

# Oman

## 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 medicine prices and availability in Oman is one of a series of papers summarizing the results of national medicine price and availability surveys carried out around the globe using a standard survey methodology developed by the World Health Organization (WHO) and Health Action International (HAI)<sup>1</sup>.

This survey was undertaken in October 2007 by the Directorate-General of Pharmaceutical Affairs and Drug Control, Ministry of Health, which studied the price, availability and affordability of 42 medicines.

This survey found that in Oman:

- Overall, government procurement of generics was efficient but a few medicines were high priced.
- Originator brands of some off-patent medicines were being procured by the government.
- Availability of medicines was good in public sector facilities but quite poor in private retail pharmacies.
- Overall prices of both originator brands and lowest priced generics in private retail pharmacies were high.
- Many treatments were unaffordable when purchased in the private sector.
- Private retail prices are regulated with a 55% cumulative mark-up for imported medicines and 34% for locally manufactured medicines.

Generally, across the WHO Eastern Mediterranean Region, a similar picture emerges: reasonably efficient public sector procurement, people having to pay for their own medicines in the private sector, often at high and frequently unaffordable prices; and the need for stronger government action to introduce or improve national medicines policies and effective pricing policies<sup>2</sup>.

<sup>1</sup> WHO/HAI. *Measuring medicine prices, availability, affordability and price components*. 2nd Ed. Geneva, World Health Organization, 2008. Available from <http://www.haiweb.org/medicineprices>

<sup>2</sup> 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.

### Oman

Oman has a population of over 2.74 million (2007) of which 30% are non-Omani expatriates. Oman is classified as an upper-middle-income country by the World Bank. With a 2006 per capita GDP of US\$ 15 229, Oman spent 2.4% of its GDP on health in 2006 with total health expenditure per capita reaching US\$ 373. Out-of-pocket expenditure as a percentage of total expenditure on health was 10%.

Health services are provided under the Ministry of Health. Medicines are provided free to all employed in the public sector. The Directorate-General of Pharmaceutical Affairs and Drug Control is the Drug Regulatory Authority within the Ministry of Health. The Directorate-General of Medical Supply is responsible for procurement, storage and distribution of medicines and medical supplies for the Ministry of Health. There is also a Directorate of Rational Use of Medicines. Public pharmaceutical supply is provided through the Directorate-General of Medical Supply, in accordance with a list of approved medicines for use in the public sector. The private sector is smaller than the public sector, catering mostly for expatriates not employed by the government who must pay for their medicines. Medicine prices in private retail pharmacies are regulated under the Directorate-General of Pharmaceutical Affairs and Drug Control based on fixed profit margins for wholesalers and retailers.

### Medicine price and availability survey

The survey was designed to answer the following questions:

- What price do people and the government pay for key medicines?
- What is the price difference between originator brands and generic equivalents?
- What is the availability of medicines in the public and private sectors?
- How efficient is the government procurement system in obtaining low cost medicines?
- How efficient is the pricing policy applied by the Ministry of Health for medicines sold in the private sector?
- How do prices in Oman compare internationally, especially with neighbouring countries?
- What tariffs and other charges apply to medicines in Oman?

Table 1. Measurements in each sector

Measurement	Public sector	Private sector
Price to patient	-	√
Availability	√	√
Affordability	-	√
Procurement price	√	-
No. of facilities visited	30 public health facilities	32 private retail pharmacies

A total of 42 medicines were surveyed: 14 medicines from the WHO/HAI global core list and 16 from the regional core list, all with pre-set dosage forms, strengths and recommended pack sizes<sup>3</sup>, and a supplementary group of 12 medicines important to health problems prevalent in Oman. Prices and availability were recorded for the originator brand product (OB), and the lowest priced generic equivalent (LPG) which was determined at each facility.

Data was collected from a total of 30 public health facilities and 30 private pharmacies in six regions of Oman: Muscat (major urban centre) and Dhofar Governorate, Al-Dakhliya, North Batina, North Sharqiya, and South Sharqiya regions (Table 1). Government procurement prices were obtained from the Directorate-General of Medical Supply.

## Presentation of price information

The WHO/HAI survey methodology presents prices as median price ratios (MPR). The MPR is calculated by dividing the local price by the international reference price (converted into 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 2006 Management Sciences for Health (MSH) *International Drug Price Indicator Guide*<sup>4</sup> (median prices of high quality multi-source medicines offered to developing 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-income developing country an MPR of less than or equal to 1 for public sector procurement prices is considered to indicate acceptable (not excessive) prices.

<sup>3</sup> Reflecting the global burden of disease, WHO/HAI, *Medicine prices, availability, affordability and price components*, 2008.

<sup>4</sup> <http://erc.msh.org>

## Affordability

Affordability is calculated as the number of days the lowest paid unskilled government worker would have to work to pay for one course of treatment for an acute condition or one month's treatment for a chronic condition. At the time of the survey, the lowest paid unskilled Omani government worker earned 3.5 Omani rials (OMR) (US\$ 9.00) per day.

Medicines are provided free in the public sector so affordability was assessed for medicines purchased in the private sector. On average, an unskilled Omani worker would generally need less than 2 days' wages for most standard treatments when using generics except for fluoxetine capsules (5.2 days' wages), lisinopril tablets (4.7 days' wages), simvastatin tablets (3.3 days' wages), and omeprazole capsules (3.1 days' wages) (Table 2 and Figure 1). Should this low-paid government worker be treated with originator brand products, some standard therapies would require over a week's wages to purchase 30 days' supply (omeprazole, fluoxetine, atorvastatin and simvastatin).

Although some treatments appear to be affordable, when low-income families need to pay for multiple treatments, the cumulative cost of medicines can still be a heavy financial burden, especially

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

Medicine	Originator brand	Lowest priced generic
<b>Diabetes</b>		
Metformin	0.7	0.4
Glibenclamide	1.8	0.9
Gliclazide	1.1	0.6
<b>Hypertension</b>		
Atenolol	1.1	0.4
Lisinopril	5.4	4.7
Nifedipine retard	4.0	-
<b>Arthritis</b>		
Diclofenac	5.0	0.7
<b>Peptic ulcer</b>		
Omeprazole	10.4	3.1
Ranitidine	5.7	1.6
<b>Asthma</b>		
Beclometasone inhaler	-	0.6
Salbutamol inhaler	1.4	0.3
<b>Hypercholesterolaemia</b>		
Atorvastatin	9.0	-
Simvastatin	8.5	3.3
<b>Depression</b>		
Fluoxetine	7.9	5.2
Amitriptyline	1.3	-
<b>Respiratory tract infection</b>		
Adult: Amoxicillin	0.8	0.4
Ciprofloxacin	6.1	0.6
Child: Co-trimoxazole susp.	-	0.4

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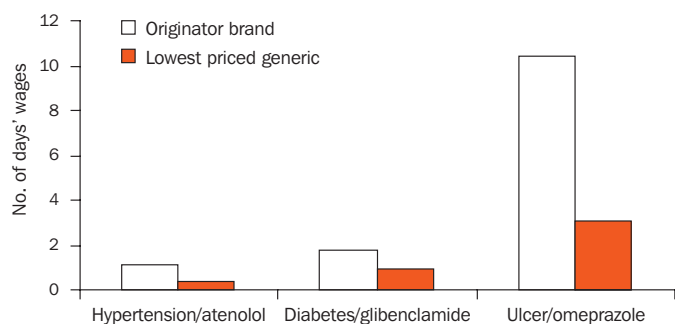


Figure 1. Affordability: days' wages for one month's treatment in the private sector

for those who live below the poverty line. Note: some medicines were unavailable so their affordability could not be ascertained.

### Public sector procurement prices

On average, generic equivalents of surveyed medicines were procured by the Directorate-General of Medical Supply at around the same price (med. MPR 0.95) as the international reference price (Table 3). Fifty per cent (50%) of generics procured by the Directorate-General of Medical Supply had MPRs varying between 0.7 and 1.3, and the maximum MPR was 13.82 (diazepam cap/tab).

These procurement prices indicate that the Directorate-General of Medical Supply is procuring most generic medicines efficiently with some at prices much lower than the international reference prices. However, diazepam (MPR 13.8), fluoxetine (MPR 8.7), acetylsalicylic acid (MPR 4.5) and chloramphenicol eye drops (MPR 3.6) are being procured at higher than expected prices.

Some medicines were only procured as originator brands, overall at a high price (median MPR was 5.8). These include albendazole (MPR 20.7), amitriptyline (MPR 4.6), carbamazepine (MPR 5.5), digoxin (MPR 7.4), nifedipine retard (MPR 6.1) and gliclazide (MPR 3.6). Both originator brand and generic versions of gliclazide and nifedipine retard were being purchased, with the originator brand five times the price of the generic. Efficiency in the procurement process could be improved by procuring generics, especially albendazole used for helminthiasis (worm infestation). Some generics of albendazole, digoxin and nifedipine retard were found in public facilities, suggesting that they are not always procured as originator brands.

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)	5.8 (4.8–7.1)	0.95 (0.7–1.3)
Minimum	3.6	0.3
Maximum	20.7	13.8
No. of medicines	6	33

### Public sector availability

Thirty-five (83%) of the medicines surveyed were found as generic products in the public health facilities visited at the time of conducting the study, yielding a mean availability of 68.3% (Table 4). Originator brands were found in some facilities (mean availability 13%) reflecting the fact the Directorate-General of Medical Supply procures some medicines as originator brands (see above).

Twenty-nine (29) of the medicines surveyed (69%) had good availability i.e. they were available in more than 80% of the public health facilities surveyed (Table 5). Four were not found at any facility and one medicine was found only at one facility. This was because four of these medicines were not on the Ministry of Health list of approved medicines (i.e. metronidazole 400 mg tab/cap, ciprofloxacin 500 mg tab/cap, amoxicillin 500mg tab/cap, amoxicillin 250 mg/5ml susp.) while atorvastatin was probably not available because simvastatin is preferred and was widely available (100%).

Table 4. Availability of survey medicines in public health facilities (n = 42)

	Mean availability (standard deviation)	
	Originator brand	Lowest priced generic
All medicines (n = 42)	13% (30%)	68.3% (39%)
Essential medicines list* (n = 38)	14.4% (32%)	75.4% (34%)

\* Ministry of Health approved list

Table 5. Availability of surveyed medicines in public health facilities (n = 42)

Availability	Medicine
Not found	Amoxicillin 500 mg, atorvastatin, ciprofloxacin 500 mg, metronidazole 400 mg
1–40%	Amoxicillin 250 mg/5 ml susp., ceftriaxone inj.
41–60%	Amoxicillin+clavulanic acid, co-trimoxazole susp., omeprazole
61–80%	Albendazole, ciprofloxacin 250 mg, dexamethasone inj., fluoxetine
81–99%	Acetylsalicylic acid, amitriptyline, beclometasone inhaler, diazepam, gliclazide, metronidazole 200 mg, salbutamol syrup
100%	Amoxicillin 250 mg, amoxicillin 125 mg/5 ml susp., atenolol, captopril, carbamazepine, chloramphenicol eye drops, chlorpheniramine, diclofenac, digoxin, furosemide, glibenclamide, hyoscine N-butyl bromide, ibuprofen, isosorbide dinitrate, lisinopril, metformin, nifedipine retard, oral rehydration salts, paracetamol syrup, ranitidine, salbutamol inhaler, simvastatin

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When considering only those medicines on the Ministry of Health approved list, mean availability was 75.4% for generics and 14.4% for originator brands (Table 4). However, some medicines are reserved for use only in higher level health facilities and some medicines are only available as originator brands and so the figures may be misleading.

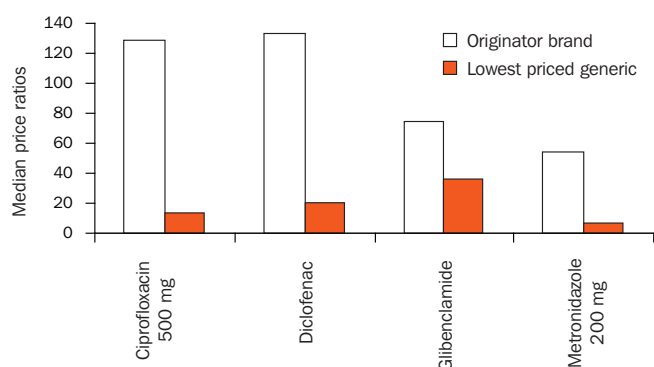
### Private sector prices

The median patient price of the medicines surveyed was about 22.4 times higher than the international reference price for originator brands purchased in private retail pharmacies, and about 7.4 times higher for lowest priced generics (Table 6). There was a similar degree of variation in the prices of originator brands and lowest-priced generics with respect to international reference price, with ranges of 1.6 to 156.3 and 1.3 to 102.7 respectively.

While private sector patient prices are higher than international reference (procurement) prices due to a number of factors, some prices of originator brands (OB) and lowest-priced generics (LPG) were very high including albendazole (OB MPR 126, LPG MPR 102), ciprofloxacin 250 mg and 500 mg (OB MPR 103 and 129 respectively), diclofenac (OB MPR 132), fluoxetine (OB MPR 156, LPG MPR 103), furosemide (OB MPR 79), glibenclamide (OB MPR 74, LPG MPR 36), metronidazole 200 mg (OB MPR 55). These medicines are generally available on international markets at much lower prices and in the cases of ciprofloxacin, diclofenac, glibenclamide and metronidazole, generics were available at a much lower price (Figure 2). In these and other cases, patients could save significant amounts of money by purchasing lowest priced generics.

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

	Originator brand	Lowest priced generic
Med. MPR (interquartile range)	22.44 (11.5–47.4)	7.39 (4.3–12.7)
Minimum	1.6	1.3
Maximum	156.3	102.7
No. of medicines	35	31



**Figure 2.** Comparison of the price of originator brands and lowest priced generics, private sector

### Brand premiums in the private sector

Using matched medicines pairs, i.e. where the medicine was available as both originator brand and generic ( $n = 25$ ), the originator brand was on average twice the price of the lowest-priced generic (med. MPR 22.44 versus med. MPR 10.05). This represents the brand premium, how much extra on average a patient would have to pay in order to purchase the originator brand.

### Private sector availability

The mean availability of generics in private retail pharmacies was 55.3% (Table 7) which was lower than in the public health facilities (68.3%). The private retail pharmacies tended to stock more originator brand products (51% versus 13%). Seven of the medicines surveyed were not available as generics in any of the pharmacies. The medicine with the lowest availability (taking into account availability as both originator brand and generic) was captopril (present in 1 pharmacy) followed by diazepam (present in 4 pharmacies) (Table 8).

**Table 7.** Availability of survey medicines ( $n = 42$ ) in private retail pharmacies

	Mean availability (standard deviation)	
	Originator brand	Lowest priced generic
All surveyed medicines ( $n = 42$ )	50.6% (31%)	55.3% (39%)
National essential medicines list* ( $n = 38$ )	49.7% (32%)	54.8 (39%)

\* Ministry of Health approved list

**Table 8.** Availability of originator brands in private pharmacies ( $n = 42$  medicines)

Availability	Medicine
Not found	Beclometasone inhaler, captopril, chloramphenical eye drops, chlorpheniramine, co-trimoxazole susp., dexamethasone inj.
1–40%	Atorvastatin, ceftriaxone inj. ciprofloxacin 250 mg, ciprofloxacin 500 mg, diazepam, digoxin, fluoxetine, isosorbide dinitrate, omeprazole, simvastatin
41–60%	Amoxicillin 250 mg/5 ml susp., metronidazole 200 mg, nifedipine retard, paracetamol susp., ranitidine
61–80%	Acetylsalicylic acid, amitriptyline, amoxicillin 250 mg, amoxicillin 500 mg, amoxicillin 125 mg/5 ml susp., atenolol, diclofenac, furosemide, gliclazide, lisinopril, metronidazole 400 mg, salbutamol inhaler, salbutamol syrup
81–99%	Albendazole, amoxicillin+clavulanic acid, carbamazepine, glibenclamide, hyoscine N-butyl bromide, ibuprofen, metformin
100%	–

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**Table 9.** Availability of generics in private pharmacies (n = 42 medicines)

Availability	Medicine
Not found	Acetylsalicylic acid, amitriptyline, atorvastatin, diazepam, digoxin, furosemide, isosorbide dinitrate
1–40%	Albendazole, beclometasone inhaler, captopril, carbamazepine, dexamethasone inj., fluoxetine, gliclazide, metronidazole 400 mg, nifedipine retard
41–60%	Amoxicillin 250 mg/5 ml susp., ceftriaxone inj., lisinopril
61–80%	Metformin, metronidazole 200 mg, salbutamol syrup, simvastatin
81%–99%	Amoxicillin+clavulanic acid, amoxicillin 250 mg, amoxicillin 500 mg, amoxicillin 125 mg/5 ml susp., atenolol, chloramphenicol eye drops, ciprofloxacin 250 mg, ciprofloxacin 500 mg, co-trimoxazole susp., glibenclamide, hyoscine N-butyl bromide, ibuprofen, omeprazole, oral rehydration salts, paracetamol susp., ranitidine, salbutamol inhaler
100%	Chlorpheniramine, diclofenac

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Seven medicines had an availability of greater than 80% for the originator brands. The only medicines with 100% availability as generics were chlorpheniramine and diclofenac, although 19 medicines had generic availability of more than 80% (Table 9).

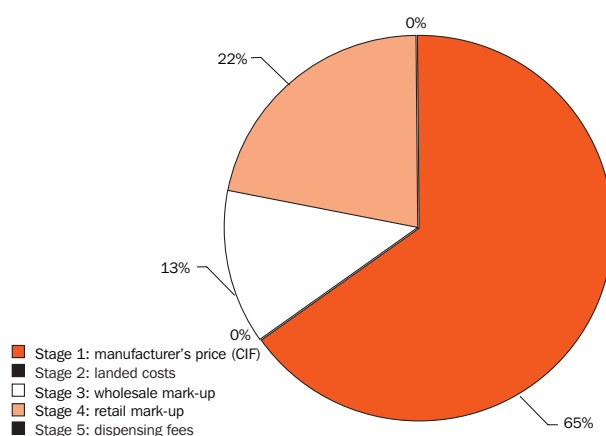
## Intersectoral comparisons

In general, lowest-priced generic medicines were about 646% higher priced in private pharmacies than in public procurement orders. It is not unexpected that private retail prices would be higher than public procurement prices and this difference is smaller than that found in some other countries in the Region, such as Kuwait and Jordan. For originator brands the difference between public procurement and private retail pharmacy prices was 250% on average, i.e. about three and a half times greater.

## Price components

Examining the components that make up the price of medicines is an important step in determining how to reduce their cost. The final price paid for a medicine whether by the government or a patient reflects the manufacturer's selling price (MSP) plus all the intervening price additions.

In Oman, medicines are tax-free and the final medicine price to the patient in the private sector is fixed by the Ministry of Health, with no variations allowed between the various regions of the country. For imported medicines, 55% is added as additional costs to the manufacturer's selling CIF price for an imported medicine. Of that 55%, some goes to the wholesaler (20.9% on the landed



**Figure 3.** Price component contributions to the final price for a hypothetical, imported medicine (originator brand or generic)

cost) and some to the retailer (28.1% on the wholesale cost). For locally produced generics the additional costs are fixed at 34%.

The relative contributions of these markups to the final price of an imported medicine, whether an originator brand or a generic are shown in Figure 3. (Note: this data was not verified in the field). The mark-up was reduced from 70% to 55% in 2006 but this was still higher than mark-ups in other neighbouring countries at the time (United Arab Emirates 45%, Saudi Arabia 34%).

## Conclusions

### Affordability and access to medicines

#### Public sector

- Public sector procurement of medicines appears to be efficient with procurement prices of lowest priced generics on average 95% those of international prices available on the open market.
- Some medicines were being procured as the originator brand, e.g. amitriptyline, carbamazepine, albendazole.
- Availability of generic medicines in the public sector health facilities visited during the survey was lower than expected (68% on average). This was because some medicines are procured as originator brands only, some of the medicines surveyed were not on the Ministry of Health approved list and some medicines have availability restricted to higher level health facilities. Thus actual availability would be higher. Originator brand medicines in the private sector were about twice the price of lowest priced generic equivalents.
- Medicines are provided free to public sector employees, making standard treatments “affordable” compared to the salary of lowest paid unskilled government workers. However, non-government employees have to purchase their medicines from the private sector.

## Private sector

- Compared to the public sector facilities, mean availability of medicines was lower for generic medicines (55%) but higher for originator brands (51%).
- On average, lowest-priced generic medicines were 7.4 times and originator brands were 22.4 times the international reference prices.
- Originator brand medicines available in the private sector were about twice the price of lowest priced generic equivalents.
- An unskilled Omani worker would generally need less than two days' wages for most standard treatments when buying generic medicines, except for simvastatin, lisinopril, fluoxetine and omeprazole. Many treatments with originator brands required over a week's wages.

## Recommendations of the investigators

1. Maintain the efficiency of Central Medical Stores in public procurement but investigate where medicines are being procured at high MPRs.
2. Identify generic medicines with low availability and consider incentives for suppliers to make them available in private retail pharmacies.
3. Adopt pro-generic policies to promote the prescription, dispensing and use of generic medicines.
4. Promote prescribing and use of medicines by generic name in the public and private sector.
5. Continue implementation of effective health care insurance for all Oman residents.
6. Consider additional living costs and other expenses in the measurement of medicine affordability.
7. Conduct a more comprehensive survey, including additional medicines and compare the results to neighbouring countries, such as the United Arab Emirates and Saudi Arabia.
8. Reduce the medicines mark-up to be in line with neighbouring countries, such as the United Arab Emirates and Saudi Arabia.
9. Identify medicines with high MPRs and investigate their approved price with a view to re-pricing (especially those with generics on the market).
10. Carry out surveys to investigate barriers to generic market penetration at all levels using an evidence-based approach.
11. Conduct a survey on medicines prices for inpatients in private hospitals and develop a pricing policy for this sector.
12. Encourage local pharmaceutical manufacturers to produce high demand medicines at competitive prices.

## Further information

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