

Tunisia

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 Tunisia 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 International (HAI)¹.

This survey was conducted in 2004 by the Union of Mutual Insurance Companies in collaboration with the Ministry for Public Health, the National Council of the Order of Pharmacists of Tunisia and the Central Pharmacy of Tunisia. They studied the price, availability and affordability of 30 medicines.

The survey found that in Tunisia:

- Public procurement prices of many medicines are high although the overall procurement price of generics is reasonable.
- For some medicines, the government is buying high priced originator brands when lower priced generics are available.
- While medicines are free in the public sector, they are not always available.
- In private pharmacies, overall prices of both originator brands and generics are high.
- On average there is a nearly two-fold difference between prices of originator brands and generic equivalents in the private sector.
- Many treatments are unaffordable to low paid Tunisians when purchased from private pharmacies.

Generally, across the WHO Eastern Mediterranean Region, a similar picture emerges: unreliable availability of medicines in the public sector, 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.

Tunisia

Tunisia is situated on the Mediterranean coast of north Africa. It has a population of 10 million people (2006). It is a lower middle-income country with a per capita GDP of US\$ 2874 (2005). Tunisia spent 5.5% of its GDP on health in 2005 with total health expenditure per capita of US\$ 159.

The health infrastructure comprises both public and private sector with social health insurance (social security) contributing in large part (84%) to public sector coverage. Free medical assistance is provided to people living in poverty. Medicines are free in the public sector.

Tunisia's pharmaceutical manufacturing sector is growing. There are 27 companies, both public and private, with production plants in Tunisia, including major international pharmaceutical companies. Local production covers a wide range of medicines and covers about half of the country's needs.

Medicine price and availability survey

The survey was designed to answer the following questions:

- What is the price of medicines in private pharmacies?
- What is the price difference between originator brands and their generic equivalents?
- What is the level of the various mark-ups which contribute to the retail price of medicines?
- How affordable are medicines for people on low incomes?

A total of 30 medicines were surveyed; 20 medicines³ from the WHO/HAI core list with pre-set dosage forms, strengths and recommended pack sizes, and a supplementary group of 10 medicines important to prevalent health problems in Tunisia. Of the 30 medicines, 27 had MSH reference prices.

Prices and availability were recorded for the originator brand product (OB) and the most sold generic equivalent product, which were determined at the national level, and the lowest priced generic equivalent product (LPG), which was determined at each facility. Data was collected from a total of 21 public health facilities and 41 private retail pharmacies in the capital Tunis and other governorates: North East, North West, Centre and South (Table 1). Public sector procurement prices were obtained from the Central Medical Stores of the Ministry of Health. Prices paid

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

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.

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

Table 1. Measurements in each sector

Measurement	Public sector	Private sector
Price to patient	–	✓
Availability	✓	✓
Affordability	–	✓
Procurement price	✓	–
No. of facilities visited	21 medicine outlets	41 retail pharmacies

by public and private health insurance schemes were also collected in the public sector facilities but have not been included in this report.

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.

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 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 one month's treatment for medicines for chronic conditions, and a treatment course for acute conditions.

At the time of the survey, the lowest paid unskilled government worker earned 7.0373 Tunisian dinars (US\$ 5.43) per day. Since patients do not pay for medicines in the public sector, affordability was calculated using retail pharmacy prices only. Having to spend more than 1 day's income per month on family medicine needs could be considered to be unaffordable.

Of the three standard treatments for respiratory tract infections, only ciprofloxacin required more than 1 day's wages (Table 2). For chronic diseases, a Tunisian worker would generally need less than 1 day's wages to purchase some, but not all, of the standard treatments. They are unlikely to be able to pay for monthly treatment with fluoxetine (4.9 days' wages), omeprazole (7 days' wages), simvastatin (6.4 days' wages), ranitidine (4.5 days' wages) and losartan (5.3 days' wages). However, medicines can be obtained free by visiting government health facilities.

Should this Tunisian worker need treatment for hypertension, arthritis and a peptic ulcer, then they would have to use 5.7 to 13.7 days' of salary every month to purchase needed medicines – depending upon the choice of medicines and whether originator brand or generic is dispensed⁵.

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

Medicine	Originator brand	Lowest priced generic
Diabetes		
Metformin	1.1	0.8
Glibenclamide	1.2	0.3
Hypertension		
Atenolol	–	0.7
Captopril	2.9	1.9
Losartan	5.3	–
Nifedipine retard	2.7	0.5
Hyperlipidaemia		
Simvastatin	6.4	–
Arthritis		
Diclofenac	1.3	0.7
Peptic ulcer		
Omeprazole	–	7.0
Ranitidine	7.1	4.5
Asthma		
Beclometasone inhaler	–	0.4
Salbutamol inhaler	0.3	–
Depression		
Amitriptyline	0.4	–
Fluoxetine	6.8	4.9
Respiratory tract infection		
Adult: Amoxicillin	1.0	0.6
Ciprofloxacin	–	1.7
Child: Co-trimoxazole susp.	0.3	0.3

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⁴ <http://ec.msh.org>

⁵ One antihypertensive (atenolol, captopril, losartan or nifedipine retard); diclofenac for arthritis; and one ulcer healing drug (omeprazole or ranitidine)

Public sector procurement prices

The overall procurement price for originator brands was 7.44 times the international reference price (i.e. 644% more) and for lowest priced generic versions it was 1.26 times the international reference price (i.e. 26% more). Fifty per cent (50%) of the originator brands procured by the Central Medical Stores were priced between 4.5 and 10.3 times the reference prices; for generics half the prices were between 1 and 2.9 times the reference prices (Table 3). For some medicines, both originator brands and generics were being procured.

For six medicines the procurement price was less than the international reference price (e.g. generic metformin was 58% less) providing evidence that efficient purchasing is possible. Table 4 presents medicines where procurement prices were high for originator brands and generics, as well as those where there is a large price difference between the originator and generic equivalents. For example, originator brand and generic fluoxetine were 44 and 22 times the international reference price, respectively, and the

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)	7.44 (4.5–10.3)	1.26 (1–2.9)
Minimum	0.7	0.42
Maximum	90.15	22.09
No. of medicines	9	19

Table 4. Number of times more expensive: public sector procurement prices compared to international reference prices

Medicine	Originator brand	Lowest priced generic	Ratio originator brand:lowest priced generic
Aciclovir	10.3	–	
Atenolol	–	3.4	
Chloroquine	5.3	–	
Ciprofloxacin	–	5.1	
Co-trimoxazole susp.	7.4	1.1	6.8
Diazepam	8.1	3.6	2.2
Fluconazole	90.2	–	
Fluoxetine	43.9	22.1	2
Omeprazole	–	4.4	
Phenytoin	4.5	–	

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price of originator brand fluconazole was 90 times (9000% more) than the reference price.

Only the originator brand versions of some medicines, including aciclovir, chloroquine and fluconazole, were purchased despite generic versions being available in most markets. Of the five medicines purchased as both originator brands and generic equivalents, the originator brands were on average three times the price of the generics.

Public sector availability

Availability data only was collected from the 21 public sector facilities as patients do not pay directly for medicines in Tunisia. Across the 30 medicines surveyed, the availability of generics in public sector facilities was 64.3% while the availability of originator brands was 0% (Table 5). Table 6 presents the availability of any version of the surveyed medicines in the public sector facilities. While many medicines had good availability (>80%), some medicines were found in few facilities (e.g. diclofenac). Some medicines were not found in any of the surveyed public sector facilities (e.g. ranitidine).

Table 5. Availability of surveyed medicines in public health facilities ($n = 30$ medicines)

	Originator brand	Lowest priced generic
Median availability (interquartile range)	0% (0–8%)	64.3% (2.4–95.2%)

Table 6. Availability of surveyed medicines ($n = 30$ medicines)

Availability	Medicine
Not found	Losartan, pravastatin, ranitidine, simvastatin
1–10%	Aciclovir, diclofenac
11–40%	Ceftriaxone inj., fluconazole, fluoxetine
41–50%	Chlorothiazide, diazepam
51–60%	Omeprazole
61–80%	Atenolol, chloroquine, co-trimoxazole susp., phenytoin
> 80%	Amitriptyline, amoxicillin, beclometasone inhaler, benzathine benzylpenicillin inj., captopril, carbamazepine, ciprofloxacin, dexamethasone inj., glibenclamide, metformin, nifedipine retard, paracetamol, salbutamol inhaler, theophylline retard

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Private sector patient prices

Patients pay very high prices for medicines (originator brands and generics) when purchased from private retail pharmacies in Tunisia. Overall, originator brands were nearly 12 times higher than the international reference price, with half of them (interquartile range) between 4.8 and 20.9 times higher. Overall, lowest priced generics were about 6.8 times the international reference price (interquartile range 2.2–12.0) (Table 7).

Medicine prices in private retail pharmacies are set by the Ministry of Health. There was a negligible variation in the prices of the same medicine in different pharmacies and regions, hence adherence to regulated prices is high in Tunisia.

Figure 1 presents several medicines where patient prices were high for originator brands and generics – as well as those where there is a large difference between the originator and generic equivalent. For example, originator and generic fluoxetine were almost 44 and 32 times the international reference price respectively and originator brand nifedipine retard was over 5 times the price of the lowest priced generic equivalent.

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

	Originator brand	Lowest priced generic
Median MPR (interquartile range)	11.89 (4.8–20.9)	6.82 (2.2–12.0)
Minimum	0.86	0.71
Maximum	43.92	31.75
No. of medicines	19	19

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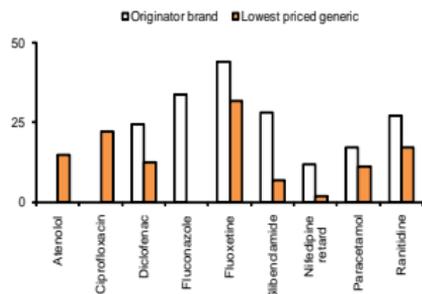


Figure 1. Number of times more expensive: patient prices in private retail pharmacies compared to international reference prices

When the prices of matched pairs were analysed (only medicines where both product types were found), originator brands were 1.8 times the price of lowest priced generics for the 11 common medicines.

Private sector availability

Across the 30 medicines surveyed, the availability of originator brands in private sector facilities was 76.8% while the availability of generics was 95.1% (Table 8).

Table 8. Availability of surveyed medicines in private pharmacies ($n = 30$ medicines)

	Originator brand	Lowest priced generic
Median availability (interquartile range)	76.8% (3.0–99.4%)	95.1% (0.6–99.4%)

Table 9. Availability of the originator brands in private pharmacies ($n = 28$ medicines)

Availability	Medicine
Not found	Beclometasone inhaler, benzathine benzylpenicillin inj., carbamazepine, ciprofloxacin, dexamethasone inj.
1–10%	Atenolol, ceftriaxone inj., fluconazole, omeprazole
11–40%	Diclofenac
41–50%	–
51–60%	Diazepam
61–80%	Aciclovir, pravastatin
> 80%	Amitriptyline, amoxicillin, captopril, chloroquine, co-trimoxazole susp., fluoxetine, glibenclamide, losartan, metformin, nifedipine retard, paracetamol, phenytoin, ranitidine, salbutamol inhaler, simvastatin

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Table 10. Availability of generics in private pharmacies ($n = 30$ medicines)

Availability	Medicine
Not found	Aciclovir, chloroquine, fluconazole, losartan, phenytoin, pravastatin, salbutamol inhaler, simvastatin
1–10%	Amitriptyline
11–40%	Ceftriaxone inj., diazepam
41–50%	Fluoxetine
51–60%	–
61–80%	Benzathine benzylpenicillin inj., chlorothiazide
> 80%	Amoxicillin, atenolol, beclomethasone inhaler, captopril, carbamazepine, ciprofloxacin, co-trimoxazole susp., dexamethasone inj., diclofenac, glibenclamide, metformin, nifedipine retard, omeprazole, paracetamol, ranitidine, theophylline retard

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Tables 9 and 10 present the availability of originator brands and generics respectively in private pharmacies. No generics were found for some common multi-source medicines, e.g. aciclovir, chloroquine and salbutamol inhaler.

Price components

Mark-ups on medicines are regulated. They are identical for originator brands and generic medicines, but vary by sector (public/private) and by location of production (imported/locally produced), although this was not verified in the field.

As shown in Table 11, value added tax (VAT) is applied to locally produced products but not those that are imported. The wholesale mark-up is 10% in the public sector and 8.7% in the private sector. In the private sector, the retail mark-up is 31.6–42.9% (applied regressively).

For example, the cumulative mark-up (hypothetical) for a pack of 14 omeprazole 20 mg tablets is 43% for the imported originator brand product in the private sector. The largest component of the final patient price is the manufacturer's selling price plus insurance and freight (Figure 2). The cumulative mark-up (hypothetical) is 17% for the locally produced generic equivalent in the public sector. Neither mark-up was verified in the field.

Table 11. Components of price

Component	Imported medicine		Locally manufactured	
	Public sector	Private sector	Public sector	Private sector
VAT	–	–	6%	6%
Wholesale mark-up	10%	8.7%	10%	8.7%
Retail mark-up	–	31.6–42.9% (regressive)	–	31.6–42.9% (regressive)



- Manufacturer's selling price + insurance and freight 70%
- Wholesale mark-up 6%
- Pharmacy mark-up 24%

Figure 2. Components of the final patient price for imported originator brand omeprazole, private sector

Recommendations

1. Raise awareness of physicians on the importance of rational prescribing, in particular prescribing using international non-proprietary medicine names rather than brand names.
2. Implement legal provisions for generic substitution in the private sector, thereby providing greater harmonization between public and private sector practices.
3. Involve the pharmacist in the harmonization of the legal framework, for example, by allowing generic substitution.
4. Develop global guidelines/methodology for "Good Purchasing Practices", which could be adopted by all countries that have conducted medicine price surveys, and could be improved periodically based on country experiences
5. Adapt the methodology to the country context by studying procurement prices for medicines according to therapeutic class.
6. Analyse public and private sector prices for a basket of medicines corresponding to 80% of total expenditures or total volume, in each sector.
7. Assemble a working group to further examine and interpret the information and results derived from the survey.

Further information

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