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# Correspondence

## Insights for policymakers from a medicine price survey in Rajasthan

Sir,

High medicine prices and low availability are major barriers to accessing medicines and achieving better health outcomes[1]. These problems are more acute in low-income countries where the absence of social insurance forces people to directly pay for health care[2]. Reliable data on medicine prices and availability are needed to develop sound pricing policies. The World Health Organization (WHO) and Health Action International (HAI) have published a standard methodology to measure medicine prices, availability, affordability and price components for a selection of medicines across healthcare sectors and regions within a country[3]. Results obtained from six surveys using WHO-HAI methodology, conducted simultaneously in different States of India were recently published[4]. A survey was also conducted in Rajasthan in April-June 2003 using the WHO-HAI methodology. Here we report key findings and recommendations from the Rajasthan survey.

Medicines prices and availability data were collected from four areas: Jaipur (State capital) and three other randomly selected administrative areas – Ajmer, Bikaner, and Kota. Three sectors were surveyed: public, private, and co-operative (a small sector in Rajasthan which supplies medicines through its outlets). In each area, five public facilities (one teaching/tertiary care hospital and four other public health facilities), and five private retail pharmacies and five co-operative pharmacies located near the public facilities were sampled. Thus, a total of 20 public health facilities, 20 private retail pharmacies and 20 co-operative pharmacies were surveyed. The data on the price and availability of the surveyed medicines at public and private facilities were collected with the consent of the officers-in-charge and owners.

The survey methodology provides a 'core list' of 30 essential medicines with specific formulation and strengths[4]. We surveyed 36 medicines - 27 from the WHO/HAI core list and 9 supplementary medicines of local importance (Table). For each medicine, data on the innovator brand (IB), most sold generic equivalent (MSG) and lowest priced generic equivalent (LPG) were collected. Intercontinental Marketing Services (IMS) health data (private sector) were used to identify the most sold generic products; the lowest priced generic products were identified at the facilities.

In the public sector, the procurement price (rate control procurement price fixed by the central drug purchase committee) was noted from invoices if the medicine was available on the day of data collection. If a survey medicine was locally purchased by the facility, that price was also noted. In the private and co-operative sectors, the availability and patient price for each medicine was collected.

To facilitate international comparisons, medicine prices are expressed as median price ratio (MPR)[5]. The MPR was calculated as follows:

$$\text{MPR} = \frac{\text{Median price of each medicine across all facilities in a sector}}{\text{International Reference Price (IRP)}}$$

The MPR is a unit of measurement that enables comparisons within and across surveys; a higher MPR indicates a higher medicine price. The international reference prices used were from the 2002 Management Sciences for Health *International Drug Price Indicator Guide*[6]. Availability was assessed as the percentage of facilities stocking the medicine on the day of data collection. Affordability was calculated as the number of days the lowest paid unskilled government worker must work to purchase standard treatment regimen for a common clinical condition.

**Table.** List of core and supplementary medicines surveyed

*Core medicines*

1. Aciclovir tab 200 mg
2. Amitriptyline tab 25 mg
3. Amoxicillin cap 250 mg
4. Atenolol tab 50 mg
5. Beclomethasone inhaler 50 µg/dose
6. Captopril tab 25 mg
7. Carbmazepine tab 200 mg
8. Ceftriaxone 1 g powder for injection
9. Ciprofloxacin tab 500 mg
10. Co-trimoxazole paediatric suspension (8 +40) mg/ml
11. Diazepam tab 5mg
12. Fluoxetine tab 20 mg
13. Fluphenazine decanoate injection 25mg/ml
14. Glibenclamide tab 5 mg
15. Hydrochlorothiazide tab 25 mg
16. Indinavir cap 400 mg
17. Losartan tab 50 mg
18. Lovastatin tab 20 mg
19. Metformin tab 500 mg
20. Nevirapine tab 200 mg
21. Nifedipine Retard tab 20 mg
22. Omeprazole cap 20 mg
23. Phenytoin tab 100 mg
24. Pyrimethamine with sulphadoxine tab (25 + 500) mg
25. Ranitidine tab 150 mg
26. Salbutamol inhaler 0.1 mg per dose
27. Zidovudine cap 100 mg

*Supplementary medicines*

1. Albendazole tab 400 mg
2. Cephalexin caps 250 mg
3. Chloroquine tab 250 mg
4. Diclofenac tab 50 mg
5. Enalapril tab 5 mg
6. Ibuprofen tab 400 mg
7. Isoniazid tab 300 mg
8. Paracetamol tab 500 mg
9. Pyrazinamide tab 500 mg

## Public sector

*Procurement price*: Only generics were found in public sector facilities. Across the 36 medicines, the median MPR was 0.96; for the 27 core medicines the median MPR was 0.77. Procurement prices of core medicines were lower in the other six Indian States; ranging from 0.27 in Chennai to 0.48 in Karnataka[4]. These six surveys were conducted in 2004 with 2003 MSH reference prices.

*Availability and local purchases*: The median availability across the 36 medicines (generics) was 40 per cent. For core medicines, the median availability was 25 per cent in Rajasthan and 0-30 per cent in the other Indian States[4]. Unlike the other States, in Rajasthan medicines were not free in the public sector for all citizens. Only BPL (below poverty line) card holders, senior citizens, freedom fighters, ex-defense personnel, widows and destitute people were entitled to free medicines from public facilities. Of the 36 medicines, 8 were not listed on the Rajasthan Essential Medicine List (EML) and were not found in any of the facilities surveyed (three HIV/AIDS medicines, lovastatin, captopril, fluphenazine injection, hydrochlorothiazide, and losartan). Medicines found in all facilities surveyed were: albendazole, amoxicillin, atenolol, ciprofloxacin, co-trimoxazole suspension, diazepam, diclofenac, isoniazid, omeprazole, paracetamol, pyrazinamide, and ranitidine. No innovator brands (IBs) were found in the public sector facilities. The most sold generic version of enalapril was available at only one facility, which was locally purchased by the facility at 13.5 times the fixed procurement price of the enalapril generic. Interestingly, the local facility purchased medicines at a price higher than the median price of the lowest priced generic version at retail pharmacies. For example, glibenclamide was available at only 3 facilities, at a price 18.5 per cent higher than the private sector price. Similarly, locally purchased sulphadoxine-pyrimethamine was 105 per cent costlier with respect to the private sector.

## Private and co-operative sectors

*Private sector - Patient price*: The median MPR for innovator brands (IBs), most sold generics (MSG) and lowest prices generics (LPG) were 2.81, 2.72 and 1.83 respectively. No difference was observed among the survey areas; this was observed even in other States[4], where medicine prices did not vary among survey regions. In India, maximum retail price (MRP) is printed on all medicines, and usually all medicines are sold at the printed MRP. Paired data analyses (including only those medicines where there were data for both product types) showed little price difference between IBs and MSGs (median MPR 2.81 vs. 2.78 respectively), and a small difference between IBs and LPGs (2.81 vs. 2.28 respectively). These findings were similar to the findings observed in other States[4]. However, unlike the other States, in Rajasthan LPGs were found to be 33% lower in price than MSGs (1.83 vs. 2.81). Innovator brand prices were aligned to the prices of most sold generics, and hence not high priced, as under the TRIPS agreement only process patents were applicable at the time of the survey. Therefore, in a real sense, the pharmaceutical market was ‘generic’.

*Private sector - Availability*: In the private sector, the median availability of IBs, MSGs, and LPGs was 0.0, 82.5, and 95 per cent respectively.

*Co-operative sector*: There was little difference in the patient price of medicines found in the co-operative sector and private retail pharmacies. Often, the only generic product found in the co-operative pharmacies was the MSG product.

*Affordability*: The wages of the lowest-paid government worker were used as a measure of affordability as this metric is universally available, reliable, and can be used to make international comparisons[3]. The daily wage of the lowest paid unskilled government worker in Rajasthan was INR 130 (~$3) at the time of the survey. Treating pneumonia with generic amoxicillin (250 mg three times a day for 7 days) purchased in private pharmacies required 0.6 days' wages for this government worker. Up to about half a day's wages were needed to purchase a month's supply of generics to treat diabetes (glibenclamide 10 mg daily) or hypertension (atenolol 50 mg daily). Treatment affordability will improve if lower priced generics are available (and dispensed) in all retail pharmacies. Only a small proportion of the population is employed in the government sector, and wages are much lower in the unorganized sector. The World Bank reports that 34.7 per cent Indian (35 million) live on less than U.S. $1 per day[7]. Therefore, medicine affordability is often beyond the reach of the majority of the population. These costs do not include consultation fees and diagnostic tests, which can result in considerably higher costs for patients.

*Price components*: It was not possible to obtain detailed price component information in the private sector, although discussions with wholesalers and retailers indicated that mark-ups were variable and might be higher than the suggested mark-ups by the actors and middle man in the pharmaceutical supply chain.

**Huge price differences for a few medicines between sectors**

The retail price of some generics was substantially higher than government procurement prices. For example, the retail price of diazepam was 26 times the public sector procurement price, diclofenac was 14 times, and albendazole was 8 times higher than the procurement price. Kotwani *et al*[4] have shown that across the six surveys in other States of India, the retail price of diazepam was 33 times higher in the private sector compared to the public sector procurement price. These examples show that mark-ups for manufacturers, wholesalers and retailers can be very high and need in depth research.

In conclusion, this survey showed that policies are needed to be implemented to increase availability, lower prices, and improve the affordability of essential medicines. State governments should evaluate their procurement systems to ensure efficiencies. Distribution systems should be evaluated so that 'stock-outs' of medicines are avoided, thereby minimizing costly local purchases by the facilities. Since this survey was conducted in 2003, a detailed price component study with current prices of medicine may be conducted to evaluate mark-ups and other charges in the supply chain. Central government and the national pharmaceutical pricing authority[8] should be transparent in how they set the maximum retail price of medicines. Lower priced generics should be made available in all private and co-operative pharmacies, to improve treatment affordability, and their use promoted by the State government.

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