

Pakistan

Medicine prices, availability, affordability and price components

Medicine prices matter

Rapidly rising costs of health care and high medicine prices are a growing concern worldwide, especially in developing and transitional countries where patients often have to pay the full price of medicines. This brief report about the prices and availability of essential medicines in Pakistan is one of a series of papers summarizing the results of medicine price and availability surveys carried out around the globe using a standard survey methodology developed by the World Health Organization and Health Action International¹.

This survey was conducted in 2004 by The Network for Consumer Protection, Islamabad, and studied the price, availability and affordability of 29 important medicines (25 of which were on the National Essential Drugs List).

Generally, across the WHO Eastern Mediterranean Region, a similar picture emerges: reasonably efficient public sector procurement; people having to pay for medicines in the private sector at frequently unaffordable prices; and the need for stronger government action to introduce or improve national medicines policies and effective pricing policies².

The survey found that in Pakistan

- Public health facilities have extremely low availability of essential medicines.
- Public procurement of medicines is efficient in achieving low prices for the medicines but inadequate in supplying needed quantities to patients from government health facilities.
- Medicines for common treatments are unaffordable and out of reach to the poor when purchased in the private sector.
- Originator brands are more likely to be found in the private sector than generics.
- Overall, originator brands are 47% more expensive than generic equivalents, and up to 7 times (600%) more expensive for some medicines.
- Adherence to regulated maximum prices is largely but not entirely observed.
- Total cumulative mark-up in the private sector is typically 25% for locally produced generic medicines.

¹ WHO/HAI. *Medicine prices: a new approach to measurement*, Geneva, World Health Organization, 2003. Available from <http://www.haiweb.org/> medicines/index

² WHO/HAI. *Medicine prices, availability, affordability and price components: a synthesis report of medicine price surveys undertaken in selected countries of the WHO Eastern Mediterranean Region*, Cairo, WHO Regional Office for the Eastern Mediterranean, 2009.

Pakistan

Pakistan is the sixth most populous country in the world with a currently estimated population of approximately 158 million people, 66% of whom live in rural areas. Pakistan is a low income country with per capita GDP of US\$ 736 (2004).

Approximately one third (29.2%) of the population or about 45 million people live below the official national poverty line. Poverty varies significantly among rural (34%) and urban areas (19.1%) and from province to province, for example from 24% percent in urban Sindh to 51% percent in rural Sindh, with pockets of extreme poverty in some places.

Pakistan spent 2.4% of its GDP on health in 2003 with health expenditure per capita reaching US\$ 4.0. Private health expenditure accounts for 72% and public expenditure for 28% (WHO, 2003) of total expenditure on health. 98% of private health expenditure is out-of-pocket spending which means that all medicine costs usually have to be covered by the patients.

Since Pakistan has a federal political system, health care provision is decentralized and is primarily the responsibility of the provincial governments. The Federal Ministry of Health is responsible for national policy, planning, coordination and the implementation of the six national health programmes on family planning, immunization, HIV/AIDS, tuberculosis, malaria and nutrition.

Communicable diseases are the most prevalent and leading causes of sickness and death and include diarrhoeal disease, respiratory infections, congenital abnormalities, tuberculosis, malaria and typhoid fever.

The National Drug Policy (1997) promotes the essential medicines concept and the use of the National Essential Drug list, for example by mandating all government and semi-government health institutions to conduct bulk procurement in accordance with the list; however there is poor adherence to this.

Medicine prices are regulated by the government. The Price Review Committee, a subcommittee of the Drug Registration Board formed under the Drug Act 1976 sets the maximum wholesale and retail price for each registered product. Since 1993, medicines have been categorized as price controlled (about 800 medicines) or decontrolled. Periodic across-the-board price increases on account of the general rate of inflation and changes in the exchange rate of the rupee, etc. is applied for these 800 controlled medicines. For those in the decontrolled category, a more liberal system operates through which higher price increases are allowed at regular intervals.

Pakistan has a rapidly growing pharmaceutical industry with a market value of approx. US\$ 1.72 billion. More than 400 manufacturing companies operate in the country, meeting around 95% of the country's pharmaceutical requirements.

Medicine prices and availability survey

The survey was designed to answer the following questions:

- What is the availability of originator brand products and generic equivalents of selected essential medicines in the public and private health sectors?
- What is the difference in the prices of originator brand products and generic equivalents in the private sector?
- How affordable are medicines for treatment of common conditions for people with low income?
- How do prices of medicines in Pakistan compare to the same products in other countries?
- What taxes and duties are levied on medicines and what is the level of the various mark-ups that contributes to the retail price of medicines?

A total of 29 medicines were surveyed between July and September 2004, all selected from the WHO/HAI core list of medicines with pre-set dosage forms, strengths and recommended pack sizes³. Prices and availability were recorded for the originator brand product (OB) which was determined at the national level; and for the lowest priced generic equivalent (LPG) which was determined at each facility.

Data was collected from a total of 30 public sector facilities and 48 private pharmacies across four provinces—North Western Frontier Province (NWFP), Baluchistan, Sindh and Punjab—and the Islamabad Capital Territory (Table 1). Dispensaries in government health facilities were only surveyed for the availability of the selected medicines since patients do not pay directly for medicines in public health sector facilities.

Public sector procurement prices were obtained from provincial health departments of two provinces—NWFP and Sindh.

Table 1. Measurements in each sector

Measurement	Public sector	Private sector
Affordability to patients	–	✓
Procurement price	✓	✓
Price to patients	✓	✓
Availability	✓	–
No. of facilities visit	30	48

³ Reflecting the global burden of disease, WHO/HAI, *Medicine prices, a new approach to measurement*, 2003

Presentation of price information

The WHO/HAI survey methodology presents prices in local currency and as median price ratios (MPR). The MPR is calculated by dividing the local price by an international reference price (converted to local currency). An MPR of 1 means the local price is equivalent to the reference price whereas an MPR of 2 means the local price is twice the reference price. The international reference prices used for this survey were taken from the 2003 Management Sciences for Health (MSH) *International Drug Price Indicator Guide*⁴ (median prices of high quality multi-source medicines offered to developing and middle-income countries by different suppliers). Use of reference prices facilitates international comparisons. The MSH guide pulls together information from recent price lists of large, non-profit generic medicine suppliers and thus reflects the prices governments could be expected to pay for medicines. The use of reference prices facilitates international comparisons.

Interpretation of findings

Country specific factors such as pricing policies, market size, competition, national economic and other factors may influence prices. For the purposes of these surveys, in a low- or middle-income country an MPR of less than or equal to 1 for public sector procurement prices and public sector patient prices is considered to indicate acceptable (not excessive) prices.

Affordability

Affordability is calculated as the number of days the lowest paid unskilled government worker would have to work to pay for medicines for one month's treatment for medicines for chronic conditions, or a course of treatment for acute conditions. At the time of the survey, the lowest paid government worker earned 62.3 Pakistani rupees (PKR) per day (equivalent to US\$ 1.03 per day at the time of the survey)⁵.

Having to spend more than 1 day's income per month on family medicine needs could be considered to be unaffordable. Table 2 show how many days this worker would have to work to purchase various treatments.

Overall, a low paid unskilled government worker would need up to 3 days' wages for treating an acute condition such as a respiratory infection. Cost of treatment of chronic conditions ranged between 1 and 7.7 days' wages using lowest priced generics or 1.4 to 36.4 days' wages if purchasing originator brand products.

Should this low paid worker need treatment for hypertension, arthritis and a peptic ulcer, 7.6 to 53.1 days' wages every month would be needed to purchase medicines—depending upon the choice of medicine, and whether brands or generics were dispensed⁶.

⁴ <http://erc.msh.org>

⁵ 1 USD = PKR 60.5

⁶ One antihypertensive (atenolol, captopril, losartan or nifedipine retard); diclofenac for arthritis; and one ulcer healing drug (omeprazole or ranitidine)

Table 2. Affordability: number of days' wages to purchase treatments from the private sector

Medicine	Originator brand	Lowest priced generic
Diabetes		
Metformin	1.9	1.6
Glibenclamide	1.4	0.9
Hypertension		
Atenolol	2.9	1.1
Captopril	6.4	4.2
Losartan	24.9	5.4
Nifedipine retard	4.8	-
Arthritis		
Diclofenac	4.5	1.7
Peptic ulcer		
Omeprazole	23.7	4.8
Ranitidine	8.5	6.5
Asthma		
Beclomethasone inhaler	3.1	-
Salbutamol inhaler	1.4	1.4
Depression		
Amisriptyline	1.4	-
Fluoxetine	36.4	7.7
Respiratory tract infection		
Adult: Amoxicillin	1.0	1.0
Ciprofloxacin	11.3	3.0
Child: Co-trimoxazole susp.	0.4	0.3

Tab/cap unless otherwise stated

Public sector procurement prices

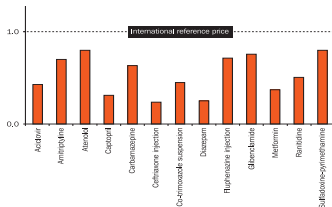
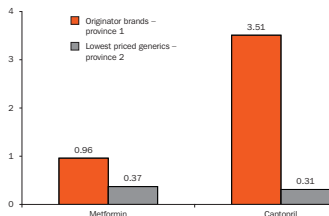
Public sector procurement prices were obtained centrally from two provinces, NWFP and Sindh, from the provincial health departments. The other two provinces, Punjab and Baluchistan, did not provide procurement prices.

The overall procurement price for the lowest priced generic versions was 0.57 times the international reference price (i.e. 43% less). Two originator brand medicines (of the 14 survey medicines procured) were being procured for the public sector at 2.24 times the international reference price (Table 3).

All of the generic medicines were procured at under the international reference price. In fact, 75% of the generic medicines procured

Table 3. Number of times more expensive: public sector procurement prices compared to international reference prices

	Originator brand	Lowest priced generic
Median MPR (interquartile range)	2.24 (1.6–2.9)	0.57 (0.4–0.7)
Minimum	1.0	0.2
Maximum	3.5	1.0
No. of medicines	2	14

**Figure 1.** Number of times more expensive: public sector procurement prices compared to international reference prices**Figure 2.** Public sector procurement price differences in 2 provinces

were 0.74 times or less than the international reference prices, providing evidence of efficient procurement practices (Figure 1).

However, one province procured two originator brand medicines, metformin and captopril, at 2.6 and 11.3 times, respectively, the price paid for the generic equivalent procured in the other provinces (Figure 2).

Public sector availability

Availability data only was collected from the 30 public sector facilities as patients do not pay directly for medicines in public health sector facilities. Availability of generic equivalents for the 29 surveyed medicines in public sector facilities was extremely low with a median percent availability of 3.3%. If the medicines that are not on the essential drugs list (fluconazole, lovastatin, nifedipine, ranitidine) and the antiretrovirals (indinavir, nevirapine and zidovudine which are available only in specialized centres, are excluded) the median availability is still only a very low 15.5% (Table 4).

Table 4. Availability of surveyed medicines ($n = 29$) in public facilities

	Originator brand	Lowest priced generic
Median availability (interquartile range)	0%	3.3% (0–33.3%)
Median availability for essential medicines (interquartile range)	0%	15.0% (3.3–47.5%)

Table 5. Availability of surveyed medicines ($n = 29$) in public facilities

Availability	Medicine
Not found	Beclometasone inhaler, carbamazepine, hydrochlorothiazide, indinavir, losartan, lovastatin, nevirapine, nifedipine retard, phenytoin, zidovudine
1–10%	Aciclovir, fluconazole, fluoxetine, fluphenazine inj, ranitidine, salbutamol inhaler, sulfadoxine-pyrimethamine
11–40%	Amitriptyline, ceftriaxone inj., co-trimoxazole susp, diclofenac, glibenclamide, omeprazole
41–50%	Ciprofloxacin
51–60%	Captopril, diazepam
61–80%	Amoxicillin, atenolol, metformin
> 80%	None

Tab/cap unless otherwise stated

Table 5 shows the availability of the surveyed medicines in the public sector. Only 6 medicines were found in at least half of the government health facilities, namely metformin (73.3%), amoxicillin (66.7%), atenolol (66.7%), diazepam (60%), captopril (56.7%) and ciprofloxacin (50%). Some other important essential medicines that should be available at all levels of care according to the national essential drugs list had very low availability or were not available (e.g. sulfadoxine-pyrimethamine (3.3%), salbutamol inhaler (3.3%), carbamazepine (0%) and phenytoin (0%).

Private sector patient prices

Price and availability data was collected from 48 private retail pharmacies. Overall the prices of originator brands were 3.36 times the international reference price compared to 2.26 times for the lowest priced generic equivalents (Table 6).

The lowest priced generic equivalents were just over twice the international reference price, with some medicines much lower than the international price (0.7 times, 30% less, for salbutamol inhaler) and others much higher (up to 7 times for ciprofloxacin).

Originator brands were just over three times the international reference price with some medicines ranging from much lower

than the international reference price (0.7 times, or 30% less, for salbutamol inhaler) and others much higher (up to 26 times for ciprofloxacin (Table 7).

Some medicines were higher multiples of the international reference price in both originator brand and generic versions, indicating that there could be room for lower prices. Four medicines had very high originator brand and generic prices: ciprofloxacin, diclofenac, fluoxetine and ranitidine. The reason for the low price ratio for losartan may have been the high reference price. Originator brand

Table 6. Number of times more expensive: patient prices in private sector compared to international reference prices

	Originator brand	Lowest priced generic
Median MPR (interquartile range)	3.36 (2.2–5.9)	2.26 (1.1–3.6)
Minimum	0.72	0.2
Maximum	26.2	7.0
No. of medicines	23	21

Table 7. Number of times more expensive: private sector patient prices compared to international reference prices

Medicine	Originator brand	Lowest priced generic
Losartan	0.9	0.2
Salbutamol inhaler	0.7	0.7
Omeprazole	4.1	0.8
Metformin	1.2	1.0
Ranitidine	5.8	4.4
Fluoxetine	21.2	4.5
Diclofenac	15.2	5.7
Ciprofloxacin	26.2	7.0

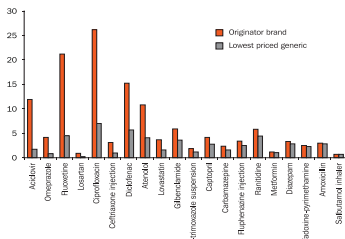
**Figure 3.** Number of times more expensive: private sector patient prices compared to international reference prices

Table 8. Private sector patient prices: ratio of originator brand prices to lowest priced generics

	Ratio
Originator brand : lowest priced generic (n=20 matched pairs)	1.47

medicines were overall 47% more expensive than their lowest priced generic equivalents (Table 8).

Both originator and generic versions of the same medicines were being sold. Figure 3 demonstrates the differences in price for originator brands and lowest priced generic equivalents. These multiples range from 1 times (i.e. the same) for amoxicillin and salbutamol inhaler to 7 times for aciclovir.

Private sector availability

Originator brands were more available than generics in private pharmacies. The median availability of the originator brands surveyed was 54.2%. The availability of the lowest priced generic equivalents surveyed was 31.3% (Table 9).

Originator brands were more widely available on 15 out of the 20 occasions when both originator and generic versions were found, even when the originator brands were many times more expensive than the lowest priced generic equivalents. For example, originator brand diclofenac was much more available than the lowest priced generic, despite being 2.7 times (370%) more expensive (Table 10).

Table 9. Availability in private sector outlets

	Originator brand	Lowest priced generic
Median availability (interquartile range)	52.2% (14.6–83.3%)	31.3% (6.3–50%)

Table 10. Availability and number of times more expensive: originator brands to lowest priced generics in private pharmacies

Medicine	Availability		Number of times more expensive originator brand: lowest priced generic
	Originator brand	Lowest priced generic	
Losartan	40%	13%	4.5
Ciprofloxacin	65%	67%	3.7
Ceftriaxone inj.	65%	54%	3.2
Diclofenac	81%	31%	2.7
Atenolol	85%	58%	2.7
Lovastatin	29%	13%	2.3

Table 11. Availability in private pharmacies

Availability	Medicine
Not found	Hydrochlorothiazide, indinavir nevirapine, zidovudine
1–10%	Aciclovir, fluconazole, phenytoin
11–40%	Amitriptyline, beclomethasone inhaler, lovastatin, losartan
41–50%	None
51–60%	Fluphenazine inj., fluoxetine, nifedipine retard
61–80%	Captopril, ceftriaxone inj., ciprofloxacin, diazepam, omeprazole
> 80%	Amoxicillin, atenolol, carbamazepine, co-trimoxazole susp, diclofenac, gibenciamide, metformin, ranitidine, salbutamol inhaler, sulfadoxine-pyrimethamine

Table 11 shows the availability of any version of the surveyed medicines in the private sector. Common medicines such as hydrochlorothiazide, aciclovir, phenytoin, fluconazole, amitriptyline, beclomethasone inhaler, lovastatin, losartan as well as the antiretrovirals were found in less than 40% facilities.

Compliance with the pricing regulations by private retail pharmacies

The maximum retail price of regulated medicines must be printed on each medicine box. However, when medicines are bulk packaged, for example 50 strips of 10 tab/foil strip, the controlled price is printed only on the main carton, not on the individual strips. Therefore, the patient will usually not see the maximum retail price. Packs can also be split up, and informants reported that single generic tablets are sometimes sold at similar prices as originator brand product prices.

Medicine prices in private retail pharmacies are set by the Ministry of Health. The small variation in the prices of the same medicine in different pharmacies and regions suggests that there is generally adherence to selling at the regulated prices.

Price components

The Drugs Act of 1976 regulates the import, export, manufacture, storage, distribution and sale of medicines in Pakistan.

For locally manufactured medicines, which account for an estimated 95% of national pharmaceutical requirements, by law wholesalers can mark-up prices by a maximum of 2% and retailers by 15%; and local distribution accounts for around 5% of the final patient price⁷. Cumulative mark-up for locally produced generic products is around 25%.

⁷ Additionally, each pharmaceutical manufacturer contributes 1% of gross profit, before deduction of income tax, towards a Central Research Fund maintained by the Federal Government. This is incorporated into the manufacturers selling price as it is 1% of profits not a percentage of the cost price.

Recommendations

Based on the survey results, the following recommendations were made:

1. Interventions are urgently needed to improve access to essential medicines in the public sector, especially for the poorest who cannot afford access to basic treatments through the private sector.
 - Increase transparency and efficiency of procurement procedures by focusing purchasing on the national essential drug list;
 - Review procurement methods including maximizing the purchasing power by pooling procurement of basic essential medicines at district, provincial and federal government level;
 - Build capacity of staff at critical management levels to better manage drug supplies and related logistics;
 - Strengthen distribution systems to achieve better availability of essential medicines at primary health care level;
 - Increase budget allocation for procurement of medicines;
 - Consider innovative financing mechanisms to increase available funds for essential drugs in public sector.
2. Improve affordability of and access to medicines in the private sector by:
 - creating further incentives for production and sales of good quality locally produced medicines;
 - creating incentives to operate more medicine outlets adhering to national standards (i.e. selling registered products at controlled prices, etc.) in rural areas to improve physical access to good quality and affordable medicines; and
 - considering innovative financing mechanisms that can support the sale of a small group of essential medicines (used for treatment of most common diseases) at manufacturer's cost price in private retail pharmacies.
3. Regulations, laws and policies related to access to medicines should be reviewed or introduced as needed, including the following.
 - Regularly review medicine pricing policies.
 - Regularly review individual medicines prices.
 - Monitor adherence to maximum retail prices and trends of price changes.
 - Review and regulate medicine promotion practices to improve access to unbiased and appropriate information about medicines and treatments both for the public and health professionals.
 - Assess medicine pricing practices of dispensing physicians to create more transparency about the prices they charge. Review of regulations to deal with any unethical practices may be necessary.
 - Permit and promote generic prescribing and substitution.
4. Strengthen medicine regulatory authority functions to assure the quality of all marketed medicines, with regular monitoring of manufacturers and importers on quality standards.
5. Educate the public and health professionals in order to build trust and create demand for low priced originator brands:
 - Widely and regularly disseminate medicine prices information to the public and health professionals to facilitate informed decision-making about prescribing and purchasing of medicines;
 - Improve the rational use of medicines by promoting clinical guidelines, formularies and independent and unbiased continuing education of health professionals;
6. Establish a nationwide system to regularly monitor medicine prices, make prices public and initiate legal action against those selling at higher than the approved prices.

Further information

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The full survey report and data can be found at <http://www.haiweb.org/medicineprices/surveys>