from 2 to 38 times international prices in the three functional state central medical stores surveyed.
- In the NGO facility, prices were up to 20 times less than those of the state central medical stores.

Availability

- Generic medicines were generally more available in all outlets.
- The availability of the basket of 34 medicines was low in all sectors but moreso in the public and private health clinics.

Affordability

- Medicines are unaffordable to the majority of [1]Nigerians (90.2%) who live below the income level of US$ 2 a day as well as the government worker that earns a minimum wage of US$1.4 per day.
- [2]Affordability was largely dependent on choice of therapeutic class, product or sector from which the medicine was purchased. For example:
    - A worker would pay 0.7 days' wages to treat an infection with amoxicillin but would pay an additional 18.8 days' wages when using ceftriaxone injection to treat the same infection.

[1] 2004 World Development indicators

[2] Affordability of medicines was measured in relation to the number of days the lowest paid unskilled government worker would need to work to procure a course of treatment for 10 conditions.

- The worker would spend 1.4 days' wages to pay for the lowest priced generic atenolol to treat hypertension but would require 10.2 days' wages to pay for innovator brand atenolol. This means IB atenolol costs 7.3 times more than the LPG.
- Likewise, amitriptyline obtained from a private health clinic could cost a patient up to 650% more than when it is obtained from either a public health facility or a private pharmacy.

Component of medicine prices

- Government tariffs and taxes as well as mark-up for distribution account for a significant proportion of what patients pay for medicines.
- Mark–ups by the distributor or retailer were found to be up to 900% of the manufacturers' price.

International comparison

- Medicine procurement in public facilities is as much as five times more expensive in Nigeria than in 7 other countries while NGO procurement was least expensive when compared to the same countries.
- While innovator branded medicines compared well with prices in other countries, generic medicines were up to 825% more expensive in Nigeria than in other 7 countries
- In both public facilities and private pharmacies, Nigeria incorporates the least mark-up when compared to the 7 other countries.

Recommendations

Medicine prices are important because most Nigerians purchase their medicines out of pocket. Thus, high medicine prices would constitute a major barrier to access to health care. To reduce medicines cost, the following are recommended.

Procurement policy

- There is need to review procurement policy of the country. Considering the size and complexity of Nigeria, it will be rational to conduct further studies on best procurement method that would be effective with consideration of methods that have worked in similar developing countries. Policy options include:
  - National tendering with decentralised contracting and purchasing
  - Procurement agency with responsibility for national procurement of medicines
  - Competitive tendering with price transparency
  - Pooled procurement with national buyers
  - Providing incentives and capacity building in rational procurement
  - Parallel importation of single source products and price negotiations
  - Making medicine price information widely available

Selection

- Since selection of medicines is key to affordability and can be a major hindrance to access to medicines, a standard treatment guideline needs to be developed for the country to guide rational selection of cost effective medicines for most diseases.

- Generic policy needs to be institutionalised in the country

- To encourage the selection, procurement, promotion, prescribing and dispensing of generic medicines, a generic policy needs to be institutionalised in the country. As

such, acceptance of generic products by professionals and patients needs to be promoted. Quality assurance mechanisms such as prequalification of generic manufacturers need to be instituted to provide confidence in generic products

Affordability

- A pricing policy which aims to reduce the high prices and wide disparity between prices should be developed for the country.
- The heavy tax burden on the pharmaceutical sector should be reviewed. Multiple taxation by local, state and federal governments as well as high tariffs on raw materials, packaging materials and other ancillary materials used to manufacture medicines which adversely affect the cost of medicines need to be reviewed. Essential medicines for priority diseases should be defined and exempted from all forms of taxation.
- To enhance the affordability of medicines, it is recommended that the medicine regulatory authority NAFDAC should be empowered to consider medicine prices before issuing marketing authorisation to importers and manufacturers

Further research

Since the pharmaceutical sector in Nigeria is complex and has various actors who have benefited from its disorganised nature for decades, it is important to carefully analyse the situation before solutions are proffered. Therefore further studies need to be undertaken to ascertain the following:

- Determinants of prices of medicines in all sectors
- Reasons for poor availability of medicines in the country
- Actual prices patients pay using exit interviews or household surveys to measure discrepancies between the prices recorded by private clinics and actual prices patients pay
- Comprehensive stakeholder analysis to determine acceptable and workable policy interventions in the country.

The reviewed National Drug Policy has already incorporated many of the recommendations to improve the pricing of medicines. Thus, sustained and coordinated implementation of the policy would lead to an improvement in prices patients pay for medicines.

INTRODUCTION AND BACKGROUND:

International treaties and governments all over the world recognize health care as a fundamental human right. In order to improve health by tackling socioeconomic determinants of health, 189 heads of state in 2000 endorsed the Millennium Development Goals (MDGs): "To reduce poverty and hunger and to tackle ill health, gender inequality, lack of education, lack of access to clean water and environmental degradation".[3] The MDGs were "Framed as a compact, which recognizes the contribution that developed countries can make through trade, development assistance, debt relief, access to essential medicines and technology transfer"[4]. Therefore, without access to essential medicines, this fundamental right as well as the United Nation's Millennium Development Goals cannot be realized.

The World Medicines Situation 2004[5] estimates that about half the people in Africa do not have regular access to essential medicines. A Baseline Assessment[6] of the Nigerian Pharmaceutical Sector in 2002 showed that only 46% of the key medicines were available in public health facilities and 23% of the average weekly expenditure of respondents went into the treatment of an episode of illness in a member of their household. These figures show poor access to essential medicines although the exact scale has not been accurately estimated.

Medicine financing in Nigeria is generally out of pocket as the National Health Insurance Scheme (NHIS) is still in the pilot stage, yet 70.2% of Nigerians live below poverty line of less than 1 USD a day.[7] Therefore issues concerning prices of medicines are key to improving access to essential medicines in Nigeria.

The objective of this survey is to document and compare the availability and prices of a chosen set of medicines in different parts of the health sector as well as in the different sections of the country, and to compare them with other countries with the aim of assessing the availability and affordability of the medicines.

The goal is to understand how prices vary in different sectors, different types of facilities, and different sections of the country and also to explore determinants of medicine prices in the country. The ultimate use would be made of information in order to explore appropriate policies that would help in reducing prices such that access to medicines would be enhanced.

Specifically, the survey seeks to generate the following information:

i. public and private sector medicine prices
ii. the availability of the medicines
iii. the affordability of the medicines
iv. the components of medicine prices

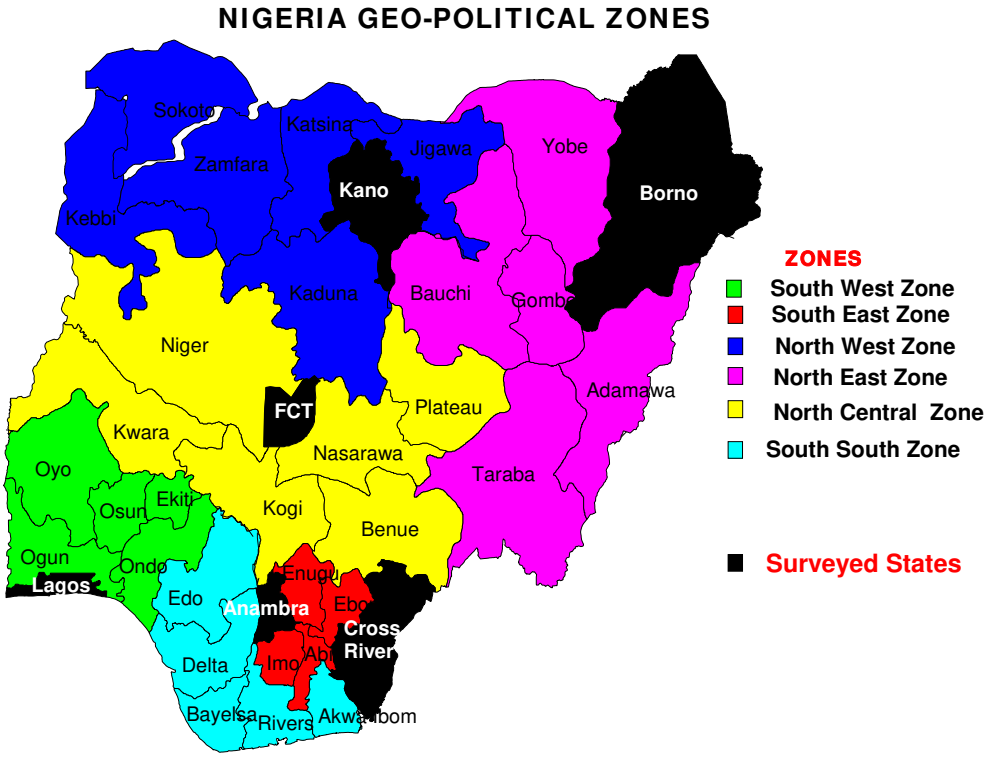
It is expected that the survey would provide:

- baseline information that can be used to assess effectiveness of policies relating to pricing of medicines.
- information on medicine prices for purposes of negotiations, differential and equity pricing and
- advocacy tools for NGOs, health professionals, and consumers while negotiating for equity and affordability of essential medicines.

[3] WHO and the Millennium Development Goals, WORLD HEALTH ORGANISATION
[4] ibid
[5] The World Medicines Situation by WHO/ EDM/ PAR/ 2004.5
[6] Baseline Assessment of the Pharmaceutical Sector 2002, published by The Federal Ministry of Health in collaboration with the World Health Organization
[7] 2004 World Development Indicators

Country Data:
Nigeria is located on the West Coast of Africa, and has a landmass of 923, 678 square kilometres, and a population density of 128 per square kilometre.

The country is divided into six geo-political zones, 36 states and a Federal Capital Territory. The states are further divided into 774 Local Government Areas (LGAs).



[8]Socio-economic indicators

Total population	120,911,000
GDP per capita (US$)	915
Annual growth of the GDP (US$)	3.5
Life expectancy at birth m/f (years)	48.0/49.6
Total expenditure on health as a percentage of the GDP (2001)	3.4
General government expenditure on health as a percentage of total expenditure on health (2001)	23.2
Private expenditure on health as a percentage of total expenditure on health (2001)	76.8
General government expenditure on health as a percentage of total government expenditure (2001)	1.9
External resources for health as a percentage of total expenditure on health	7.1
Social security expenditure as a percentage of general government expenditure on health (2001)	0
Out of pocket expenditure on health as a percentage of private expenditure on health (2001)	100
Private prepaid plans as a percentage of private expenditure on health	0
Per capita expenditure on health in US$ (2000)	20
[9]Population below 1 US$ per day (1997)	70.2
Population below 2 US$ per day (1997)	90.8
Percentage of population using private sector health provision	65

National Medicines Situation Relevant to Prices

Policies

Nigeria's first National Medicines Policy was first published in 1990. This policy has gone through its first revision. Nigeria also has an Essential Drugs list (EDL) to guide procurement in the public sector; it was last reviewed in 2003. There is, however, no policy or incentive to encourage generic prescription or substitution although the reviewed National Medicines Policy makes provisions for this. Public sector procurement is meant to be limited to the EDL.

Procurement policies vary from state to state. Although each state of the federation has a medical store, most of them no longer procure medicines as they have ceded this duty to the health facilities who then produce medicines for their respective use. There is no policy which mandates the purchase of locally produced medicines.

Dispensing

The spread of the more than 11,000 pharmacists registered in 2003 is uneven. Registration of the premises by a pharmacist is a prerequisite to its being granted operating license. In the private sector, there are no chain pharmacies. All pharmacies are independent.

The dispensing of medicines in the public sector varies with the type of facility. In dispensaries and primary health care facilities, medicines are prescribed and dispensed by the nursing personnel or the community health extension worker who oversees the facility. However, in larger facilities (comprehensive health centres, secondary and tertiary health facilities) there is a clear separation between prescribing and dispensing functions. In such facilities, there are separate areas manned by pharmacists or dispensing assistants depending on the size of the facility.

Due to weakness in the public health system, Nigerians patronise private health care clinics. In a recent survey[10], only 38% of households reported to have used the public health sector when faced with illness in a member of the household. Medicine sellers, private health clinics, and pharmacies were the main care providers and medicines were also obtained in these establishments after consultation. This underscores the importance of the private sector in

[8] The World Health Report 2004

[9] 2004 World Development indicators

[10] Baseline Assessment of the Nigerian Pharmaceutical Sector, 2002 published by Federal Ministry of Health in collaboration with the World Health Organization

medicine pricing. Dispensing doctors are well established in Nigeria as it is estimated that well over 90% of private clinics dispense medicines in their health facilities.

Medicine Financing.
Data on the pharmaceutical sector is generally not available and as such total expenditure on medicines, total private medicine expenditure, total value of international medicine aid/donations, and estimate and value of imported medicines cannot be accurately ascertained.

An assessment of ARV use in health facilities in Nigeria in 2003 showed that 95% of patients purchased their ARVs out of pocket.[11] On the average, (23%) of weekly household expenditure was spent on one episode of illness not requiring hospitalisation in a household member.[10] Of those who did not procure their medicines after consultation, financial reasons and non availability were mainly cited.

There is a National Medicine Regulatory authority that registers medicines in the country. There is no difference in fees paid for the registration of innovator brand and generic medicines. However, to register an imported medicine, one would pay as much as four times the cost for registering one produced locally.

Pricing of medicines are not regulated and prices are not part of market authorization/registration. There is no pricing regulation which defines maximum or minimum profit margins for both wholesale and retail medicines and patients do not pay professional fees such as dispensing fees to pharmacies.

The piloting of the National Health Insurance Scheme (NHIS) commenced in May 29, 2005, hence, the type of medicine exemptions for categories of patients and the percentage of the population covered, are yet to be defined. Meanwhile, payment for medicines is out of pocket for almost all patients at all the health care levels. However, different states have various funding policies in which a few have payment exemptions for children and pregnant women and others have free malaria treatment. Tuberculosis and family planning medicines are free throughout the country.

Rational use of medicines
Studies continue to indicate a propensity for polypharmacy in Nigeria. For example, the last national survey of the pharmaceutical sector showed that the average number of medicines per prescription was 4.7[12]. More than 90% of medicines in prescriptions were listed on the Essential Medicines List. Appropriateness of dispensing was also very low as only 2% of diarrhoea prescriptions, 10% of acute respiratory tract infection and 21% of prescriptions for mild to moderate pneumonia were adjudged correctly prescribed.

Access to medicines
The baseline survey also showed that there was generally low availability of key medicines in health facilities. Only about 46% of a basket of key medicines were found in facilities. The respondents to the household survey indicated purchasing medicines in public health facilities (38%), medicine stores (23%), private clinics (16%) and private pharmacies (7%). Thus, the private sector is more utilised than the public sector which may be traced to the poor availability of medicines in public health facilities.

[11] Situation of Antiretroviral Drug Use In Nigeria by FMOH in collaboration with WHO, November 2003
[12] Baseline Assessment of the Nigerian Pharmaceutical Sector, 2002 published by Federal Ministry of Health in collaboration with the World Health Organization

METHODOLOGY:

Overview of the Survey:
This study is based on a methodology developed by the World Health Organization (WHO) and Health Action International (HAI), which uses a short list of medicines to compare the prices of medicines in different health sectors. This methodology has been designed to standardise the collection, analysis and interpretation of medicine price data.

2.1.1. Survey Planning and Preparation:
Gathering baseline information on the national pharmaceutical sector
Baseline information on the national pharmaceutical sector as it relates to pricing of medicines was gathered using a structured questionnaire (annex 1). Information gathered included the following:

- Existing medicine policies including availability and details of pricing policy
- Public procurement practices
- Medicine distribution including central procurement, sales and dispensing in public and private sectors
- Medicine financing including insurance, risk-sharing and prepayment schemes

The questionnaire was administered to the Department of Food and Drug Services of the Federal Ministry of Health, the National Agency for Food and Drug Administration and Control (NAFDAC), the Pharmacists' Council of Nigeria (PCN) and the Pharmaceutical Manufacturing group of the Manufacturing Association of Nigeria (PMG-MAN)

Selection of list of medicines
An Advisory committee made up of key stakeholders in the pharmaceutical sector was assembled to make decisions regarding medicines to include in the core and supplementary list of medicines. Members were drawn from the departments of Food and Drug Services, Public Health and Hospital Services of the Federal Ministry of Health, the National Agency for Food and Drug Administration and Control (NAFDAC), the Pharmaceutical Society of Nigeria (PSN), the Nigerian Medical Association (NMA), the Pharmacists' Council of Nigeria (PCN), and the Pharmaceutical Manufacturing Group of the Manufacturers Association of Nigeria (PMG-MAN).

In order to make the survey manageable and comparable between countries, a short "core" list of 30 medicines (annex 2) was selected as the basis for data collection and analysis for any country undertaking the study. For each medicine, the core list contains one dosage form, one strength, one recommended pack size, and three products (the innovator brand (IB), the most sold generic equivalent (MSG) and lowest priced generic (LPG) equivalent).

Prior to the meeting of the advisory group, a pre-survey was conducted to help the committee make informed decisions on the choice of medicines in the core and supplementary lists. A structured form (annex3a) was produced and administered to the largest importers of medicines in the country to obtain data on the two most sold generic equivalents of relevant innovator brands of the selected medicines. A second form (annex 3b) was also administered to determine the medicines to be included in the supplementary list. The most important pharmacological groups were chosen and the medicines in the EDL for the treatment of the conditions were listed. The importers/wholesalers were told to rank the listed medicines in terms of the three most sold medicines in each category. The results were collated and used to determine the medicines to be included in the list.

Medicines List:

A total of 34 medicines were included in both the core and supplementary lists. The core list has 26 medicines while the supplementary list has 8.[13] The following medicines were included in the supplementary list as an outcome of the deliberations in the Advisory Committee meeting:

1. Amoxicillin capsule 500mg;
2. Ampicillin/Cloxacillin capsule (500mg);
3. Cimetidine tablet 200mg;
4. Diclofenac Sodium tablet 100mg
5. Dihydroartemisinin tablet 60mg.
6. Fluconazole tablet 50mg
7. Ketoprofen tablet 200mg
8. Clotrimazole cream 1%

Out of these, ampicillin/cloxacillin 500mg, diclofenac sodium 100mg, dihydroartemisinin 60mg, fluconazole 50mg, ketoprofen 200mg do not have international reference prices but were retained in the supplementary list, because of their importance and the opportunity afforded by the study to obtain in-country data for their availability and pricing.

Sampling of facilities

- **Procurement Prices:** Medicine prices were collected from state medical stores and one NGO facility.
- **Public Sector**: Prices patients pay in government health facilities (tertiary and secondary) were collected. The primary health centres were not included in this study because they are not authorised to stock prescription medicines which was the focus of the survey.
- **Private sector**: Prices patients pay in private retail pharmacies.
- **Other sector**: Prices patients pay in private clinics also known as **'dispensing doctors'.**

To define the sample frame, directories of health facilities were obtained from the Planning, Research and Statistics of the Federal Ministry of Health (public and clinics), FCT branch of the Nigerian Medical Association (private health clinics in the FCT) and the Pharmaceutical Council of Nigeria (registered private pharmacies).

Using a multistage systematic random sampling technique and internet generated random numbers, one state was selected in each of the six geo-political zones in the country. In the six randomly selected states, the state capital was chosen and the largest health facility which was usually either a tertiary or secondary health facility was first sampled. Six local government areas which have private pharmacies were also identified and sampled. In anticipation of non-functioning facilities and other unforeseen problems in the field, four extra facilities of each type were sampled and data collectors were requested to seek approval before collecting data from the reserve facilities. In view of the methodology employed in sampling the facilities included in the study, the result can be generalized to the whole country.

Data collectors were also sent to the State Central Medical Stores in each of the states sampled from the six geo-political zones. The procurement list for 2004 was requested from the NGO facility from which unit costs were calculated and entered into the workbook.

[13] *Losartan*, and *Lovastatin* were removed from the list as they are not in the Nigeria Essential Medicines List. *Diclofenac* tab 25 mg and *fluconazole* 200 mg are not locally available and were therefore deleted from the list.

Location of survey:

The following locations were included in the survey.

Zone	State	Local Government Areas (LGAs)
North Central	FCT	Abuja Municipal Area Council, Abaji Area Council, Gwarimpa, Kuje, Bwari and Gwagwalada
North East	Borno	Maiduguri metropolitan, Biu, Hawul, Kwaya-Kusar, Magumeri, Shani and Jere
North West	Kano	Tarauni, Nasarawa, Fegge, Wudil, Kura, Tudun Wada, Kano municipal and Takai
South East	Anambra	Awka North, Awka South, Nnewi South, Nnewi North, Dunukofia, Ogbaru, Onitsha North,
South South	Cross River	Calabar municipal, Akamkpa, Obubra, Ugep Yakurr, Ogoja, Yala, Calabar South, Ikom, Obudu,
South West	Lagos	Epe, Ajeromi, Badagry, Lagos Island, Lagos Mainland, Ikorodu, Epe, Ajeromi, Surulere, Eti-Osa, Apapa, and Oshodi-Isolo.

Training of the data collectors and Pre-testing of survey Instruments.

Twelve pharmacists were trained in data collection using the finalized medicine list during a three-day workshop. To pretest the data collection tools, the pharmacists were divided into three groups and each group tested the tools in all the three sectors to be surveyed i.e. public health facilities, private pharmacy outlet and private health clinics. All the facilities were situated in the Federal Capital Territory of Nigeria.

Subsequently, experiences were shared and appropriate corrections were effected on the tools which were then produced for the actual survey. Realising the difficulties that may be encountered in private health clinics, advocacy tips were also discussed to increase the probability of success in the survey.

Collecting data on the prices and availability of medicines in the chosen health facilities and pharmacies

The twelve pharmacists, were then distributed in pairs to each of the six zones in the country to collect medicine prices in the identified sectors between September 6 – 16, 2004. Letters of endorsement were sent to the State Ministries of Health of the sampled states two weeks before the survey. The data collectors were also given letters of introduction as well as copies of the letters of endorsement already sent to the states. The letters assured the states of the anonymity of any information provided for the survey.

In their letters, the states were requested to facilitate the work of the data collectors in terms of introduction to the private health clinics and private pharmacies.

Identifying the components of medicine prices

In conjunction with Pharmaceutical Manufacturing Group of the Manufacturers' Association of Nigeria (PMG-MAN) and the Pharmaceutical Society of Nigeria (PSN), the relevant manufacturers and wholesalers were contacted to gather information on components of medicines prices.

Data entry and analysis

The calculations entered by the data collectors were reviewed and entered into the WHO/HAI 2003 workbooks prepared for the study. Double entry of all data was done to improve on the accuracy of entered data. Extreme values were cross checked to ensure that they did not represent errors in data entry or calculation. Data for artesunate was excluded from the analysis as the medicine was donated to the government.

The following data analyses were made:

1. Within-sector analysis of data from a single sector. This includes:
    - The median medicine price levels in relation to international standard prices
    - Variations in price across medicine procurements or medicine outlets
    - Comparisons between innovator brand and generic equivalents products
    - Product availability in medicine outlets
2. Cross-sector comparisons in which overall medicine availability and prices were compared between the different sectors both for individual medicines
3. Treatment affordability using standard regimens for key health problems expressed in terms of number of days of wages of the lowest paid government worker required to pay for the cost of treatment.
4. Price composition which includes:
    - Comparison between final patient prices to ex-factory prices for a set of medicines in different sectors
    - Examining the different charges and mark-ups that contribute to the final price.
5. International comparison between a specific sector both for individual medicines and MPR across medicines

Reference Prices

Standard international reference prices were used to facilitate comparison of prices between sectors and across countries. The Management Sciences for Health (MSH) 2003 prices were used. They are international not-for-profit/tender prices listed in the International Medicine Price Indicator Guide published by MSH.

Making international price comparisons

Results of surveys from seven other countries (Ethiopia, Ghana, Kenya, South Africa, Tanzania, Uganda and Zimbabwe) were used to make relevant comparisons with the country information.

FINDINGS:

Definitions

Median price ratio (MPR)
The MPR is a ratio of the local price to an international reference price (converted into the same currency). The reference price serves as an external standard for evaluating local prices. The MPR results in this survey are based on reference prices taken from the 2003 Management Sciences for Health (MSH) International Drug Price Indicator Guide (http://erc.msh.org/). The MSH Guide pools together information from recent price lists of large, non-profit generic medicine suppliers.

Medians
As averages can be skewed by outlying values, median values are generally used (unless otherwise stated) throughout the presentation of results and discussion as a better representation of the midpoint value.

Affordability
Affordability is the cost of treatment in relation to people's income. In this survey, the daily wage of the lowest paid unskilled government worker is used for the comparison. Medicines which are unaffordable to this worker will be much less affordable for the significant proportion of the population that have an income less than this worker.

Minimum data points for analysis
Four data points for patient prices and one data point for procurement prices are the minimum number of data points that are necessary for the analysis to be performed by the workbook. If there are less data points that are less than this, then no calculation of MPR is performed. Availability is however calculated for all medicines irrespective of the number of outlets stocking each medicine

PROCUREMENT PRICES
Of the six state central medical stores surveyed only three were functional and procurement prices were obtained from them. In addition, a major NGO which procures medicines for member institutions in Nigeria was also surveyed in order to compare procurement prices between the public and non-profit sectors.

Table 1: Median Price Ratios (MPR) for procurement prices for a basket of 18 LPG medicines in three state medical stores (public sector) and one NGO (private not-for-profit)

Sector	Procurement price		
	MPR	25 percentile	75 percentile
Public (state CMS)	3.29	1.91	5.96
NGO	0.65	0.52	0.68

The data in annex 4a shows that while the state central medical stores procured some innovator brand medicines the majority of their stock was generic medicines. However, the NGO

procurement facilities only stocked generic medicines. Thus, comparison of procurement is only possible with LPG medicines.

The median price ratio for procurement for the basket of medicines for matched pairs of medicines was 3.29 in the state medical store in contrast to 0.65 in the NGO store. Thus public CMS procurement is about 500% higher than the NGO procurement. It can also be seen that half of the prices in the basket of medicines were 2 to 6 times the international reference prices while most of the prices in the NGO facility were less than the international reference prices. This shows that while procurement prices at the NGO facility were quite low, those of the public sector were generally high.

Table 2: Median price ratios of medicines in the public sector procurement

Medicines	MPR		RATIO IB:LPG (MPR)
	IB	LPG	
Aciclovir		6.21	
Amitriptyline		1.58	
Amoxicillin		3.06	
Amoxicillin (2)		1.51	
Atenolol		11.26	
Captopril		4.13	
Carbamazepine		1.74	
Cimetidine		3.52	
Ciprofloxacin	28.37	7.09	400%
Clotrimazole		1.90	
Co-trimoxazole suspension		2.01	
Diazepam		1.93	
Glibenclamide		17.36	
Hydrochlorothiazide		19.18	
Metformin	4.01	0.76	530%
Nifedipine Retard		5.22	
Ranitidine	1.03	4.53	440%
Sulfadoxine-pyrimethamine		2.15	

Examining the MPRs in Table 2 for medicine procurement in the public sector, one can observe that the lowest priced generic equivalents of amitriptyline, amoxicillin 500mg, carbamazepine, clotrimazole, co-trimoxazole suspension, diazepam, metformin and ranitidine which were 2 and below could be considered procured at reasonable prices. However all the other medicines were procured up to 28 times the international price and therefore, were considered too expensive.

The result also shows procurement prices vary between the innovator brands and lowest priced generic equivalents and between facilities. The pricing is so arbitrary that the cost of an innovator brand of ranitidine in one facility was less than the generic equivalent in another. Also the innovator brand of metformin was procured as much as five and half times the generic equivalent.

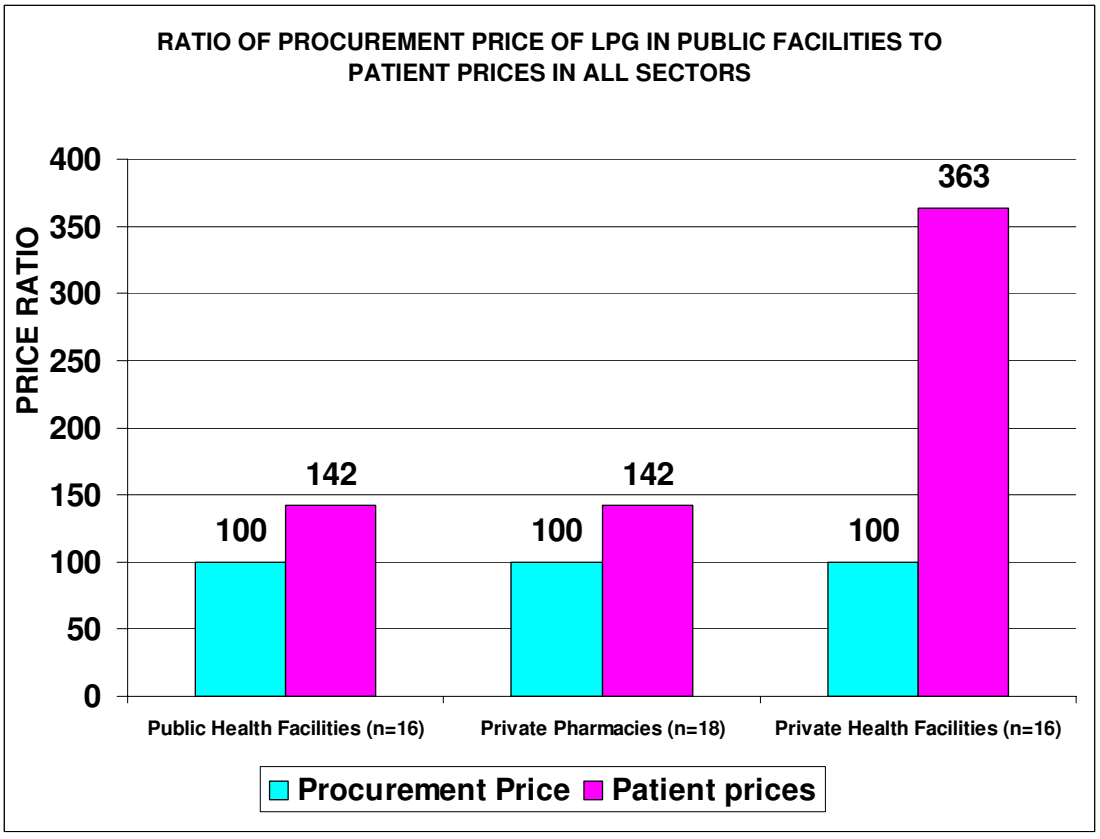
Availability of medicines was also low in both the private not-for-profit and public sectors.

Table 3: Comparative analysis of MPR of medicines found both in the State CMS facilities and the NGO procurement facility

Medicine	MPR		
	Public Sector	NGO	Ratio Public: NGO
Amitriptyline	1.58	0.52	300%
Amoxicillin	3.06	0.94	330%
Carbamazepine	1.74	0.65	270%
Cimetidine	3.52	0.60	590%
Diazepam	1.93	0.43	450%
Glibenclamide	17.36	1.02	1710%
Hydrochlorothiazide	19.18	0.68	2820%
Nifedipine Retard	5.22	0.65	800%

Examining the individual medicines that were available in both facilities, except for glibenclamide that was procured at about the same cost as the international reference price, the NGO prices were all less than international prices as shown in Table 3. Also the public sector procures 300% to 2800% times more expensively than in the NGO facility and the cost of lowest priced generic equivalent were consistently lower in the NGO sector than in the public sector.

Chart 1: Ratio of Procurement prices of LPG in public facilities to patient prices in all sectors



The above chart compares procurement prices in the state medical stores with the prices patients pay in all the sectors for lowest priced generic equivalents of medicines. It is based on the assumption that all sectors procure their medicines from the medical stores. Results show that the public health facilities sell generic medicines to patients identically (42% mark-up). However, the private health clinics mark-up the procurement prices in the state medical stores by up to 263%.

PRICES PATIENTS PAY IN PRIVATE PHARMACIES

Table 4: Comparison of private pharmacies innovator brand and lowest priced generic equivalent

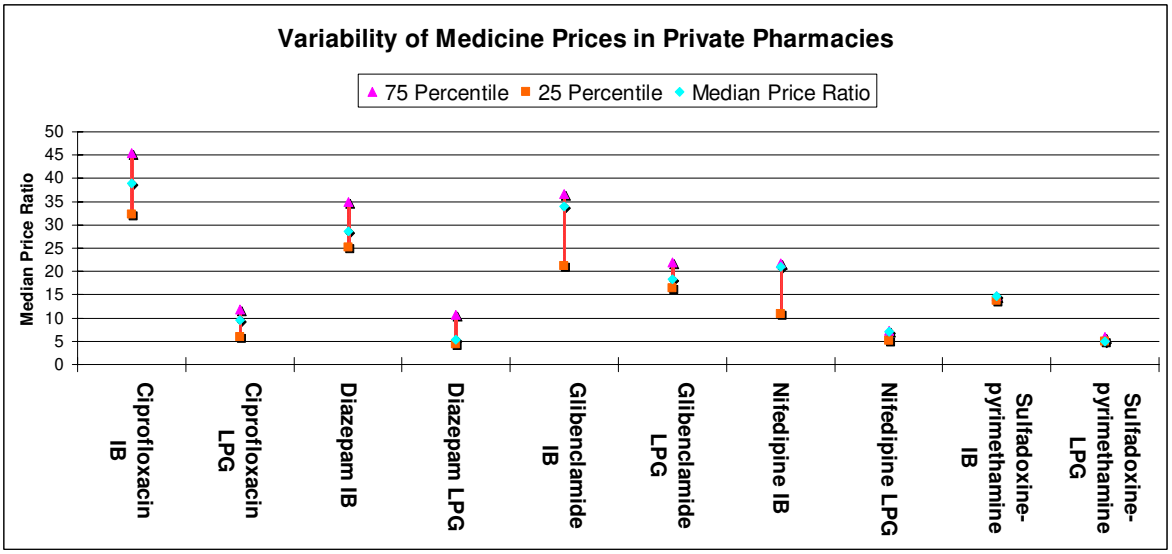
Medicine	MPR		Ratio IB: LPG
	IB	LPG	
Aciclovir	-	4.2	-
Amitriptyline	-	4.5	-
Amoxicillin	6.6	2.4	300%
Amoxicillin (2)	6.1	2.0	300%
Atenolol	50.5	7.1	700%
Captopril		3.1	-
Carbamazepine	11.3	1.9	600%
Ceftriaxone injection	6.8	3.8	200%
Cimetidine	15.0	5.9	300%
Ciprofloxacin	39.0	9.5	400%
Clotrimazole	5.2	2.9	200%
Co-trimoxazole suspension	8.4	3.3	300%
Diazepam	28.6	5.4	500%
Fluphenazine injection		3.9	-
Glibenclamide	33.9	18.3	200%
Hydrochlorothiazide		43.0	
Metformin	5.7	3.3	200%
Nifedipine Retard	20.9	7.0	300%
Omeprazole	14.5	3.0	500%
Phenytoin	21.2	10.6	200%
Ranitidine	18.1	6.0	300%
Salbutamol inhaler	2.3		-
Sulfadoxine-pyrimethamine	14.6	4.9	300%

Examining individual prices in Table 4 it was found that most of the innovator brands range between 2 to 4 times the price of lowest priced generic equivalents with the highest (atenolol) being about 700% more expensive than the lowest priced generic equivalent.

The MPRs vary from 1.89 for the lowest priced generic version of carbamazepine to 50.53 of innovator brand atenolol. Other high MPRs were found for innovator brands of ciprofloxacin (39.01), diazepam (28.64), and lowest priced generic equivalent of hydrochlorothiazide (42.96). Low MPRs were also observed for innovator brand of salbutamol inhaler (2.33), lowest priced generic equivalent of amoxicillin (2.4) and lowest priced generic equivalent of omeprazole (3.01).

Atenolol has the largest innovator brand premium as the innovator brand costs 7 times the lowest priced generic equivalent. Other medicines with high innovator brand premiums include carbamazepine, diazepam, omeprazole and sulfadoxine/pyrimethamine suspension as the innovator brands cost at least 5 times the lowest priced generic equivalents.

Chart 2: Variability of Medicine Prices in Private Pharmacies



The MPRs of some products shown in chart 2 indicate that the prices of innovator brands show greater variation across facilities than the lowest priced generic equivalents. The difference between the MPR for the lowest priced generic equivalent and innovator brand was significant for the illustrated products confirming the very high innovator brand premium for ciprofloxacin, and diazepam. Prices for sulfadoxine/pyrimethamine (innovator brand and lowest priced generic equivalent) and lowest priced generic equivalent of nifedipine retard seem to be uniform throughout the private pharmacies.

Table 5: Comparison of medicine prices in all sectors

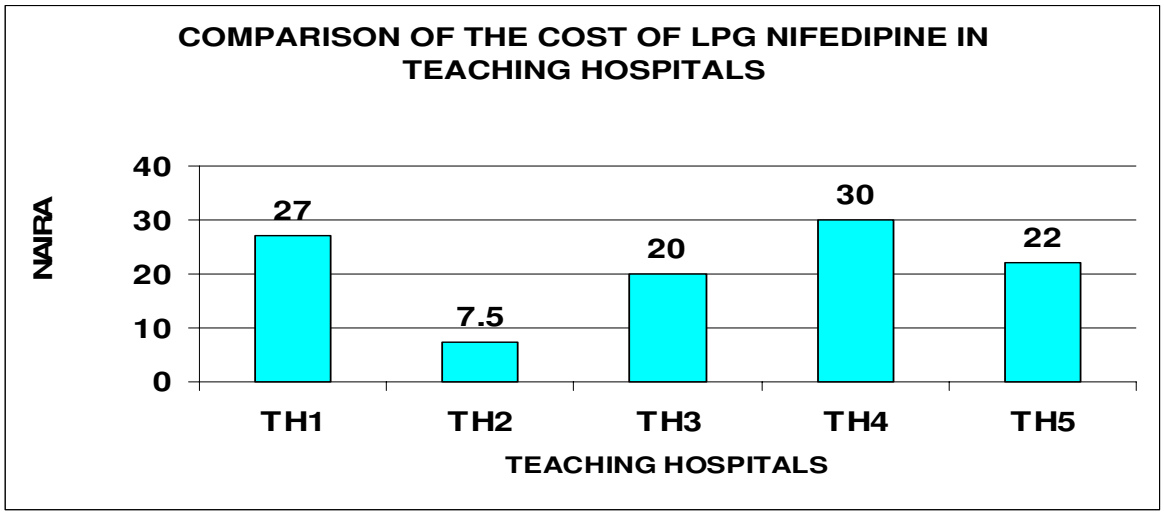
Ratio	IB	MSG	LPG
Private pharmacies : Public facilities	114%	113%	110%
Private clinics: Public facilities	140%	284%	226%
Private clinics: Private pharmacies	131%	224%	193%

Overall, prices paid in public health facilities are nearly identical to those paid in private pharmacies for all the types of medicines. The prices charged by the private clinics are higher than the private pharmacies and the public health facilities. For example, overall prices for most sold generic equivalents were up to 184% more expensive in the private health clinics than in the public facilities. The variation in cost of innovator brands is less than the variation for generic medicines. Also, the variation of prices in private clinics is greater than in private pharmacies.

Exploring variability of prices using MSG version

Since the most sold generic version of a product is a specifically identified version of a medicine, it can be used and to compare and demonstrate the variability of prices of the same medicine across sectors and facilities in the same sector.

Chart 3: Comparison of the cost of LPG Nifedipine in Teaching Hospitals



We explored the cost of Nifecard® by Lek which is the most sold generic version of Nifedipine retard and the results in different teaching hospitals surveyed are shown in chart 3 above.

The prices of Nifecard® vary from 7.5 naira per tablet in one teaching hospital to 30 naira in another one. Thus the same medicine can cost up to 400% more from one teaching hospital to another.

Table 6: Variability of the price of the same medicine across facilities in the public sector

MSG	Minimum price per tab in naira	Maximum price per tab in naira	Ratio Min to Max
Atenolol	7.5	10	133%
Ceftriaxone	1120	1850	165%
Cimetidine	7	20	286%
Diazepam (Diazepam by Viatbiotics)	0.35	5	1429%
Glibenclamide (Glanil® by NGC)	5	15	300%
Metformin (Diabetmin by Hovid)	5	20	400%
Nifedipine retard (Nifecard® by Lek)	13	30	231%
Omeprazole (Meprasil® by Fidson)	57.14	105	184%
Ranitidine (Peptard® by Neimeth)	7	100	1429%

Table 6 shows the variability of prices across facilities in the public sector. A person can procure the same medicine made by the same manufacturer as much as between 133% to 1429% more depending on the facility visited in the country. Diazepam and ranitidine show the greatest variability in price between facilities while atenolol was the least variable.

Table 7: Comparison of the cost of the same medicine across sectors

Most sold generic version	Minimum prices per tablet			Maximum prices per tablet		
	Public Facilities	Private Pharmacies	Private Clinics	Public Facilities	Private Pharmacies	Private Clinics
Diazepam (Diazepam by Viatbiotics)	0.35	1	2	5	5	50
Glibenclamide (Glanil by NGC)	5	7	12	15	15	40
Metformin (Diabetmin by Hovid)	5	6	6	20	15	40
Nifedipine (Nifecard by Lek)	13	15	20	30	35	105
Omeprazole (Meprasil by Fidson)	57.14	35.71	42.86	105	100	300

The results in table 7 show that the difference in prices charged by health facilities on the same medicine is appreciable. For example, the most sold generic diazepam was obtained at the lowest price in public health facilities but cost as much as 143 times in private clinics. Also, the lowest price for Meprasil® was obtained in private pharmacies but cost about 840% higher in private clinics. The minimum and maximum prices for Meprasil® were more expensive in public facilities than in private pharmacies,

All the prices were higher in private clinics but there is no pattern in the pricing of the same medicines in public facilities and private pharmacies. While some are higher in public facilities, others are higher in private pharmacies. Overall, the prices of the same medicines are not so different in public facilities and private pharmacies, but show a large difference when compared with the cost in private clinics.

Medicine Availability

Table 8: Number of medicines found in more than 4[14] facilities in all sectors

Product	Public Health facilities		Private pharmacy outlets		Clinics	
	Number	% of total	Number	% of total	Number	% of total
Innovator brand	7	21%	18	53%	6	18%
LP Generic versions	19	56%	22	65%	18	53%

Table 8 shows the number of products (innovator brands and lowest priced generic products) found in at least four facilities[15] in the different sectors surveyed. Availability in all sectors is generally low. Highest availability of both innovator brand and generic products were in private pharmacy outlets. Just about half of the generic products were found in both public and private health clinics and about one quarter of the innovator brands were found in the same facilities.

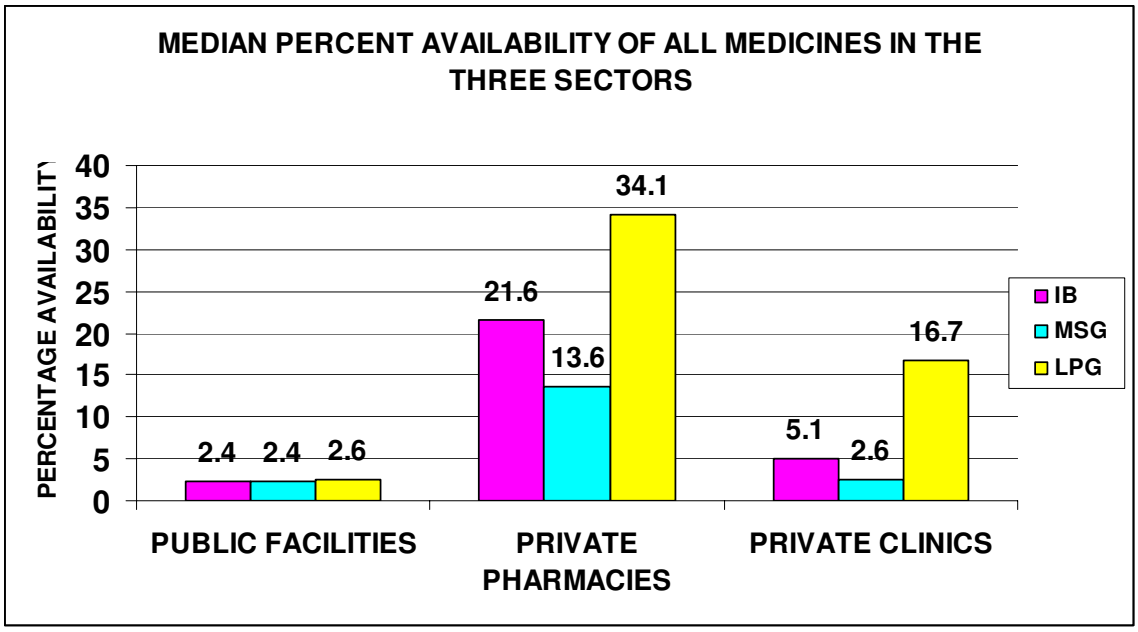
Table 9: Overall Percent Availability of Medicines on List in Public health facilities

Availability	IB	MSG	LPG
Median availability	2.4%	2.4%	22.6%
25 percentile availability	0.0%	0.0%	5.4%
75 percentile availability	8.9%	11.3%	45.2%

Of the 34 medicines for which prices were sought, the median availability for lowest priced generic equivalents was 22.6% with half of the generic medicines found in 5.4% to 45.2% of the private pharmacy outlets (table 9). In contrast, innovator brands were hardly available. More than one quarter of the innovator brands were not available in any of the outlets (i.e. 25 percentile is 0.00).

[14] A minimum of four prices is required to be included in analysis of patient prices
[15] ibid

Chart 4: Median Percent availability of all medicines in the three sectors



Availability for all the 34 surveyed medicines was generally low in all the sectors (chart 4). It is clear that all the sectors showed a preference for the lowest priced generic equivalents. The availability of innovator brands in all sectors was low.

It seems that the private pharmacies had more products than private health clinics. The public and private health clinics stocked almost entirely lowest priced generic equivalent products while the private pharmacies had a mix of all products. Availability of all products was lowest in private health clinics.

Chart 5: Availability of anti-infectives in public facilities

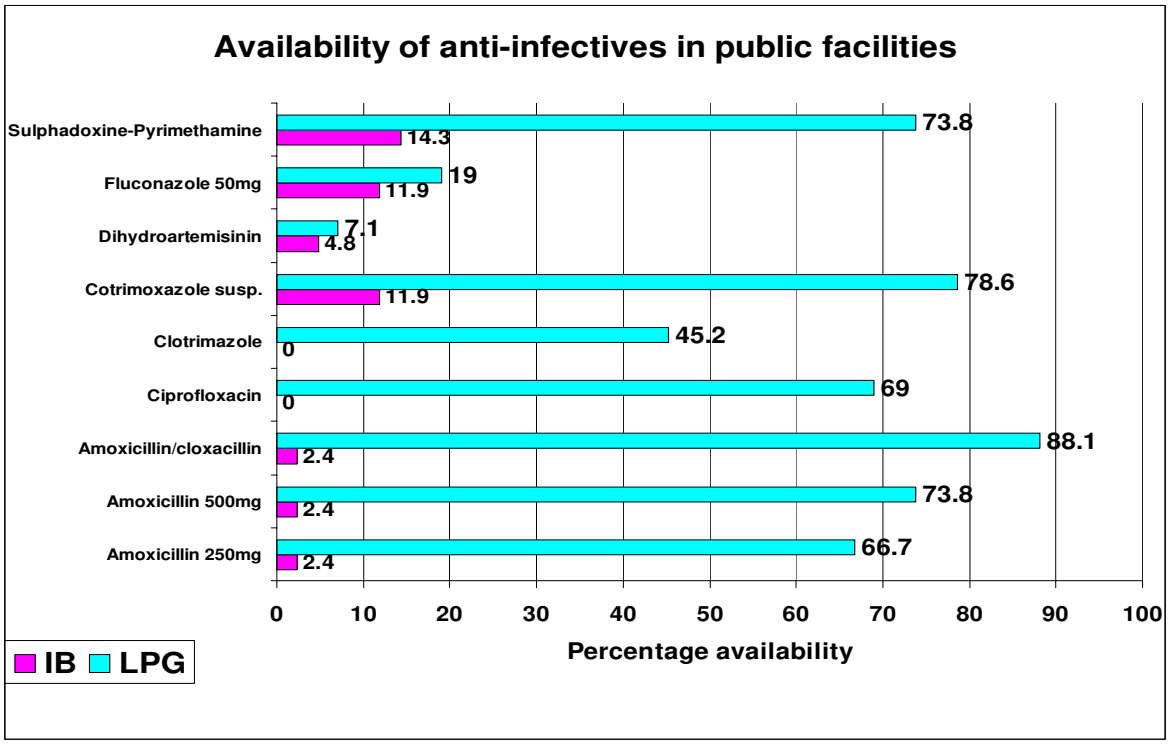
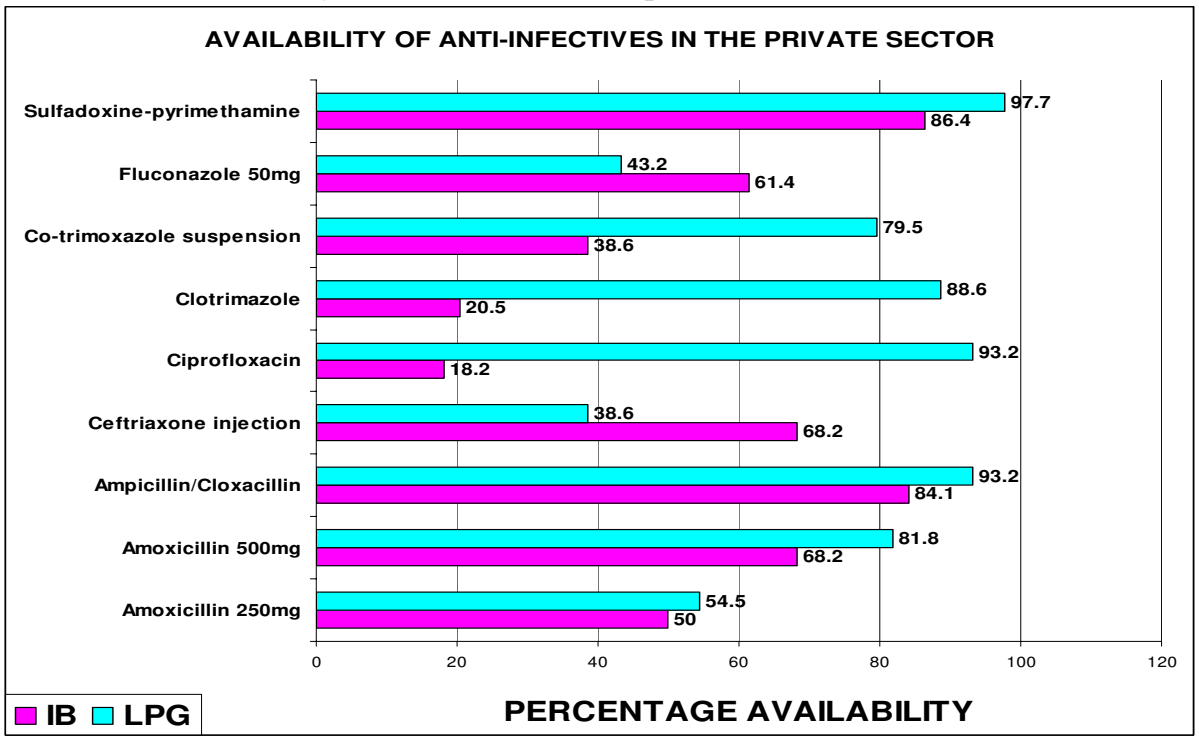


Chart 5 shows that apart from fluconazole and dihydroartemisin the generic equivalents were much more readily available than the IBs. The chart also shows that while the availability of antifungals and artemisinin antimalarial was low, the other antiinfectives showed very high availability.

Chart 6: Availability of anti-infectives in the private sector



Considering chart 6 which shows availability of anti-infectives in private pharmacies, the innovator brands of fluconazole and ceftriaxone were more available than the generic versions of the same medicines. Generally, innovator brands were found in similar proportions as the generic versions except for clotrimazole pessaries, ciprofloxacin tablets, and cotrimoxazole suspension of where the generic versions were predominant. Availability of all anti-infectives was greater in private pharmacies than in public facilities.

Chart 7: Availability of anti-hypertensives and anti-diabetics in public facilities

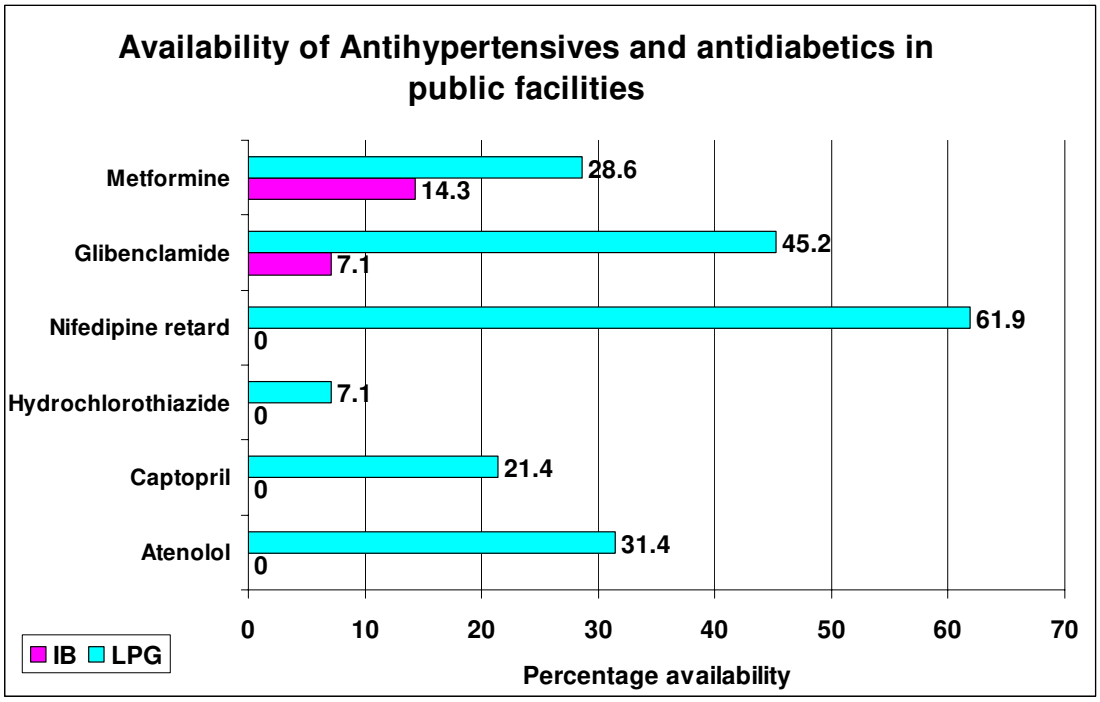
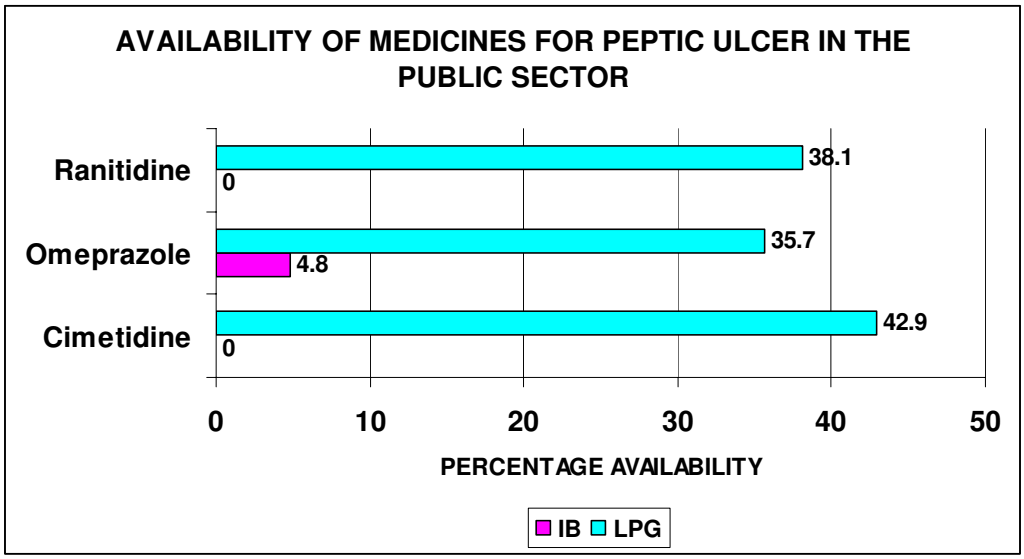
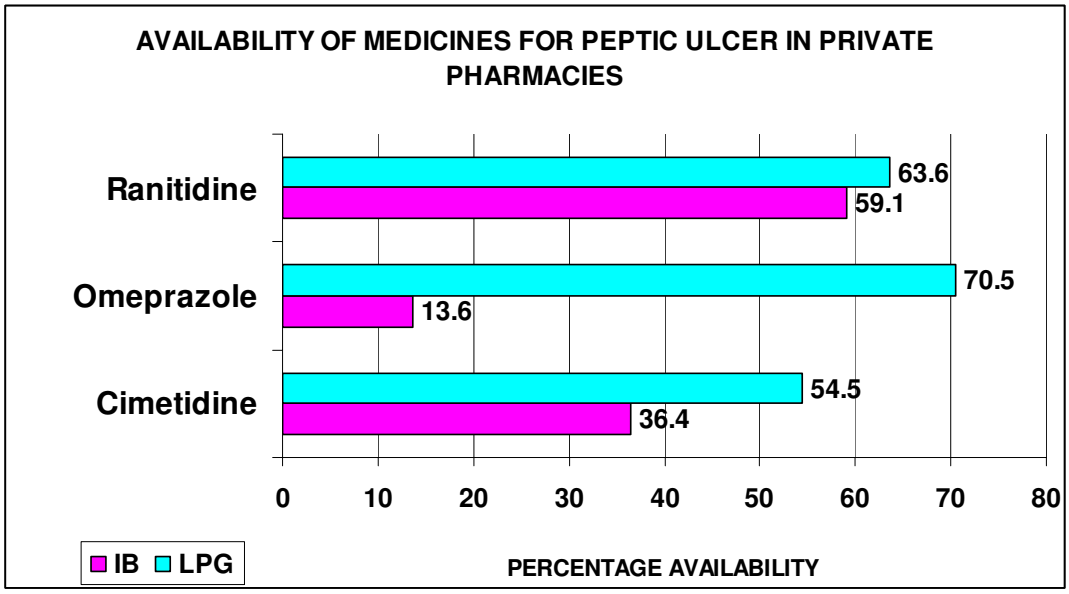


Chart 8: Availability of medicines for peptic ulcer in the public sector



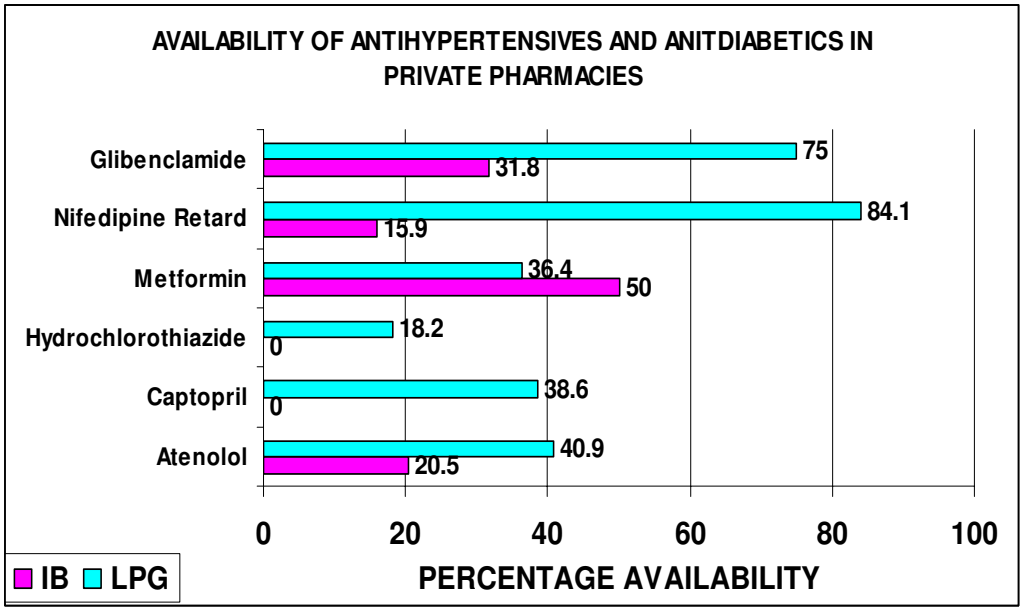
Just like other medicines, generic medicines were more likely to be stocked in the public sector than innovator brands. Availability of this class of medicine was quite low in the public sector as only less than half the facilities stocked them.

Chart 9: Availability of medicines for peptic ulcer in private pharmacies



In private pharmacies, availability of medicines for peptic ulcer was much greater when compared to public facilities. Except for omeprazole, the private pharmacies stocked both innovator brands and the generic versions of ulcer medicines.

Chart 10: Availability of anti-hypertensives and anti-diabetics in private pharmacies



Examining the details of availability in annex 4b the summaries show that innovator brand captopril was not found in any outlet surveyed. Beclomethasone was found only in 3 outlets, fluoxetine in 1 outlet and fluphenazine injections in very few outlets. Only the innovator brands of salbutamol inhaler and ketoprofen were available in the private pharmacies surveyed.

Medicine Affordability

Table 10: Cost of treatment of some conditions

Treatment	Type of medicine	Number of days' wages of lowest paid unskilled government worker		
		Public facilities	Private pharmacies	Private clinics
Diabetes: Glibenclamide 5mg X 2 X 30 days	Innovator brand	-	6.1	
	Most sold generic	4.1	3.9	5.9
	Lowest priced generic	3.3	3.3	4.9
Hypertension: Atenolol 50mg X 1 X 30 days	Innovator brand		10.2	
	Most sold generic	1.3	1.5	
	Lowest priced generic	1.6	1.4	4.4
Gonorrhoea: Ciprofloxacin 500mg X 1 X 1 day	Innovator brand		0.9	
	Most sold generic		0.3	
	Lowest priced generic	0.3	0.2	0.4
Depression: amitriptyline 25mg X 3 X 30 days	Innovator brand			
	Most sold generic			
	Lowest priced generic	1.5	2.2	9.8
Peptic ulcer: Ranitidine 150mg tab X 2 X 30 days	Innovator brand		19.6	
	Most sold generic	6.5	7.4	
	Lowest priced generic	6.5	6.5	18.0

The table shows affordability of treatment of some selected conditions chosen on the basis of therapeutic importance and availability in the three sectors surveyed. To measure affordability, the cost of therapy for important conditions is compared with the daily wage of the lowest paid government worker in the states which is ₦5,500 (naira) per month.

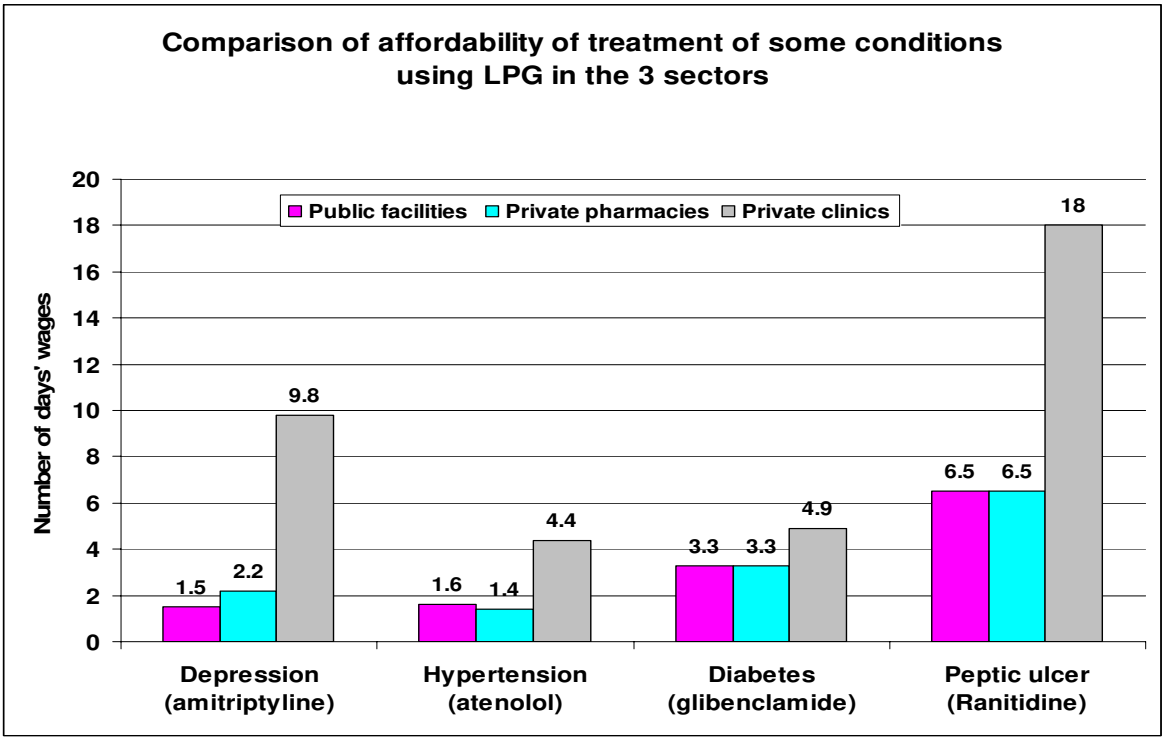
As would be expected, innovator brands are more expensive for all treatments than the most sold generic or the lowest priced generic version. Also, the selected medicines for the specific conditions are less affordable in the private clinics than in both public facilities and private pharmacies. Regardless of the condition being considered, the difference in affordability was minimal between the public facilities and the private pharmacies.

While treatment of gonorrhoea was the most affordable in all the sectors as it takes less than a day's wage to treat (table 10), the treatment of ulcer with ranitidine was the least affordable requiring 19.6 days' wages for the full course of treatment (one month) when purchased from the private pharmacy.

Generic amitriptyline is 6.5 times more affordable in public health facilities than in private health clinics. Treatment with generic atenolol is about 720% less expensive than the innovator brand of the same product for a month's course of therapy. This means that a worker would need to work additional 8.8 days to be able to afford the innovator brand of the same medicine.

AFFORDABILITY OF CHRONIC CONDITIONS

Chart 11: Comparison of affordability of treatment of some conditions using LPG



Affordability of medicines to treat chronic illnesses shows very little difference in both the public health facilities and the private pharmacies while there is a huge difference in affordability in the private health clinics except for glibenclamide. Medicines can be deemed affordable when lowest priced generic equivalents are used to manage chronic conditions for hypertension, depression and diabetes while management of peptic ulcer with ranitidine might pose a challenge to the poorest families due to high cost of the IB and the generic versions.

Table 11: The effect of choice of therapeutic group to treat same diagnosis

Condition	*Choice of medicine*	*Number of days' wages*	*Ratio of cost in comparison with the lowest priced product*
Infection	Amoxicillin	0.6	100%
	Ciprofloxacin	1.5	250%
	Ceftriaxone	21.3	3550%
Hypertension	Atenolol	1.4	100%
	Hydrochlorothiazide	3.3	240%
	Captopril	5.3	380%
Gonorrhoea	Ciprofloxacin	0.2	100%
	Ceftriaxone	1.8	900%
Diabetes	Metformin	2.8	100%
	Glibenclamide	3.3	120%
Peptic ulcer	Ranitidine	6.5	100%
	Omeprazole	25.7	400%

The effect of choice of therapeutic groups within the diagnosis of a condition on the affordability of treatment was measured in Table 11**.**

Prescribing patterns show increased use of third generation cephalosporins to treat infections in both private and public health facilities.[16] We therefore measured the effect of this prescribing habit by comparing the cost of the use of amoxicillin and ceftriaxone using the full course to treat an infection. While a worker would pay 0.6 days' wages to procure a full course of treatment with lowest priced generic amoxicillin from the public sector, he would need 1.5 days' wages using ciprofloxacin and 21.3 days' wages (almost one month's wages) using the lowest priced generic ceftriaxone bought from the same sector. This represents 2.5 (ciprofloxacin) and 35.5 times (ceftriaxone) the cost of using amoxicillin.

While treatment of diabetes with either glibenclamide or metformin is not greatly affected by the choice of medicine, treatment of infection using ceftriaxone is greatly affected as previously demonstrated. Also treatment of gonorrhoea costs 9 times more with ceftriaxone than with ciprofloxacin.

Table 12: The cost of monthly treatment of a hypothetical family with 3 chronic conditions

Condition	Medicine	Number of days' wages	
		Public health facility	Private clinics
Hypertension (adult)	LPG atenolol	6.5	18.0
Peptic ulcer (adult)	LPG ranitidine	3.6	6.0
Asthma (child)	IB salbutamol inhaler[17]	1.4	4.4
Total		**11.5**	**28.4**

Considering a family with chronic conditions shown in Table 12. The family would spend almost two weeks salary if they received their medication from public health facilities and a whole month's salary if they were treated in private clinics.

[16] Personal communications with Prof. Ambrose Isah, Professor of Clinical Pharmacology, University of Benin, Edo State, Nigeria

[17] There is no available generic salbutamol

Cumulative Mark-up

Table 13: Example of a cumulative mark-up by sector

Select Medicine Name 2	Medicine Strength	Dosage Form	Sector	Item	Brand	Most Sold	Lowest Price
Ceftriaxone injection	1 g/vial	gram	Public Procurement	Manufacturer pack price	1970.000	1000.000	630.000
				Manufacturer pack size (# of units)	1	1	1
				Manufacturer unit price (MUP)	1970.0000	1000.0000	630.0000
				Ratio: MUP to reference unit price	5.79	2.94	1.85
				Sector median unit price (SMUP)			
				% mark-up: SMUP over MUP			
			Public Patient Charge	Manufacturer pack price	1970.000	1000.000	630.000
				Manufacturer pack size (# of units)	1	1	1
				Manufacturer unit price (MUP)	1970.0000	1000.0000	630.0000
				Ratio: MUP to reference unit price	5.79	2.94	1.85
				Sector median unit price (SMUP)	2500.0000	1400.0000	1190.0000
				% mark-up: SMUP over MUP	26.9%	40.0%	88.9%
			Private Retail Price	Manufacturer pack price	1970.000	1000.000	630.000
				Manufacturer pack size (# of units)	1	1	1
				Manufacturer unit price (MUP)	1970.0000	1000.0000	630.0000
				Ratio: MUP to reference unit price	5.79	2.94	1.85
				Sector median unit price (SMUP)	2300.0000	1290.0000	1300.0000
				% mark-up: SMUP over MUP	16.8%	29.0%	106.3%
			Other Sector Patient Charge	Manufacturer pack price	1970.000	1000.000	630.000
				Manufacturer pack size (# of units)	1	1	1
				Manufacturer unit price (MUP)	1970.0000	1000.0000	630.0000
				Ratio: MUP to reference unit price	5.79	2.94	1.85
				Sector median unit price (SMUP)	2950.0000		2000.0000
				% mark-up: SMUP over MUP	49.7%		217.5%

The cumulative mark-up analysis shown in table 13 allows the comparison of the sector median unit price, which is the final unit price of the medicine in each sector, with the manufacturer's unit price. This ratio expresses the cumulative mark-up of the medicine between initial purchase from the manufacturer and sale to the patient.

It is assumed that the procurement cost of medicines is the same in all the sectors since procurement is largely facility based. This means that the public and private sector operators would procure their medicines from the same wholesaler.

Results show the following:

- Mark-up is high in all sectors
- Private health clinics have the highest mark-up both for innovator brands and lowest priced generic equivalents.
- Mark-ups in the various sectors increase as the cost of medicine decreases. For example, the mark-up for lowest priced generic equivalents of ceftriaxone is a lot more (106.3%) than the mark-up for innovator brand of the same medicine (16.8) representing 6.2 times the mark-up.

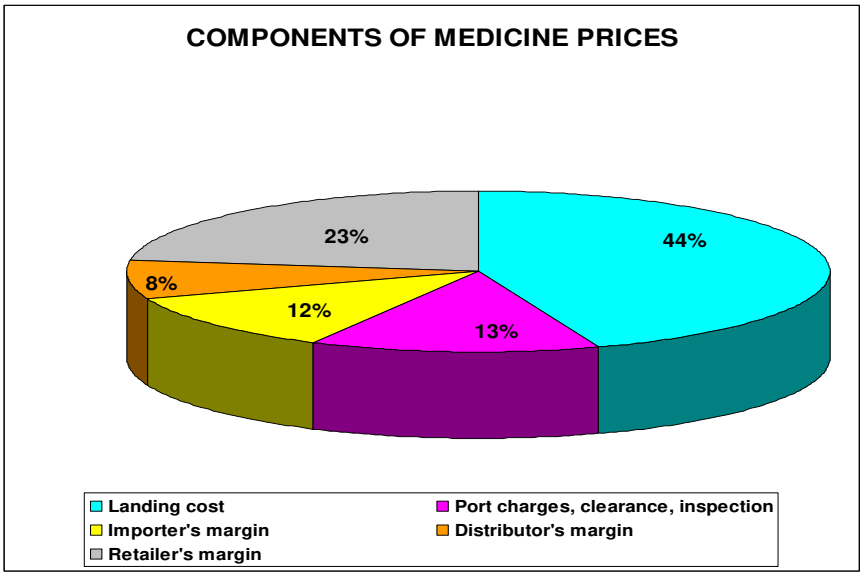
Price Components

Table 14: Example of Price components in the Private sector

Example 1: Medicine Name	Medicine Strength	Dosage Form	Target Pack Size	Dispensed Quantity	Type of Charge	Charge Basis	Amount of Charge	Price of Dispensed Quantity	Cumulative % Mark-up
Co-trimoxazole suspension	8+40 mg/ml	millilitre	70	50	Cost, insurance, freight (CIF) price	NA	NA	51.71	0.00%
					Port charges, clearance, inspection	percent	30%	67.22	30.00%
					Importer's margin	percent	20%	80.67	56.00%
					Distributor's margin	percent	10%	88.73	71.60%
					Retailers' margin	percent	30%	115.35	123.08%

The mark-up-structure was exemplified by analyzing four typical medicines (see annex 4c). Table 14 is one of the examples. The cost of imported medicines usually come as 'the landed cost' and this includes the cost of clearing at the port, as well as the various taxes and tariffs paid to the government. The charges are non discriminatory and the same percentage is charged for all medicines. Table 14 shows that the government taxes and tariffs as well as distribution of medicines cost at least 123% of the landing cost.

Chart 12: Components of medicine prices in all sectors



Analysis of the components of medicine prices using cotrimoxazole as an example shows that the landing cost is less than half of what the patient eventually pays. The rest is spread out over government tariffs and cost of distribution. It is therefore evident that government taxes, tariffs and distribution costs constitute a large chunk of costs that patients pay for medicines as illustrated by the cotrimoxazole pricing structure.

National prices in an International Perspective

Table 15: Comparison of Procurement and Patient prices in all sectors

	Number of countries	25th percentile	75th percentile	median	Nigerian Median	Ratio
Public procurement median MPR LPG	8	0.65	1.16	0.86	4.13	480%
Public sector patient median MPR LPG	6	1.25	2.78	2.11	3.54	168%
NGO procurement median MPR LPG	4	0.79	0.93	0.85	0.65	76%
Private pharmacy patient median MPR LPG	8	3.04	4.41	3.56	5.12	144%
Private pharmacy patient median MPR IB	8	14.35	17.73	16.39	14.63	89%

Public procurement prices in the Nigerian public sector are extremely high – about 5 times the cost in 7 other countries and well above the 75 quartile. On the other hand, NGO prices in Nigeria were less expensive than NGO procurement in three other countries. While public sector procurement in Nigeria was the highest of the eight countries, the Nigerian NGO procurement was the lowest.

The difference in public sector prices to patients was not as pronounced as the procurement prices as they were about one and half times more expensive than the median price in the 8 countries. And just like the procurement prices, patient prices were above the 75% quartile.

The prices patients paid for generic medicines in private pharmacies were similar to public sector prices. Likewise, these prices were higher than the prices in the seven other countries by about the same factor of one and half. However, innovator brand products in private pharmacies were less expensive in Nigeria than in the seven other countries being used in the comparison. Judging from interquartile ranges, the prices of innovator brand products in private pharmacies in Nigeria were less expensive than in only two countries.

Table 16: RATIO OF MEDIAN PRICE RATIOS IN PUBLIC SECTOR AND PRIVATE PHARMACIES

	Median	25th percentile	75th percentile	Nigeria
Ratio public patient: public procurement LPG *	2.04	1.8	2.99	1.24
Ratio private pharmacy patient: public patient LPG*	1.82	1.48	1.91	1.18

The ratio of procurement to patient prices shows that Nigeria incorporates a lower mark-up on the retail prices of medicines than the other countries both in the public health facilities and the private pharmacies.

Chart 13: Comparison of Median Price Ratios of innovator brand medicines in private pharmacies in 8 countries

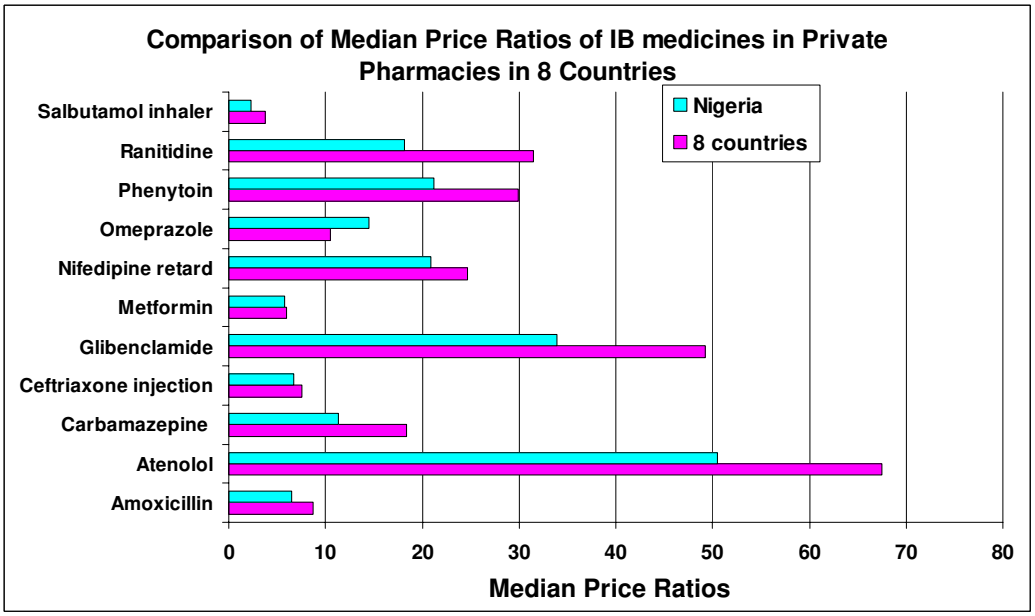
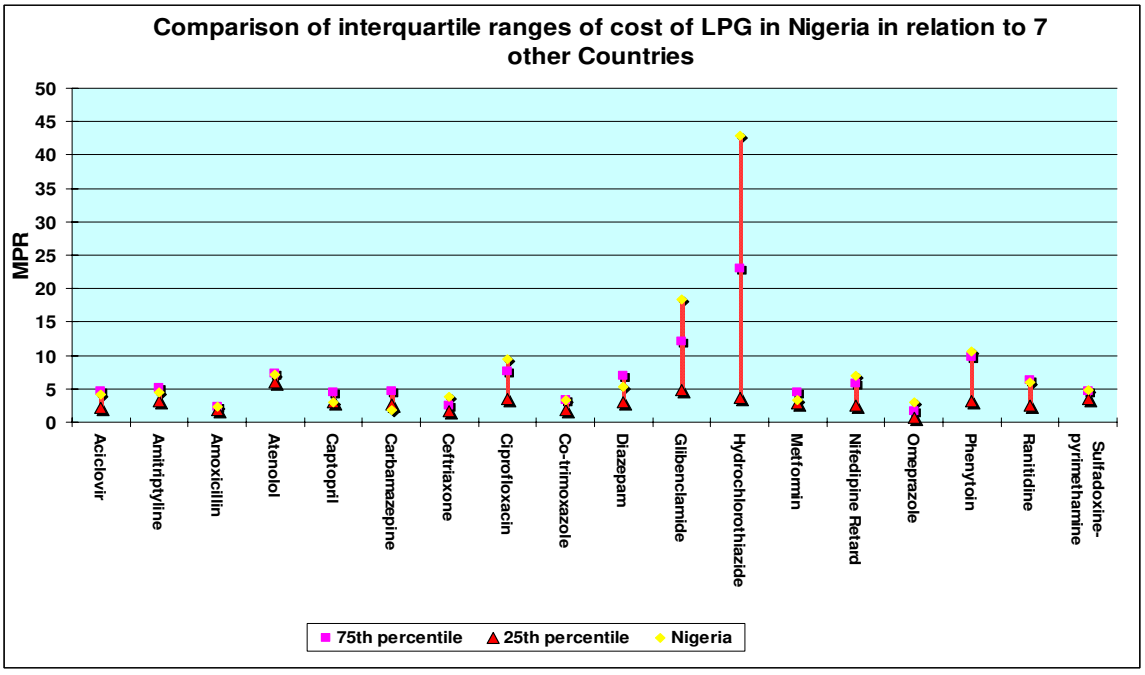


Chart 13 shows that apart from omeprazole and sulphadoxine-pyrimethamine which cost more in Nigeria, all other innovator brand products were less expensive in private pharmacies in Nigeria than in the other seven countries. The price of ranitidine is about half the price that obtains in seven other countries.

Chart 14: Variability of prices of LPG in Nigeria as compared with 7 other countries



Apart from hydrochlorothiazide and glibenclamide, there was very little variability in LPG prices. It is noteworthy that the prices of most generic medicines in Nigeria were above the 75% quartile. In contrast, the majority of innovator brands were priced less expensively in Nigeria than in the other countries under comparison.

Chart15 : Variability of IB medicines in Nigeria as compared with other 7 countries

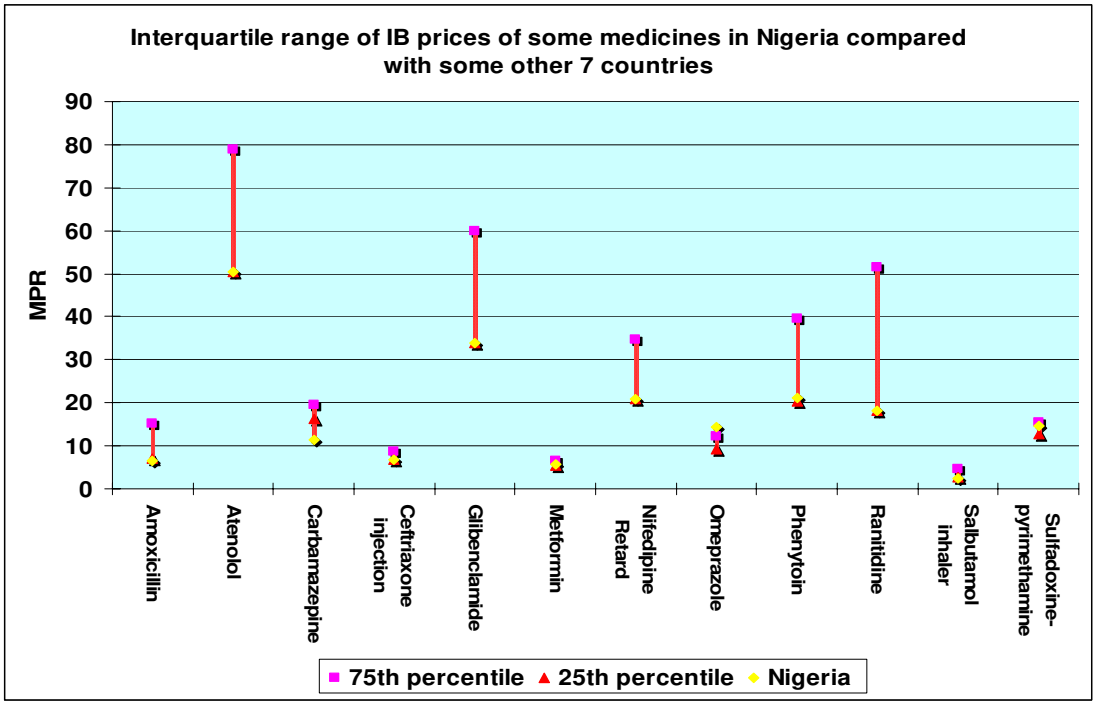


Table 17: AFFORDABILITY -private retail pharmacy- IB

Condition	Medicine	# days lowest paid government worker		Ratio
		Median	Nigeria	
Diabetes	Glibenclamide	7.20	6.1	85%
Hypertension	Atenolol	9.20	10.2	111%
adult respiratory infection	Amoxicillin	1.50	1.7	113%
Asthma	Salbutamol	4.45	3.3	74%
peptic ulcer	Ranitidine	19.60	19.6	100%
peptic ulcer	Omeprazole	44.45	57.7	130%
Malaria	Sulfadoxine-pyrimethamine	0.80	0.8	100%

Table 18: AFFORDABILITY -private retail pharmacy- LPG

Condition	Medicine	# days lowest paid government worker		Ratio
		Median	Nigeria	
Diabetes	Glibenclamide	1.3	3.3	264%
Hypertension	hydrochlorothiazide	0.4	3.3	825%
Hypertension	Atenolol	1.3	1.4	112%
Adult respiratory infection	Amoxicillin	0.4	0.6	150%
Paed. respiratory infection	Cotrimoxazole	0.5	0.6	133%
Gonorrhoea	Ciprofloxacin	0.1	0.2	200%
Depression	Amitriptyline	1.9	2.2	119%
Peptic ulcer	Ranitidine	3.3	6.5	197%
Peptic ulcer	Omeprazole	3.3	12.0	364%
Malaria	Sulfadoxine-pyrimethamine	0.3	0.3	100%

Tables 17 and 18 show that with the exception of sulphadoxine-pyrimethamine where the affordability is the same, all other generic medicines were more affordable in other countries than in Nigeria. The medicines with the greatest disparity in affordability are hydrochlorothiazide, omeprazole, glibenclamide, ciprofloxacin and ranitidine which are 2 to 8 times less affordable in Nigerian retail pharmacies than in other countries. The trend is similar with innovator brand products except that glibenclamide and salbutamol inhaler was more affordable in Nigeria than in the other countries.

DISCUSSIONS:

Pricing

Procurement prices were very high in state medical stores and very low at the NGO procurement facility. High procurement costs at state medical stores is an indication of inefficient procurement at the state stores in contrast to the NGO procurement which compares favorably with international procurement. For example, innovator brand atenolol costs as much as 50 times more than the international prices.

Although price mark-ups in Nigeria, in both the public sector and private pharmacies are lower than in the other seven countries compared, it seems likely that the high prices of medicines must be related to prices fixed by importers and manufacturers. This premise is strengthened by the fact that the NGO facility which has the lowest medicine prices imports its own medicines and is also subject to the payment of taxes and tariffs. On the other hand, the public sector and private pharmacies procure in-country from importers and manufacturers. In addition, the high cost of manufacturing in Nigeria might also be driving up the cost of local production of pharmaceuticals.

A more detailed study of determinants of medicine prices would be necessary in order to pin point the causes of high prices of medicines in Nigeria. Studying the cause of the large variability between prices as well as the gap between the minimum and maximum costs of products would provide an insight to what options to take to improve pricing in the country. Ultimately, a pricing policy which would have the objective of minimizing variability and excessive profit making and improve access to medicines especially for the poor and marginalized populations may need to be developed for the country.

In Nigeria, public sector prices are almost identical to private retail pharmacy prices. This is different from what obtains in most countries where private retail prices are much higher. This may be due to several causes such as the procurement methods and excessive mark-ups in public health facilities. Pooling procurement, using competitive tendering, price information and price negotiations are all well known means of ensuring affordable pricing. However, in most public sector, procurement is decentralized to the facility level making it impossible for the earlier mentioned strategies to be employed.

Another reason may be the fact that most facilities run revolving drug funds (DRF) schemes. The DRF managers run the scheme as a purely profit making venture. They include mark-ups to ensure that funds are not decapitalised and to ensure provision for depreciation due to inflation.

As is expected, generic medicines are more affordable than the innovator brand equivalents. The generic versions were more readily available in all the sectors than the innovator brands. This

shows an acceptance of generic medicines in the country although there is no legislation requiring generic prescribing or substitution.

Nevertheless, in private health clinics, the generic equivalents were priced at twice the cost found in the either the public health facilities or the private pharmacies. This means that although private health clinics mainly procure generic medicines, they do not allow their patients to enjoy the benefits of generic prices. Generic medicines in this sector are priced almost like innovator brands. This shows that generic medicines are not necessarily the lowest priced medicines but are purchased to ensure wider profit margins.

The combination of prescribing and dispensing roles by private health clinics has been shown to result in increased medicine prices. This is confirmed by this survey in which the cost of medicines sold by the private clinics is up to 193% of cost in the public health facilities or in private pharmacies. This survey is likely to have underestimated the real prices of medicines that patients pay. An exit or surrogate patient survey may give a better indication of pricing in that sector. Despite the suspected underestimation of the prices patients pay to dispensing doctors, the cost of medicines in that sector is quite high. Pricing is not usually well defined and depends on such criteria as absence or presence of injection or infusion, number of medicines prescribed, perception of ability to pay, the practice, the type of neighbourhood etc. Thus, pricing is dependent on other factors than the traditional ones usually considered. Further studies may need to be undertaken to understand issues involved in pricing in private clinics.

Availability

The survey showed low availability of the basket of medicines surveyed in both the public and private health clinics. This is consistent with the results of a previous survey carried out in 2002 which shows 46% availability of key medicines[18] in the public sector. The medicines in both baskets of medicines are all part of the Nigerian Essential Drugs List. In-depth studies are needed to determine factors affecting availability of medicines.

It is important to note that salbutamol inhaler was available only as the innovator brand product. Given the scale of medicine counterfeiting in the county and the lifesaving nature in cases of asthma attack, it is possible that only the innovator brands are trusted and used at all levels.

ARVs were not available in the private pharmacies. This is not surprising as most of the sampled facilities were not ART centres which are designated by the government who also procures ARVs. A few of the centres were sampled in the study hence the low availability.

Affordability

Affordability was also calculated in terms of the government worker who earns less than US$1.50 per day. Few Nigerians are government employees earning this minimum wage. Indeed 70.2% of Nigerians earn below US$1.00 per day and the vast majority, 90.8 earn less than 2 US$ per day. While affordability was measured in terms of only a single medicine, it is important to note that this is far from the reality. Studies show that the average number of medicines per prescription in Nigeria is 4.7.[19] Therefore, most conditions are treated with more medicines than calculated by this survey; as the real cost would be an aggregate of the cost of the individual medicines including the equipment used to deliver the medicines. It is also probable that more

[18] Baseline Assessment of the Nigerian Pharmaceutical Sector, 2002, published by the Federal Ministry of Health in collaboration with the World Health Organization.
[19] Baseline Assessment of the Pharmaceutical Sector 2002, published by The Federal Ministry of Health in collaboration with the World Health Organization

than one family member at a time would require medicines. Thus the calculated medicine cost represents a minute fraction of what would actually be paid by a family at any given time. Therefore, most medicines are clearly unaffordable to the majority of Nigerians.

This study shows that the affordability of medicines is greatly dependent on the selection of medicine between the generic version and the innovator brands with the later being less affordable. Choice of facility was also important as there was decrease in cost of medicines in a descending order from the private clinics, through the public health facilities to the private pharmacies. Prescription patterns are also shown to have an effect on affordability of medicines.

Studies show that at least 65% of the populace use the private pharmacies for their health needs. Evenso, medicines are clearly unaffordable to most people especially the poor populations who also spend more than 90% of their income on food. Irrational selection of medicines can have a great impact on affordability.

Efforts to improve affordability should include

- A reduction in the procurement prices of medicines,
- Entrenching the rational use of medicines into the system
- Improving access to public health facilities.

Choice of medicines

For a treatment to be rational, the choice of medicine must be at the cost the patient and his community can afford. The study shows that the selection of medicines is very important in affordability of medicines and hence rational use. While the choice of a pharmacologic group may not be entirely a factor that can be controlled by the physician due to presentation of the disease state, other underlying factors such as age, concurrent diseases, adverse drug effects, drug-drug interaction etc. Nevertheless, it is important that choices must be carefully considered due to the cost implications to the patient. The cost of a medicine may be a barrier to achieving the therapeutic objective of controlling a chronic condition.

Due to various factors to be considered during the short encounter with the patient which may not be available to the prescriber, it is therefore important that standard treatment guidelines (STGs) are available for health workers at all levels of the health care system. STGs take many factors into consideration including cost of medicines which become useful to the prescriber and procurement personnel in making rational selection of medicines.

Price Components and Cumulative mark-up

Mark-ups represent a large proportion of the price the patient pays in Nigeria. Mark-ups vary from medicine to medicine and from sector to sector showing a tendency for increased mark-up as the medicines become cheaper. Interviews indicate a theoretical margin of 20% for the importer, 10% for the distributor and 30% for the retailer but our analysis shows that mark-ups are not constant but can be as low as 10% and as high as 900%. Thus prices are set considering some undetermined factors. An in-depth study on determinants of medicine prices would provide an insight to the pricing structure and help in formulating appropriate policies to improve prices patients pay.

Distribution costs have been shown to considerably increase prices and as the number of middle men increase, the cost of medicines increase. By reducing the number of middle men in procurement, public facilities can make a lot of savings and provide affordable medicines to

patients through direct procurement from manufacturers with appropriate price negotiations or competition.

The pharmaceutical sector in Nigeria like in other countries is a rather complex one with most of the actors (public health facilities, private pharmacies, private clinics, manufacturers, importers, distributors and wholesalers) have vested interest of maximising profits either for the organisation or for self which usually limits access to medicines. It is for this reason that price regulation is important with pharmaceuticals as well as other changes that will cause an improvement in the access of medicines. But as we know, change will certainly elicit both support and opposition from various stakeholders. Therefore it is important to carefully analyse the situation with further in-depth situation and stakeholder analysis and consultation before policy options are pursued. With this approach, the principal causes are unearthed and the options that would ensure definite changes are identified and implemented.

International comparison

Comparing prices in Nigeria with other countries has confirmed the high prices which are available in Nigeria. Additional insight gained with international comparisons indicates that while procurement prices were extremely high in Nigeria, mark-up seems to be quite low. It seems that importers and/or manufacturers of medicines take advantage of low cost of generics to make excessive profits from them. Thus, interventions into procurement may make a real difference in the cost of medicines in Nigeria.

Limitations of the survey

Despite the low availability of medicines in this study, the minimum requirement of four medicines to be included in the analysis was reached for a good number of medicines surveyed. Therefore, the accuracy of the conclusions may not be affected to a great extent in addition to the fact that price variations are not so large when medicine prices are considered. However, there are other limitations which should be taken into account in future studies. Such limitations include the quality of medicines considering the extent of medicine counterfeiting in Nigeria, the country of origin of innovator brands of products and the size of packaging.

CONCLUSIONS

The following conclusions have been reached.

Procurement Prices

- Procurement in the public sector in Nigeria is far from being efficient as procurement prices are several times higher than international reference prices and procurement prices in other developing countries in Africa.
- The role of importers in the high cost of medicines needs to be further considered and investigated

Patient Prices

- The prices patients pay in the public sector are so high that there is little or no difference between prices in the public health facilities and private pharmacies. Dispensing doctors in private clinics consistently charge many times the prices patients pay in public health facilities and private pharmacies.
- Prices of innovator brands are considerably higher than their generic equivalents in all sectors. Prices of generic medicines vary widely between facilities and sectors. Indeed, generics are priced like innovator brands especially in private health clinics.

Component of Medicine Prices

- Local factors contribute in no small measure to the cost of medicines in Nigeria. The current multiple taxations regimes, levies and mark-ups on medicines are substantial and contribute to the high prices of medicines. Poor infrastructure development especially of power generation makes the cost of locally produced medicines high.

Medicine Availability

- Availability of medicines in the country is generally low in all sectors but this is more accentuated in both the public and private health care clinics. Generic medicines have been accepted in the country as they are more available than innovator brands in all sectors.

RECOMMENDATIONS

Policy issues

- There may be need to incorporate medicine pricing as part of requirements before marketing authorisation is issued by the medicine regulatory authority.
- There is need to review procurement policy of the country. Considering the size and complexity of Nigeria, it will be rational to conduct further studies on the best procurement method that would be effective for the country taking into consideration methods that have worked in similar developing countries. Policy options include:
    - Establishment of autonomous or semi-autonomous procurement agency
    - Competitive tendering with price transparency
    - Pooled procurement with national buyers
    - The provision of incentives and capacity building in rational procurement
    - Parallel importation of single source products and price negotiations
    - Price information
- A generic medicine policy needs to be institutionalised in the country to encourage the selection, procurement, promotion, prescribing and dispensing of generic medicines. As such, acceptance of generic products by professionals and patients needs to be promoted. Quality assurance mechanisms such as prequalification of generic manufacturers may be instituted to provide confidence in generic products
- To reduce variability in prices and make them more affordable to patients, a pricing policy needs to be developed for the country.
- The government should make concerted efforts in order to improve infrastructure such as power and water generation to reduce high manufacturers' prices.
- The burden of taxation on the pharmaceutical sector should be reviewed. Multiple taxation by local, state and federal governments as well as high tariffs on raw materials, packaging materials and other ancillary materials used for manufacturing of medicines should be reduced. Essential medicines for priority diseases should be defined and exempted from all forms of taxation.
- The reviewed National Drug Policy has already incorporated many of the recommendations to reduce the cost of medicines such as the development of a pricing policy, generic prescribing and substitution policy, encouraging of local manufacturing by reducing taxes, tariffs etc. The challenge is the effective and coordinated implementation of this policy in order to derive the benefits for improvement of the health of the Nigerian populace through the attainment of the Millennium Development Goals (MDGs).

Selection of medicines

- Since selection of medicines is key to affordability and can be a major hindrance to access to medicines, a standard treatment guideline needs to be developed for the country to guide rational selection of cost effective medicines.

Further research

- Since the pharmaceutical sector especially in Nigeria is complex and have various actors who have benefited from its disorganised nature for decades, it is important to carefully analyse situations before solutions are proffered. Therefore further studies need to be undertaken to ascertain the following:
    - Actual prices patients pay using exit interview or household surveys in order to measure any discrepancies in the prices recorded from dispensers with actual prices patients pay
    - Determinants of prices of medicines in all sectors
    - In-depth studies to ascertain the reasons for poor availability of medicines in the country
    - Comprehensive stakeholder analysis to determine acceptable and workable policy interventions in the country.

ANNEXES

1. National Pharmaceutical Sector Form (from Medicines Prices Survey)
2. List of medicines surveyed (Product table)
3. Pre-survey determination of innovator brand and most sold generic medicines for core and supplementary lists
4. Analysis of summary sheets
    - Annex 4a. Public sector procurement
    - Annex 4b. Private (not-for-profit) NGO procurement
    - Annex 4c: Cumulative mark-up and price composition sheets
    - Annex 4d. Patient prices in Public sector facilities
    - Annex 4e: Patient prices in Private sector pharmacies
    - Annex 4f: Private Clinics (other sector)
    - Annex 4g: Sector availability and price summary
    - Annex 4h: Medicines availability and price summary
    - Annex 4i: Affordability summary

5. List of medicines on the National Essential Medicines List
6. List of facilities and outlets sampled
7. Timetable of survey
8. Medicines data collection form

Annex 1: Completed National Pharmaceutical Sector Form

Country: **NIGERIA**

Date: **15 JULY 2004**

Population: **116,928,000**

Rate of exchange (commercial "buy" rate) to US dollars on the first day of data collection: **1 USD = 133 NAIRA**

Sources of information: **WORLD HEALTH REPORT, NATIONAL DAILIES, FMOH, NAFDAC**

General information on the pharmaceutical sector

Is there a formal National Medicines Policy document covering both the public and private sectors? θ Yes θ **No**

Is an Essential Medicines List (EML) available? θ **Yes** θ No

If yes, state total number of medicines on national EML: **384**

If yes, year of last revision: **2003**

If yes, is it (tick 3all that apply):

- θ National
- θ Regional
- θ Public sector only
- θ Both public and private sectors
- θ Other (please specify):

If yes, is the EML being used (tick 3all that apply):

- θ For registration of medicines nationally
- θ Public sector procurement only
- θ Insurance and/or reimbursement schemes
- θ Private sector
- θ Public sector

Is there a policy for generic prescribing or substitution? θ Yes θ No

Are there incentives for generic prescribing or substitution? θ Yes θ No

Public procurement[20]

Is procurement in the public sector limited to a selection of

20 If there is a public procurement system, there is usually a limited list of items that can be procured. Products procured on international tenders are sometimes registered in the recipient country only by generic names. Import permits to named suppliers are issued based on the approved list of tender awards. An open tender is one that is publicly announced; a closed one is sent to a selection of approved suppliers.

essential medicines? θ **Yes** θ No

If no, please specify if any other limitation is in force:
Type of public sector procurement (tick 3all that apply):

- θ International, competitive tender
  - θ Open
  - θ Closed (restricted)
- θ National, competitive tender
  - θ Open
  - θ Closed (restricted)
  - **θ Negotiation/direct purchasing**

Are the products purchased all registered? θ **Yes** θ No
Is there a local preference?[21] θ Yes θ No
Are there public health programmes fully implemented by donor assistance which also provide medicines? (e.g. TB, family planning, etc.) θ **Yes** θ No

If yes, please specify: **TB, Family planning, ARVs, Onchocerciasis, Guinea worm eradication program,**

Distribution[22]

Is there a public sector distribution centre/warehouse? θ **Yes** θ No

If yes, specify levels:
Are there private not-for-profit distribution centres: θ **Yes** θ No
e.g. missions/nongovernmental organizations?

If yes, please specify: **Mostly for distribution of TB drugs**
Number of licensed wholesalers:

Retail

	Urban	**Rural**	**Overall**
Number of inhabitants per pharmacy (approx.)			
Number of inhabitants per qualified pharmacist (approx.)			
Number of pharmacies with qualified pharmacists			
Number of medicine outlets with pharmacy technician			
Number of other licensed medicine outlets			

Private sector[23]

21 A local preference means that local companies will be preferred even if their prices are not the cheapest. Local preference is normally in the range of 10–20%

22 The public sector often has a central storage and distribution centre which may have at least one sublevel. The private not-for-profit sector may be dominated by one type of NGO (e.g. church missions), but may also comprise others such as Bamako Initiative type projects, Red Cross or Red Crescent Society, Médecins Sans Frontières.

23 Retail outlets may be called pharmacies, medicine outlets, drug stores, chemists, etc. They may be run/owned by a qualified pharmacist (with diploma) or another category: e.g. pharmacy technician, or a lay person with short training.

Are there independent pharmacies? θ **Yes** θ No Number:
Are there chain pharmacies? θ Yes θ **No** Number:
Do doctors dispense medicines?[24] **θ Yes** θ No

If yes, approximate coverage or % of doctors who dispense: **80% (PRIVATE SECTOR DOCTORS)**

Are there pharmacies or medicine outlets in health facilities? θ **Yes** θ No

Financing

(Give approximate figures, converted to US dollars at current exchange rate: commercial "buy" rate on the first day of data collection)

Type of expenditure	**Approximate annual budget (US dollars)**
National public expenditure on medicines including government insurance, military, local purchases in past year	**UNKNOWN**
Estimated total private medicine expenditure in past year (out of pocket, private insurance, NGO/mission)	**UNKNOWN**
Total value of international medicine aid or donations in past year	**UNKNOWN**

What percentage of medicines by value are imported? **% UNKNOWN**

Government price policy

Is there a medicines regulatory authority? θ **Yes** θ No
Is pricing regulated? θ Yes θ **No**
Is setting prices part of market authorization/registration? θ Yes **θ No**
Do registration fees differ between:

- Innovator brand and generic equivalents θ Yes θ **No**
- Imported and locally produced medicines θ **Yes** θ No

Public sector

Are there margins (mark-ups) in the distribution chain? θ Yes θ **No**

- Central medical stores %
- Regional store %
- Other store (specify) %
- Public medicine outlet %

Are there any other fees or levies? θ Yes θ **No**

If yes, please describe:

Private retail sector

Are there maximum profit margins? θ Yes **θ No**

24 Many countries allow doctors to dispense and sell medicines.

If yes (if they vary, give maximum and minimum):

- Wholesale %
- Retail %

Is there a maximum retail price (sales price)? θ Yes **θ No**
(If it varies, give maximum and minimum)

- Maximum:
- Minimum:

Do patients pay professional fees (e.g. dispensing fee)? θ Yes **θ No**

If yes, please describe:

"Other" sector

Are there maximum profit margins? θ Yes θ No
If yes (if they vary, give maximum and minimum):
Wholesale %
Retail %
Is there a maximum sales price? θ Yes V No

Insurance, risk-sharing or prepayment schemes

Are there any health insurance, risk-sharing or prepayment schemes or revolving medicine funds? θ **Yes** θ No

If yes, please describe: universal compulsory but not yet functional

Are all medicines covered? θ Yes θ No

If no, state which medicines are covered (e.g. EML, public health programmes):

Not yet defined

Are some patients / groups of patients exempted, regardless of insurance coverage? (e.g. children < X yrs, war veterans) θ Yes θ No

If yes, please specify: Not yet defined

Estimated percentage of population covered unknown %

Is it official policy to supply all medicines free at primary health care level? θ Yes θ **No**

If no, are some free? **θ Yes** θ No

If yes, tick 3 all that apply:

- θ **Tuberculosis**
- θ **Malaria** (in some states)
- θ Oral rehydration salts
- θ **Family planning**
- θ Others, please specify:

Are there official user charges/patient co-payments/fees? θ Yes θ **No**
Are all medicines supplied free at hospitals? θ Yes **θ No**

If no, are some free? θ **Yes** θ No

If yes, please specify:

Annex 2: List of medicines surveyed (Product table)

	CORE LIST					"Innovator" Product			Most Sold Generic Version (Nat'l)		
Med. No.	Medicine Name	Medicine Strength	Dosage Form	Target Pack Size	Core List (yes/no)	Name	Manufacturer	Country of Production	Name	Manufacturer	Country of Production
1.	Aciclovir	200 mg	Tab	25	Yes	Zovirax	GSK	ENGLAND	Virest	Hovid	MALAYSIA
2.	Amitriptyline	25 mg	Tab	100	Yes	Tryptizol	MSD	UK	Amitryptyline	APS	ENGLAND
3.	Amoxicillin	250 mg	Caps	21	Yes	Amoxil	SKB (GSK)	INDIA	Reichamox	Medreich	ENGLAND
4.	[25]Artesunate	100 mg	Tab	20*	Yes	Arsumax	Sanofi	FRANCE	Artesunate	Meko pharm/	VIETNAM
5.	Atenolol	50 mg	Tab	60	Yes	Tenormin	AstraZeneca	UK	Atenolol	Alpharma	UK
6.	Beclometasone	50 mcg/ dose	Inhaler	1 inhaler: 200 doses	Yes	Becotide	GSK	ENGLAND	Beclofort	Glaxo Wellcome	ENGLAND
7.	Captopril	25 mg	Tab	60	Yes	Capoten	BMS	UK	Captopril	APS	UK
8.	Carbamazepine	200 mg	Tab	100	Yes	Tegretol	Novartis	SWITZERLAND	Carzepin	Hovid	MALAYSIA
9.	Ceftriaxone	1 g	Inj powder	1 vial	Yes	Rocephin	Roche/Swipha	SWITZERLAND	Powecef	Wockhardt	INDIA
10.	Ciprofloxacin	500 mg	Tab	1	Yes	Ciproxin	Bayer	GERMANY	Ciprotab	Fidson	INDIA
11.	Co-trimoxazole	(8+40) mg/mL	Paediatric suspension	100 mL	Yes	Bactrim	Roche/Swipha	NIGERIA	Primpex	SKG	NIGERIA
12.	Diazepam	5 mg	Tab	100	Yes	Valium	Roche/Swipha	NIGERIA	Diazepam	Vitabiotics	NIGERIA
13.	Fluconazole	200 mg	caps/tab	30	No	Diflucan	Pfizer	FRANCE	Fluzoral	GPO, Bangkok	THAILAND
14.	Fluoxetine	20 mg	caps/tab	30	No	Prozac	Lilly	SPAIN	Fluoxetine	Ranbaxy	INDIA
15.	Fluphenazine decanoate	25 mg/Ml	Inj	1 ampoule	No	Modecate	Sanofi-Winthrop/ BMS	FRANCE	Monasan	Duopharm	
16.	Glibenclamide	5 mg	Tab	60	Yes	Daonil	HMR/Aventis	SOUTH AFRICA	Glanil	NGC	NIGERIA
17.	Hydrochlorothiazide	25 mg	Tab	30	Yes	Dichlotride	MSD	UK	Esidrex	Novartis	FRANCE
18.	Indinavir	400 mg	Caps	180	Yes	Crixivan	MSD	UK			
19.	Metformin	500 mg	Tab	100	Yes	Glucophage	Merck	UNITED KINGDOM	Diabetmin	Hovid	MALAYSIA
20.	Nevirapine	200 mg	Tab	60	Yes	Viramune	Boehringer I	GERMANY			
21.	Nifedipine Retard	20 mg	Tab	100	Yes	Adalat Retard	Bayer	GERMANY	Nifecard Retard	Lek	SLOVENIA
22.	Omeprazole	20 mg	Caps	30	Yes	Losec	AstraZeneca	SWEDEN	Meprasil	Fidson	NIGERIA
23.	Phenytoin	100 mg	caps/tab	100	Yes	Epanutin	Pfizer	RUSSIA	Epitoin	Hovid	MALAYSIA
24.	Pyrimethamine with	(25+500) mg	Tab	3	Yes	Fansidar	Roche/Swipha	NIGERIA	Amalar	Brown & Bulk	INDIA

[25] Based on treatment of malaria in an adult around 70 kg with artesunate as single treatment: 4 mg/ kg for 7 days (WHO Model Formulary, 2002)

	CORE LIST					"Innovator" Product			Most Sold Generic Version (Nat'l)		
	sulfadoxine										
25.	Ranitidine	150 mg	Tab	60	Yes	Zantac	GSK	EGYPT	Peptard	Neimeth	NIGERIA
26.	Salbutamol	0.1 mg per dose	Inhaler	1 inhaler: 200 doses	Yes	Ventolin	GSK	FRANCE			
27.	Zidovudine	100 mg	Caps	100	Yes	Retrovir	GSK	ENGLAND			

Supplementary List						"Innovator" Product			Most Sold Generic Version (Nat'l)		
Med. No.	**Medicine Name**	**Medicine Strength**	**Dosage Form**	**Target Pack Size**	**Core List (yes/no)**	**Name**	**Manufacturer**	**Country of Production**	**Name**	**Manufacturer**	**Country of Production**
1.	Amoxycillin	500mg	Cap	100	No	Amoxil	Beecham/SKG	India	Reichamox	Medriech	India
2.	Ampicillin/Cloxacillin	500mg	Cap	100	No	Ampiclox	Beecham/SKG	India	Reichlox	Medreich	India
3.	Cimetidine	200mg	Tab	100	No	Tagamet	SKF Int	England	Altramet	Taylek	Slovenia
4.	Clotrimazole	1%	Pessary	20g	No	Canesten	Bayer	UK	Sabresten	Gemini	Nigeria
5.	Diclofenac sodium	100mg	Tab	100	No	Voltarol	Novartis	Switzerland	Abitren	Teva	Israel
6.	Dihydroartemisin	60mg	Tab	8	No	Cotecxin	CHINA PHARM (Cotec)	China	Alaxin	GVS Labs	India
7.	Fluconazole	50mg	Tab	3	Yes	Diflucan	Pfizer	France	Flucamed	Drugfield	Nigeria
8.	Ketoprofen	150mg	Tab	7	No	Oruvail	M & B	France	Ketoprofen	Teylek	Slovenia

Annex 3: Pre-survey determination of Core and Supplementary lists

Annex 3a: Determination of innovator brand and most sold generic equivalents in the Core list

A	B	C	D	E	F	G	I
Generic name, dosage form, strength	Brand name(s)	Manufacturer	Brand name found	Manufacturer	Pack size recommended	Price of pack found	Comments
Aciclovir tab 200 mg	Zovirax	GSK			25		
Most sold generic equivalent					25		
Next most sold generic equivalent					25		
Amitriptyline tab 25 mg	Tryptizol	MSD			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Amoxicillin caps/tab 250 mg	Amoxil	SKB (GSK)			21		
Most sold generic equivalent					21		
Next most sold generic equivalent					21		
Artesunate tab 100 mg	Arsumax	Sanofi			20*		
Most sold generic equivalent					20*		
Next most sold generic equivalent					20*		
Atenolol tab 50 mg	Tenormin	AstraZeneca			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Beclometasone inhaler 50 mcg/ dose	Becotide	GSK			1 inhaler: 200 doses		
Most sold generic equivalent					1 inhaler: 200 doses		
Next most sold generic equivalent					1 inhaler: 200 doses		
Captopril tab 25 mg	Capoten	BMS			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Carbamazepine tab 200 mg	Tegretol	Novartis			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Ceftriaxone inj 1 g powder	Rocephin	Roche			1 vial		
Most sold generic equivalent					1 vial		
Next most sold generic equivalent					1 vial		
Ciprofloxacin tab 500 mg	Ciproxin	Bayer			1		

A	B	C	D	E	F	G	I
Generic name, dosage form, strength	Brand name(s)	Manufacturer	Brand name found	Manufacturer	Pack size recommended	Price of pack found	Comments
Most sold generic equivalent					1		
Next most sold generic equivalent					1		
Co-trimoxazole paed suspension (8+40) mg/Ml	Bactrim	Roche			100 mL		
Most sold generic equivalent					100 mL		
Next most sold generic equivalent					100 mL		
Diazepam tab 5 mg	Valium	Roche			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Diclofenac tab 25 mg	Voltarol	Novartis			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Fluconazole caps/tab 200 mg	Diflucan	Pfizer			30		
Most sold generic equivalent					30		
Next most sold generic equivalent					30		
Fluoxetine caps/tab 20 mg	Prozac	Lilly			30		
Most sold generic equivalent					30		
Next most sold generic equivalent					30		
Fluphenazine decanoate inj 25 mg/mL	Modecate	Sanofi-Winthrop/ BMS			1 ampoule		
Most sold generic equivalent					1 ampoule		
Next most sold generic equivalent					1 ampoule		
Glibenclamide tab 5 mg	Daonil	HMR			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Hydrochlorothiazide tab 25 mg	Dichlotride	MSD			30		
Most sold generic equivalent					30		
Next most sold generic equivalent					30		
Indinavir caps 400 mg	Crixivan	MSD			180		
Most sold generic equivalent					180		
Next most sold generic equivalent					180		
Losartan tab 50 mg	Cozaar	MSD			30		
Most sold generic equivalent					30		

A	B	C	D	E	F	G	I
Generic name, dosage form, strength	Brand name(s)	Manufacturer	Brand name found	Manufacturer	Pack size recommended	Price of pack found	Comments
Next most sold generic equivalent					30		
Lovastatin tab 20 mg	Mevacor	MSD			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Metformin tab 500 mg	Glucophage	Merck			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Nevirapine tab 200 mg	Viramune	Boehringer I			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Nifedipine Retard tab 20 mg	Adalat Retard	Bayer			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Omeprazole caps 20 mg	Losec	AstraZeneca			30		
Most sold generic equivalent					30		
Next most sold generic equivalent					30		
Phenytoin caps/tab 100 mg	Epanutin	Pfizer			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		
Pyrimethamine with sulfadoxine tab (25+500) mg	Fansidar	Roche			3		
Most sold generic equivalent					3		
Next most sold generic equivalent					3		
Ranitidine tab 150 mg	Zantac	GSK			60		
Most sold generic equivalent					60		
Next most sold generic equivalent					60		
Salbutamol inhaler 0.1 mg per dose	Ventoline	GSK			1 inhaler: 200 doses		
Most sold generic equivalent					1 inhaler: 200 doses		
Next most sold generic equivalent					1 inhaler: 200 doses		
Zidovudine caps 100 mg	Retrovir	GSK			100		
Most sold generic equivalent					100		
Next most sold generic equivalent					100		

* Based on treatment of malaria in an adult around 70 kg with artesunate as single treatment: 4 mg/kg for 7 days (WHO Model Formulary, 2002)

Annex 3b: DETERMINATION OF SUPPLEMENTARY LIST

Condition	Selection of medicines from EDL	Rank in terms of sales	Brand name of the 3 most sold	Manufacturer
Major tranquilizers	Fluoxetine			
	Lithium carbonate			
	Chlorpromazine			
	Flupenthixol			
	Fluphenazine			
	Haloperidol			
Anti-hypertensives				
	Co-amilozide			
	Amlodipine			
	Atenolol			
	Captopril			
	Hydralazine			
	Methyldopa			
	Nifedipine			
	Prazosin plus Polythiazide			
	Reserpine plus Dihydroergocristine plus Clopamide			
Diuretics				
	Amiloride plus Hydrochlorothiazide (coamilozide)			
	Bendrofluazide			
	Frusemide			
	Hydrochlorothiazide			
	Spironolactone			
Type 2 anti-diabetic drugs				
	Glibenclamide			
	Metformin			
	Chlorpropamide			
Peptic ulcer drugs				
	Cimetidine			

Condition	Selection of medicines from EDL	Rank in terms of sales	Brand name of the 3 most sold	Manufacturer
	Ranitidine			
	Omeprazole			
NSAIDS	Diclofenac			
	Ibuprofen			
	Indomethacin			
	Ketoprofen			
ANTICONVULSANTS				
	Carbamazepine			
	Clonazepam			
	Diazepam			
	Ethosuximide			
	Magnesium sulphate			
	Paraldehyde			
	Phenobarbitone			
	Phenytoin sodium			
	Sodium valproate			

Annex 4: Analysis summary sheets

Annex 4a. Public sector procurement

Medicines Procurements (n= 3 in survey)

Includes Both Core and Non-Core Medicines (n=34 on list)

	Analysis Includes All Meds. With 1+ Procurement Prices			Analysis Includes Only Meds. With 1+ Procurement Prices for Both Types in Pair					
	Brand	Most Sold	Lowest Price	Brand	Most Sold	Brand	Lowest Price	Most Sold	Lowest Price
Number of Medicines For Which 1+ Procurement Prices Were Found									
No. of meds. included	3	5	18	2	2	3	3	5	5
Summary of Medicine-specific Median Price Ratios (MPRs) For Meds. With 1+ Procurement Prices									
Median MPR	4.01	5.28	3.29	14.70	6.01	4.01	4.53	5.28	4.53
25 %ile MPR	2.52	4.08	1.91	7.86	5.65	2.52	2.64	4.08	1.93
75 %ile MPR	16.19	6.21	5.96	21.54	6.37	16.19	5.81	6.21	6.21
Minimum MPR	1.03	1.51	0.76	1.03	5.28	1.03	0.76	1.51	1.51
Maximum MPR	28.37	6.74	19.18	28.37	6.74	28.37	7.09	6.74	7.09

Reference Price Data Used = MSH

Annex 4b. PRIVATE (NOT FOR PROFIT) NGO PROCUREMENT

Medicines Procurements (n= 1 in survey)

Includes Both Core and Non-Core Medicines (n=34 on list)

	Analysis Includes All Meds. With 1+ Procurement Prices			Analysis Includes Only Meds. With 1+ Procurement Prices for Both Types in Pair					
	Brand	Most Sold	Lowest Price	Brand	Most Sold	Brand	Lowest Price	Most Sold	Lowest Price
Number of Medicines For Which 1+ Procurement Prices Were Found									
No. of meds. included	0	0	9	0	0	0	0	0	0
Summary of Medicine-specific Median Price Ratios (MPRs) For Meds. With 1+ Procurement Prices									
Median MPR			0.65						
25 %ile MPR			0.52						
75 %ile MPR			0.68						
Minimum MPR			0.01						
Maximum MPR			1.02						

Reference Price Data Used = MSH

Annex 4c: Cumulative mark-up and price composition sheets

Price Composition: Cumulative Mark-ups

Reference Price Data Used = MSH 2003

Select Medicine Name 3	Medicine Strength	Dosage Form	Sector	Item	Brand	Most Sold	Lowest Price
Diazepam	5 mg	cap/tab	Public Procurement	Manufacturer pack price	110.000		500.000
				Manufacturer pack size (# of units)	12		1000
				Manufacturer unit price (MUP)	9.1667		0.5000
				Ratio: MUP to reference unit price	19.69		1.07
				Sector median unit price (SMUP)			0.8000
				% mark-up: SMUP over MUP			60.0%
			Public facilities Patient Charge	Manufacturer pack price	110.000		500.000
				Manufacturer pack size (# of units)	12		1000
				Manufacturer unit price (MUP)	9.1667		0.5000
				Ratio: MUP to reference unit price	19.69		1.07
				Sector median unit price (SMUP)	10.0000		1.5000
				% mark-up: SMUP over MUP	9.1%		200.0%
			Private pharmacies retail Price	Manufacturer pack price	110.000		500.000
				Manufacturer pack size (# of units)	12		1000
				Manufacturer unit price (MUP)	9.1667		0.5000
				Ratio: MUP to reference unit price	19.69		1.07
				Sector median unit price (SMUP)	13.3333		2.5000
				% mark-up: SMUP over MUP	45.5%		400.0%
			Private clinics Patient Charge	Manufacturer pack price	110.000		500.000
				Manufacturer pack size (# of units)	12		1000
				Manufacturer unit price (MUP)	9.1667		0.5000
				Ratio: MUP to reference unit price	19.69		1.07
				Sector median unit price (SMUP)	30.2084		5.0000
				% mark-up: SMUP over MUP	229.5%		900.0%

Select Medicine Name 4	Medicine Strength	Dosage Form	Sector	Item	Brand	Most Sold	Lowest Price
Glibenclamide	5 mg	cap/tab	Public facilities Patient Procurement	Manufacturer pack price	1665.000	800.000	380.000
				Manufacturer pack size (# of units)	100	100	100
				Manufacturer unit price (MUP)	16.6500	8.0000	3.8000
				Ratio: MUP to reference unit price	30.53	14.67	6.97
				Sector median unit price (SMUP)			8.9286
				% mark-up: SMUP over MUP			135.0%
			Public facilities Patient Charge	Manufacturer pack price	1665.000	800.000	380.000
				Manufacturer pack size (# of units)	100	100	100
				Manufacturer unit price (MUP)	16.6500	8.0000	3.8000
				Ratio: MUP to reference unit price	30.53	14.67	6.97
				Sector median unit price (SMUP)		12.5000	10.0000
				% mark-up: SMUP over MUP		56.3%	163.2%
			Private pharmacies retail Price	Manufacturer pack price	1665.000	800.000	380.000
				Manufacturer pack size (# of units)	100	100	100
				Manufacturer unit price (MUP)	16.6500	8.0000	3.8000
				Ratio: MUP to reference unit price	30.53	14.67	6.97
				Sector median unit price (SMUP)	18.5000	12.0000	10.0000
				% mark-up: SMUP over MUP	11.1%	50.0%	163.2%
			Private clinics Patient Charge	Manufacturer pack price	1665.000	800.000	380.000
				Manufacturer pack size (# of units)	100	100	100
				Manufacturer unit price (MUP)	16.6500	8.0000	3.8000
				Ratio: MUP to reference unit price	30.53	14.67	6.97
				Sector median unit price (SMUP)		18.0000	15.0000
				% mark-up: SMUP over MUP		125.0%	294.7%

Annex 4d. Patient prices in Public sector facilities

Sector Medicines Outlets (n=42 in survey)

Includes Both Core and Non-Core Medicines (n=34 on list)

	Analysis Includes All Meds.			Analysis Includes Only Medicines With Prices Found for Both Types in Pair					
	Brand	Most Sold	Lowest Price	Brand	Most Sold	Brand	Lowest Price	Most Sold	Lowest Price
Overall Percent Availability of Medicines on List in Outlets Included in Analysis									
Median availability	2.4%	2.4%	22.6%						
25 %ile availability	0.0%	0.0%	5.4%						
75 %ile availability	8.9%	11.3%	45.2%						
Number of Listed Medicines For Which Prices Were Found in 4+ Outlets									
No. of meds. included	7	9	19	3	3	6	6	9	9
Summary of Medicine-specific Median Price Ratios (MPRs) For Meds. Found in 4+ Outlets									
Median MPR	7.35	6.04	3.50	7.35	4.12	8.49	3.54	6.04	6.04
25 %ile MPR	6.04	4.12	2.56	6.16	3.96	7.16	3.29	4.12	3.50
75 %ile MPR	11.40	7.91	6.50	14.42	4.21	12.28	3.73	7.91	7.32
Minimum MPR	2.57	3.07	1.92	4.98	3.80	4.98	2.51	3.07	1.92
Maximum MPR	21.48	22.92	18.34	21.48	4.30	21.48	4.88	22.92	18.34

Reference Price Data Used = MSH

Annex 4e: Patient prices in Private sector pharmacies

Sector Medicines Outlets (n=44 in survey)

Includes Both Core and Non-Core Medicines (n=34 on list)

	Analysis Includes All Meds.			Analysis Includes Only Medicines With Prices Found for Both Types in Pair					
	Brand	Most Sold	Lowest Price	Brand	Most Sold	Brand	Lowest Price	Most Sold	Lowest Price
Overall Percent Availability of Medicines on List in Outlets Included in Analysis									
Median availability	21.6%	13.6%	34.1%						
25 %ile availability	3.4%	0.6%	14.2%						
75 %ile availability	56.8%	33.5%	68.8%						
Number of Listed Medicines For Which Prices Were Found in 4+ Outlets									
No. of meds. included	18	17	22	14	14	17	17	17	17
Summary of Medicine-specific Median Price Ratios (MPRs) For Meds. Found in 4+ Outlets									
Median MPR	14.55	5.85	4.32	14.83	5.95	14.63	4.88	5.85	4.88
25 %ile MPR	6.61	3.79	3.11	7.16	4.05	6.76	3.01	3.79	3.27
75 %ile MPR	21.11	7.91	6.73	26.70	7.85	21.18	6.96	7.91	6.96
Minimum MPR	2.33	3.02	1.89	5.19	3.02	5.19	1.89	3.02	2.02
Maximum MPR	50.53	42.96	42.96	50.53	22.01	50.53	18.34	42.96	42.96

Reference Price Data Used = MSH

Annex 4f: Private Clinics (other sector)

Sector Medicines Outlets (n=39 in survey)

Includes Both Core and Non-Core Medicines (n=34 on list)

	Analysis Includes All Meds.			Analysis Includes Only Medicines With Prices Found for Both Types in Pair					
	Brand	Most Sold	Lowest Price	Brand	Most Sold	Brand	Lowest Price	Most Sold	Lowest Price
Overall Percent Availability of Medicines on List in Outlets Included in Analysis									
Median availability	5.1%	2.6%	16.7%						
25 %ile availability	2.6%	0.0%	3.2%						
75 %ile availability	9.6%	5.1%	41.0%						
Number of Listed Medicines For Which Prices Were Found in 4+ Outlets									
No. of meds. included	6	6	18	3	3	5	5	6	6
Summary of Medicine-specific Median Price Ratios (MPRs) For Meds. Found in 4+ Outlets									
Median MPR	11.89	11.94	8.00	24.38	11.70	15.11	8.45	11.94	10.59
25 %ile MPR	8.24	8.94	5.98	16.24	9.86	8.67	7.56	8.94	8.95
75 %ile MPR	22.06	26.06	16.07	44.64	21.20	24.38	10.74	26.06	13.66
Minimum MPR	4.26	4.11	3.83	8.10	8.03	8.10	5.88	4.11	3.83
Maximum MPR	64.89	33.01	27.51	64.89	30.69	64.89	14.63	33.01	27.51

Reference Price Data Used = MSH

Annex 4g: Sector availability and price summary

Summary of Medicines Availability and Median MPR by Product Type
Includes Both Core and Non-Core Medicines (n=34 on list)

Median Percent Availability

	Procure-ment (n=3 orders	Public Sector (n=42 outlets)	Private Sector (n=44 outlets)	Other Sector (n=39 outlets)
Brand	NA	2.4%	21.6%	5.1%
Most Sold	NA	2.4%	13.6%	2.6%
Lowest Price	NA	22.6%	34.1%	16.7%

No. of Products With Minimum No. of Prices Obtained

# Prices Required	*1*	*4*	*4*	*4*
Brand	3	7	18	6
Most Sold	5	9	17	6
Lowest Price	18	19	22	18

Median MPR for Medicines With Minimum No. of Prices

Brand	4.01	7.35	14.55	11.89
Most Sold	5.28	6.04	5.85	11.94
Lowest Price	3.29	3.50	4.32	8.00

Reference Price Data Used = MSH

Comparisons of Median MPRs for Medicines With Prices in Both Sectors
Includes Both Core and Non-Core Medicines (n=34 on list)

	Procure-ment (n=3 orders	Public Sector (n=42 outlets)	# of Meds. in Both Sectors	Ratio Public to Procure-ment
Brand	4.01	4.98	1	124.1%
Most Sold	4.68	5.17	2	110.4%
Lowest Price	2.60	3.68	16	141.6%

	Procure-ment (n=3 orders	Private Sector (n=44 outlets)	# of Meds. in Both Sectors	Ratio Private to Procure-ment
Brand	4.01	18.12	3	451.5%
Most Sold	5.28	4.83	5	91.5%
Lowest Price	3.29	4.66	18	141.7%

	Procure-ment (n=3 orders	Other Sector (n=39 outlets)	# of Meds. in Both Sectors	Ratio Other to Procure-ment
Brand	4.01	8.10	1	201.8%
Most Sold	4.08	30.69	1	751.9%
Lowest Price	2.60	9.45	16	362.9%

	Public Sector (n=42 outlets)	Private Sector (n=44 outlets)	# of Meds. in Both Sectors	Ratio Private to Public
Brand	7.35	8.35	7	113.7%
Most Sold	6.04	6.79	9	112.5%
Lowest Price	3.50	3.86	19	110.4%

	Public Sector (n=42 outlets)	Other Sector (n=39 outlets)	# of Meds. in Both Sectors	Ratio Other to Public
Brand	8.49	11.89	6	140.0%
Most Sold	4.30	12.18	5	283.6%
Lowest Price	3.54	8.00	18	225.8%

	Private Sector (n=44 outlets)	Other Sector (n=39 outlets)	# of Meds. in Both Sectors	Ratio Other to Private
Brand	9.05	11.89	6	131.4%
Most Sold	5.34	11.94	6	223.5%
Lowest Price	4.14	8.00	18	193.4%

Reference Price Data Used = MSH

Annex 4h: Medicines availability and price summary

		Medicines Availability in Outlets								
		Brand			Most Sold			Lowest Price		
Medicine Name	Core List (yes/no)	Public Facilities (n=42)	Private Pharmacies (n=44)	Private Clinics (n=39)	Public Facilities (n=42)	Private Pharmacies (n=44)	Private clinics (n=39)	Public Facilities(n=42)	Private Pharmacies (n=44)	Private Clinics (n=39)
Aciclovir	yes	0.0%	6.8%	2.6%	2.4%	22.7%	2.6%	7.1%	27.3%	5.1%
Amitriptyline	yes	0.0%	2.3%	2.6%	0.0%	2.3%	0.0%	26.2%	31.8%	28.2%
Amoxicillin	yes	2.4%	50.0%	5.1%	2.4%	6.8%	2.6%	66.7%	54.5%	33.3%
Amoxicillin (2)	no	2.4%	68.2%	7.7%	7.1%	27.3%	5.1%	73.8%	81.8%	51.3%
Amoxicillin/cloxacillin	no	2.4%	84.1%	7.7%	4.8%	29.5%	5.1%	88.1%	93.2%	59.0%
Artesunate	yes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
Atenolol	yes	0.0%	20.5%	2.6%	9.5%	9.1%	7.7%	21.4%	40.9%	20.5%
Beclometasone inhaler	yes	4.8%	6.8%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Captopril	yes	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	21.4%	38.6%	12.8%
Carbamazepine	yes	9.5%	36.4%	15.4%	4.8%	6.8%	0.0%	11.9%	15.9%	10.3%
Ceftriaxone injection	yes	11.9%	68.2%	17.9%	16.7%	9.1%	0.0%	33.3%	38.6%	23.1%
Cimetidine	no	0.0%	36.4%	2.6%	19.0%	34.1%	5.1%	42.9%	54.5%	23.1%
Ciprofloxacin	yes	0.0%	18.2%	7.7%	7.1%	61.4%	5.1%	69.0%	93.2%	64.1%
Clotrimazole	no	0.0%	20.5%	2.6%	7.1%	65.9%	5.1%	45.2%	88.6%	48.7%
Co-trimoxazole suspension	yes	11.9%	38.6%	5.1%	0.0%	31.8%	5.1%	78.6%	79.5%	64.1%
Diazepam	yes	31.0%	40.9%	10.3%	16.7%	13.6%	12.8%	54.8%	29.5%	51.3%
Diclofenac Sodium	no	2.4%	22.7%	0.0%	0.0%	13.6%	2.6%	23.8%	20.5%	17.9%
Dihydroartemisinin	no	7.1%	68.2%	12.8%	2.4%	29.5%	5.1%	4.8%	29.5%	7.7%
Fluconazole (2)	no	19.0%	61.4%	17.9%	11.9%	43.2%	10.3%	11.9%	43.2%	10.3%
Fluoxetine	yes	0.0%	2.3%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
Fluphenazine injection	yes	0.0%	2.3%	0.0%	0.0%	4.5%	2.6%	9.5%	13.6%	5.1%
Glibenclamide	yes	7.1%	31.8%	7.7%	21.4%	68.2%	23.1%	45.2%	75.0%	43.6%
Hydrochlorothiazide	yes	0.0%	0.0%	0.0%	2.4%	18.2%	0.0%	7.1%	18.2%	2.6%
Indinavir	yes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ketoprofen	no	9.5%	59.1%	10.3%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
Metformin	yes	14.3%	50.0%	25.6%	16.7%	22.7%	15.4%	28.6%	36.4%	30.8%
Nevirapine	yes	0.0%	0.0%	5.1%	2.4%	0.0%	0.0%	7.1%	0.0%	0.0%
Nifedipine Retard	yes	0.0%	15.9%	7.7%	26.2%	75.0%	15.4%	61.9%	84.1%	46.2%
Omeprazole	yes	4.8%	13.6%	2.6%	14.3%	61.4%	12.8%	35.7%	70.5%	23.1%
Phenytoin	yes	2.4%	9.1%	5.1%	0.0%	0.0%	0.0%	4.8%	25.0%	5.1%
Ranitidine	yes	0.0%	59.1%	7.7%	31.0%	40.9%	0.0%	38.1%	63.6%	15.4%
Salbutamol inhaler	yes	19.0%	84.1%	25.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sulfadoxine-pyrimethamine	yes	14.3%	86.4%	23.1%	4.8%	59.1%	12.8%	73.8%	97.7%	53.8%
Zidovudine	yes	2.4%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

		Medicines Median Price Ratios (MPRs) in Procurements and Outlets *(Reference Price Data Used = MSH)*											
		Brand				Most Sold				Lowest Price			
Medicine Name	Core List (yes/no)	Procurement (n=3)	Public facilities (n=42)	Private pharmacies (n=44)	Private clinics (n=39)	Procurement (n=3)	Public facilities (n=42)	Private Pharmacies (n=44)	Private Clinics (n=39)	Procurement (n=3)	Public facilities (n=42)	Private pharmacies (n=44)	Private Clinics (n=39)
Aciclovir	yes					6.21		4.66		6.21		4.19	
Amitriptyline	yes									1.58	2.97	4.45	19.79
Amoxicillin	yes			6.56						3.06	2.62	2.40	6.56
Amoxicillin (2)	no			6.05		1.51		3.02		1.51	2.02	2.02	4.03
Amoxicillin/cloxacillin	no												
Artesunate	yes												
Atenolol	yes			50.53			6.41	7.65		11.26	8.08	7.07	21.94
Beclometasone inhaler	yes												
Captopril	yes							3.66		4.13	1.99	3.05	7.12
Carbamazepine	yes		9.63	11.33	15.11					1.74	3.78	1.89	7.56
Ceftriaxone	yes		7.35	6.76	8.67		4.12	3.79			3.50	3.82	5.88
Cimetidine	no			15.04			7.91	7.91		3.52	7.32	5.94	4.75
Ciprofloxacin	yes	28.37		39.01		6.74		13.71		7.09	11.35	9.46	16.55
Clotrimazole	no			5.19				5.19		1.90	2.49	2.91	5.19
Co-trimoxazole suspension	yes		7.10	8.35				6.06		2.01	2.51	3.34	6.27
Diazepam	yes		21.48	28.64	64.89	4.08	4.30	4.83	30.69	1.93	3.22	5.37	10.74
Diclofenac	no												
Dihydroartemisi	no												
Fluconazole (2)	no												
Fluoxetine	yes												
Fluphenazine injection	yes										2.90	3.86	
Glibenclamide	yes			33.93			22.92	22.01	33.01	17.36	18.34	18.34	27.51
Hydrochlorothia	yes							42.96		19.18		42.96	
Indinavir	yes												
Ketoprofen	no												
Metformin	yes	4.01	4.98	5.73	8.10		3.80	3.38	8.03	0.76	3.59	3.27	8.45
Nevirapine	yes												
Nifedipine	yes			20.89			8.70	8.01	12.18	5.22	6.96	6.96	10.44
Omeprazole	yes			14.47			3.07	3.07	4.11		1.92	3.01	3.83
Phenytoin	yes			21.18								10.59	
Ranitidine	yes	1.03		18.12		5.28	6.04	6.79		4.53	6.04	6.04	16.61
Salbutamol	yes		2.57	2.33	4.26								
Sulfadoxine-pyrimethamine	yes		13.17	14.63	24.38			5.85	11.70	2.15	4.88	4.88	14.63
Zidovudine	yes												

Annex 4i: Affordability summary

Standard Treatment Affordability

Daily wage of lowest paid government worker (in local currency):	183.3333

Diabetes						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Glibenclamide	5 mg	cap/tab	30	60	Brand					1110.00	6.1		
					Most Sold			750.00	4.1	720.00	3.9	1080.00	5.9
					Lowest Price	567.86	3.1	600.00	3.3	600.00	3.3	900.00	4.9

Hypertension						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Hydrochlorothiazide	25 mg	cap/tab	30	30	Brand								
					Most Sold					600.00	3.3		
					Lowest Price	267.86	1.5			600.00	3.3		

Hypertension						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Atenolol	50 mg	cap/tab	30	30	Brand					1875.00	10.2		
					Most Sold			237.86	1.3	283.93	1.5		
					Lowest Price	417.75	2.3	300.00	1.6	262.50	1.4	814.29	4.4

Adult resp. infects.						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Amoxicillin	250 mg	cap/tab	7	21	Brand					315.00	1.7		
					Most Sold								
					Lowest Price	147.00	0.8	126.00	0.7	115.50	0.6	315.00	1.7

Pediatric resp. infecs.						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Co-trimoxazole Susp.	8+40 mg/ml	millilitre	7	70	Brand			238.00	1.3	280.00	1.5		
					Most Sold					203.00	1.1		
					Lowest Price	67.20	0.4	84.00	0.5	112.00	0.6	210.00	1.1

Gonorrhoea						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Ciprofloxacin	500 mg	cap/tab	1	1	Brand	120.00	0.7			165.00	0.9		
					Most Sold	28.50	0.2			58.00	0.3		
					Lowest Price	30.00	0.2	48.00	0.3	40.00	0.2	70.00	0.4

Peptic Ulcer						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Omeprazole	20 mg	cap/tab	28	28	Brand					10570.00	57.7		
					Most Sold			2245.00	12.2	2240.00	12.2	3000.00	16.4
					Lowest Price			1400.00	7.6	2200.00	12.0	2800.00	15.3

Depression						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Amitriptyline	25 mg	cap/tab	30	90	Brand								
					Most Sold								
					Lowest Price	144.00	0.8	270.00	1.5	405.00	2.2	1800.00	9.8

Asthma						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Salbutamol inhaler	0.1 mg/dose	dose	as needed	200	Brand			662.51	3.6	600.00	3.3	1100.00	6.0
					Most Sold								
					Lowest Price								

Peptic ulcer						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Ranitidine	150 mg	cap/tab	30	60	Brand	204.00	1.1			3600.00	19.6		
					Most Sold	1050.00	5.7	1200.00	6.5	1350.00	7.4		
					Lowest Price	900.00	4.9	1200.00	6.5	1200.00	6.5	3300.00	18.0

Infection						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Ceftriaxone injection	1 g/vial	gram	3	3	Brand			7500.00	40.9	6900.00	37.6	8850.00	48.3
					Most Sold			4200.00	22.9	3870.00	21.1		
					Lowest Price			3570.00	19.5	3900.00	21.3	6000.00	32.7

Infection						Public (Procurement)		Public Facilities (Retail)		Private Pharmacies (Retail)		Private Clinics (Retail)	
Select Medicine Name	Medicine Strength	Dosage Form	Treatment Duration (in Days)	Total # of Units per Treatment	Product Type	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages	Median Treatment Price	Days' Wages
Sulfadoxine-pyrimethamine	500+25 mg	cap/tab	1	3	Brand			135.00	0.7	150.00	0.8	250.00	1.4
					Most Sold					60.00	0.3	120.00	0.7
					Lowest Price	22.00	0.1	50.00	0.3	50.00	0.3	150.00	0.8

Annex 5: List of Medicines on the essential medicines list

All the 34 medicines on the core and supplementary list are on the essential medicines list (2003 edition).

SN	Medicine Name	Essential medicines list (all levels)
1.	Aciclovir	Yes
2.	Amitriptyline	Yes
3.	Amoxicillin 250mg	Yes
4.	Amoxicillin 500mg	Yes
5.	Ampicillin/Cloxacillin 500mg	Yes
6.	Artesunate	Yes
7.	Atenolol	Yes
8.	Beclomethasone	Yes
9.	Captopril	Yes
10.	Carbamazepine	Yes
11.	Ceftriaxone	Yes
12.	Cimetidine	Yes
13.	Ciprofloxacin	Yes
14.	Clotrimazole	Yes
15.	Co-trimoxazole	Yes
16.	Diazepam	Yes
17.	Diclofenac sodium	Yes
18.	Dihydroartemisin	Yes
19.	Fluconazole 50mg	Yes
20.	Fluoxetine	Yes
21.	Fluphenazine decanoate	Yes
22.	Glibenclamide	Yes
23.	Hydrochlorothiazide	Yes
24.	Indinavir	Yes
25.	Ketoprofen	Yes
26.	Metformin	Yes
27.	Nevirapine	Yes
28.	Nifedipine Retard	Yes
29.	Omeprazole	Yes
30.	Phenytoin	Yes
31.	Pyrimethamine with sulfadoxine	Yes
32.	Ranitidine	Yes
33.	Salbutamol	Yes
34.	Zidovudine	Yes

Annex 6: List of facilities and outlets sampled

GEOGRAPHICAL AREA: NORTH EAST ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
State Specialist Hospital, Maiduguri	Rata Pharmacy Chem. Ltd., Maiduguri	Sauki Clinic Biu
University of Maiduguri Teaching Hospital	Ben Climax Pharmacy, Maiduguri	Ayamsu Memorial Med. Centre, Maiduguri
General Hospital, Biu	Simple Pharmacy, Maiduguri	Kanem Hospital, Maiduguri
General Hospital, Hawul	Elicol Pharmacy, Maiduguri	Alpha Medical Centre, Maiduguri
General Hospital, Kwaya-Kusar	Hentah Pharmacy Nig. Ltd, Maiduguri	Borno Medical Clinic, Maiduguri
General Hospital, Magumeri	Samsunny Pharmacy, Biu	
General Hospital, Shani	Alhaya Pharmacy, Jere	

GEOGRAPHICAL AREA: NORTH CENTRAL ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
Wuse General Hospital	Chedec Pharm. Limited	Sauki Private Hospital, Wuse Zone 6
Maitama District Hospital	El-Elyon Pharmacy, Garki	Hugo Medical Centre, Maitama
Abaji General Hospital	Lawcas Pharmacy, Limited Wuse II	Ganiya Hospital, Abaji
Gwarimpa General Hospital	MIC pharmaceutical & Stores Karmo	Kefat Medical Centre, Gwarimpa
Kuje General Hospital	Zochem Pharmacy, Gwarimpa	Mureen Medical Hospital, Gwagwalada
Bwari General Hospital	Anes Pharmacy & Stores, Bwari	Bwari Medical Centre, Bwari
	Class A Pharmacy & Stores, Kubwa	Express Hospital, Kubwa

GEOGRAPHICAL AREA: NORTH WEST ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
Aminu Kano Teaching Hospital, Kano	Aicon Pharmaceutical Ltd. Nasarawa	Almu Memorial Hospital, Tarauni
Mohammadu Abdullahi Wase Specialist Hosp.,	Lamco Pharm. Nig. Ltd. Kano	Takai Gaskiya Hosp. & Mat. Takai
Sheikh Mohammed Jidda General Hosp., Kano	Primedic Pharmacy Stores, Nasarawa	Kura Surgery & Maternity, Kura
Wudil General Hospital, Wudil	Zeenat Pharmacy, Tarauni	Sauki Clinic, Wudil
Kura General Hospital, Kura	Mishbah Pharmacy and Stores, Kano	Ijeoma Clinic, Fagge
Tudun Wada General Hospital	Rapha Pharmacy, Tarauni	Classic Clinic, Nasarawa
Murtala Mohammed Specialist Hospital, Kano	Pal Pharmacy & General Ent. Ltd, Fagge	Great Shepherd Clinc, Kano

GEOGRAPHICAL AREA: SOUTH EAST ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
Nnamdi Azikiwe University Teaching Hosp., Nnewi	Georgie Chemist	Urban Hosptial, Isu-Aniocha
General Hospital Onitsha	Holy Mary Limited	Silgrey Royal Hospital and Maternity Awka
General Hospital Osamalla	Onwughalu Pharmacy, Osumenyi	Union Hospital Ukpor
General Hospital, Amanuke	Selak Pharmacy	Chinazo Hospital and Maternity Umunachi
General Hospital, Ifite-Ukpo	MacDech Pharmacy, Odekpe	Ebenator Medical Centre, Nnewi
General Hospital, Nkpor	Inxs Pharmacy, Onitsha	St. Lwanga Hospital Okpoko
General Hospital Awka	Cintas pharmacy limited	St. Charles Borromeo Hospital, Onitsha

GEOGRAPHICAL AREA: SOUTH SOUTH ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
Univ. of Calabar Teaching Hosp., Calabar	Vitamed Pharmacy, Calabar	Mevon Specialist Clinic, Calabar
General Hospital Calabar	Kamel Pharmacy, Calabar	Bakor Medical Centre, Calabar
General Hospital, Akamkpa	Butex Pharmacy, Calabar	Nkem Medical Centre, Ughep
General Hospital, Obubra	Anijah Pharmacy, Ikom	Dr. Eyaba Memorial Clinic, Obubra
General Hospital, Ugep	Maryland Pharmacy, Obudu	Rapha Medical Centre, Abakpa, Ogoja
General Hospital, Ogoja	Hilary Pharmacy, Ogoja	Foundation Clinic, Ogoja
Lutheran Health Centre, Yahe-Yala	Jipharmak Stores, Ikom	Offoboche Specialist Hospital, Okuku
	Joemaneul Mayfair Pharmacy, Calabar	

GEOGRAPHICAL AREA: SOUTH WEST ZONE

Public Health Facilities	Private Pharmacies	Private Clinics
General Hospital, Epe	Adekanbi Pharmacy Limited	Olaniba Memorial Specialist Hospital, Aguda
Ajeromi General Hospital	Olu-Iwa Pharmaceutical Chemists	Gold Cross Hospital, Eti - Osa
Badagry General Hospital	Nobis Pharmacy, Badagry Exp. Way	St. Nicholas Hospital, Lagos
Onikan Health Centre	Standard Generic Pharmacy	Havana Specialist Hospital, Surulere
General Hospital Ikorodu	Bernados Pharmacy, Ojuelegba	Patelson Specialist Clinic, Surulere
Agbowa General Hospital	Dominion Pharmacy, Ikorodu	Kadol Medical Centre, Apapa
	Rommar Pharmacy	Bimlad Clinic, Oshodi-Isolo

Annex 7: Timetable of survey

	Date
Appoint advisory group and survey planning and preparations	August 26, 2004
Training of data collectors	August 31 – September 2, 2004
Data collection period	September 6 – 16, 2004
Data analysis	September 19– November 7, 2004
Preparation of draft reports	November 10 – July 20, 2005
Stakeholder meeting	July 22, 2005
Final report published	August 2005
Implementation of advocacy and dissemination plan	2006 – 2007 Biennium

Annex 8: Medicine Price Data Collection form

Use one form for each public or private health facility or private pharmacy

Date: State: LGA: ☐ Urban/ ☐ Rural

Name of health facility/pharmacy:

Public facility/Private clinic/Private Pharmacy ID:

Distance in km from nearest town (population >50 000):

Type of facility:

☐ Public facility ☐ Private pharmacy

☐ Private clinic ☐ CMS

Type of price in public and private sector:

☐ Procurement price ☐ Price the patient pays

Public Sector procurement details

☐ From State CMS (health facility)

☐ Facility procurement (health facility)

☐ Competitive bidding (State CMS)

☐ Others (specify)

Name of manager of the facility:

Name of person(s) who provided information on medicine prices and availability (if different):

Mobile telephone number(s):

Data collectors:

Verification

To be completed at the end of the day

Signed:

Date:

CORE LIST

A	B	C	D	E	F	G	H	I
Generic name, dosage form, strength	**Brand name(s)**	**Manufacturer**	**Available tick ✓ for yes**	**Pack size recommended**	**Pack size found**	**Price of pack found**	**Unit price (4 digits)**	**mments**
Aciclovir tab 200 mg	Zovirax	GSK		25			/tab	
Most sold generic equivalent	Virest	Hovid		25				
Lowest price generic equivalent				25				
Amitriptyline tab 25 mg	Tryptizol	MSD		100			/tab	
Most sold generic equivalent	Amitryptyline	APS		100				
Lowest price generic equivalent				100				
Amoxicillin caps/tab 250 mg	Amoxil	SKB (GSK)		21			/tab	
Most sold generic equivalent	Reichamox	Medreich		21				
Lowest price generic equivalent				21				
[26]Artesunate tab 100 mg	Arsumax	Sanofi		20*			/tab	
Most sold generic equivalent	Artesunate	Meko pharm/		20*				
Lowest price generic equivalent				20*				
Atenolol tab 50 mg	Tenormin	AstraZeneca		60			/tab	
Most sold generic equivalent	Atenolol	Alpharma		60				
Lowest price generic equivalent				60				
Beclometasone inhaler 50 mcg/ dose	Becotide	GSK		1 inhaler: 200 doses			/dose	
Most sold generic equivalent	Beclofort	Glaxowellcome		1 inhaler: 200 doses				
Lowest price generic equivalent				1 inhaler: 200 doses				
Captopril tab 25 mg	Capoten	BMS		60			/tab	
Most sold generic equivalent	Captopril	APS		60				
Lowest price generic equivalent				60				
Carbamazepine tab 200 mg	Tegretol	Novartis		100			/tab	
Most sold generic equivalent	Carzepin	Hovid		100				
Lowest price generic equivalent				100				
Ceftriaxone inj 1 g powder	Rocephin	Roche/Swipha		1 vial			/vial	

[26] Based on treatment of malaria in an adult around 70 kg with artesunate as single treatment: 4 mg/ kg for 7 days (WHO Model Formulary, 2002)

A	B	C	D	E	F	G	H	I
Generic name, dosage form, strength	**Brand name(s)**	**Manufacturer**	**Available tick ✓ for yes**	**Pack size recommended**	**Pack size found**	**Price of pack found**	**Unit price (4 digits)**	**mments**
Most sold generic equivalent	Powecef	Wockhardt		1 vial				
Lowest price generic equivalent				1 vial				
Ciprofloxacin tab 500 mg	Ciproxin	Bayer		1			/tab	
Most sold generic equivalent	Ciprotab	Fidson		1				
Lowest price generic equivalent				1				
Co-trimoxazole paed suspension (8+40) mg/Ml	Bactrim	Roche/Swipha		100 mL			/mL	
Most sold generic equivalent	Primpex	SKG		100 mL				
Lowest price generic equivalent				100 mL				
Diazepam tab 5 mg	Valium	Roche/Swipha		100			/tab	
Most sold generic equivalent	Diazepam	Vitabiotics		100				
Lowest price generic equivalent				100				
Fluconazole caps/tab 200 mg	Diflucan	Pfizer		30			/tab	
Most sold generic equivalent	Fluzoral	GPO, Bangkok		30				
Lowest price generic equivalent				30				
Fluoxetine caps/tab 20 mg	Prozac	Lilly		30			/tab	
Most sold generic equivalent	Fluoxetine	Ranbaxy		30				
Lowest price generic equivalent				30				
Fluphenazine decanoate inj 25 mg/mL	Modecate	Sanofi-Winthrop/ BMS		1 ampoule			/mL	
Most sold generic equivalent	Monasan	Duopharm		1 ampoule				
Lowest price generic equivalent				1 ampoule				
Glibenclamide tab 5 mg	Daonil	HMR/Aventis		60			/tab	
Most sold generic equivalent	Glanil	NGC		60				
Lowest price generic equivalent				60				
Hydrochlorothiazide tab 25 mg	Dichlotride	MSD		30			/tab	
Most sold generic equivalent	Esidrex	Novartis		30				
Lowest price generic equivalent				30				
Indinavir caps 400 mg	Crixivan	MSD		180			/caps	
Most sold generic equivalent				180				
Lowest price generic equivalent				180				

A	B	C	D	E	F	G	H	I
Generic name, dosage form, strength	**Brand name(s)**	**Manufacturer**	**Available tick ✓ for yes**	**Pack size recommended**	**Pack size found**	**Price of pack found**	**Unit price (4 digits)**	**mments**
Metformin tab 500 mg	Glucophage	Merck		100			/tab	
Most sold generic equivalent	Diabetmin	Hovid		100				
Lowest price generic equivalent				100				
Nevirapine tab 200 mg	Viramune	Boehringer I		60			/tab	
Most sold generic equivalent				60				
Lowest price generic equivalent				60				
Nifedipine Retard tab 20 mg	Adalat Retard	Bayer		100			/tab	
Mostsold generic equivalent	Nifecard Retard	Lek		50				
Lowest price generic equivalent				100				
Omeprazole caps 20 mg	Losec	AstraZeneca		30			/caps	
Most sold generic equivalent	Meprasil	Fidson		30				
Lowest price generic equivalent				30				
Phenytoin caps/tab 100 mg	Epanutin	Pfizer		100			/tab	
Most sold generic equivalent	Epitoin	Hovid		100				
Lowest price generic equivalent				100				
Pyrimethamine with sulfadoxine tab (25+500) mg	Fansidar	Roche/Swipha		3			/tab	
Most sold generic equivalent	Amalar	Brown & Bulk		3				
Lowest price generic equivalent				3				
Ranitidine tab 150 mg	Zantac	GSK		60			/tab	
Most sold generic equivalent	Peptard	Neimeth		60				
Lowest price generic equivalent				60				
Salbutamol inhaler 0.1 mg per dose	Ventolin	GSK		1 inhaler: 200 doses			/dose	
Most sold generic equivalent				1 inhaler: 200 doses				
Lowest price generic equivalent				1 inhaler: 200 doses				
Zidovudine caps 100 mg	Retrovir	GSK		100			/caps	
Most sold generic equivalent				100				
Lowest price generic equivalent				100				

SUPPLEMENTARY LIST

A	B	C	D	E	F	G	H	I
Generic name, dosage form, strength	Brand name(s)	Manufacturer	Available tick ✓ for yes	Pack size recommended	Pack size found	Price of pack found	Unit price (4 digits)	Comments
Amoxicillin cap 500mg	Amoxil	Beecham		100			/cap	
Most sold generic equivalent	Reichamox	Medreich		100				
Lowest price generic equivalent				100				
Ampicillin/Cloxacillin cap 500mg	Ampiclox	Beecham/SKB		100			/cap	
Most sold generic equivalent	Reichlox	Medreich		100				
Lowest price generic equivalent				100				
Cimetidine tab 200mg	Tagamet	SKF Int		100			/tab	
Most sold generic equivalent	Altramet	Taylek		100				
Lowest price generic equivalent				100				
Co-trimoxazole paed suspension *(8+40) mg/Ml*	Septrin	Roche/Swipha		50 mL			/mL	
Most sold generic equivalent	Primpex	SKG		50 mL				
Lowest price generic equivalent				50 mL				
Diclofenac sodium tab 100mg	Voltarol	Novartis		100			/tab	
Most sold generic equivalent	Abitren	Teva		100				
Lowest price generic equivalent				100				
Dihydroartemisin tab 60mg	Cotecxin	Cotec		8			/tab	
Most sold generic equivalent	Alaxin	GVS Labs		8				
Lowest price generic equivalent				8				
Fluconazole cap 50mg	Diflucan	Pfizer		3			/cap	
Most sold generic equivalent	Flucamed	Drugfield		3				
Lowest price generic equivalent				3				
Ketoprofen cap 200mg	Oruvail	M & B		7			/cap	
Most sold generic equivalent	Ketoprofen	Taylek		7				
Lowest price generic equivalent				7				
Clotrimazole cream 1%	Canesten	Bayer		1			/tube	

A	B	C	D	E	F	G	H	I
Generic name, dosage form, strength	Brand name(s)	Manufacturer	Available tick ✓ for yes	Pack size recommended	Pack size found	Price of pack found	Unit price (4 digits)	Comments
Most sold generic equivalent	Sabresten	Gemini		1				
Lowest price generic equivalent				1				