

# **SURVEY REPORT – PRICES OF MEDICINES IN LEBANON**

## **World Health Organization – Health Action International Project on Medicine Prices**

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## **Executive Summary**

We have carried out a field study to measure the prices of medicines in Lebanon using an international standardized methodology. Data on prices for 32 medicines were collected in the public and private for-profit sector in the capital Beirut, the North, South and Mount Lebanon. The availability of the medicines was also measured. The cost of treatment was calculated and compared to the daily wage of the lowest paid government worker. In addition, we also identified the components of medicine prices.

The results showed that Lebanon public health sector is relatively efficient in procurement and is purchasing medicines at a reasonable price for poor patients and provide drugs free of charge for public health facilities. Unfortunately, availability in this sector is very low and far from optimal, so poor patients are forced to buy expensive medicines from private pharmacies.

In the private sector almost all the surveyed medicines are over-priced if compared with the international reference price and the prices of innovator brands are up to 5 times more expensive than the prices of their generic equivalents. Availability of medicines is very good in private sector especially for branded drugs. Medicines that are generally not available in private sector are anti-HIV drugs who are delivered to AIDS patients free of charge through an MOH Distribution Center.

Lebanon is considered a “brand name” country and innovator brands drugs are possibly used more extensively as there are no incentives to prescribe and sell generic equivalents.

The cost of monthly mono therapy for hypertension (Atenolol 50 mg, 1 tablet per day) is almost 2 days salary for the lowest paid government worker for an innovator brand.

Big part of price problem is the current price structure including profit margins, expenses and fees as well as the incremental calculation method.

## **1. Introduction and Background**

The study was carried out on a methodology described in the manual, “Medicines Prices: A new approach to measurement” (WHO/HAI, 2003). The goal of the study is to find out the price and availability of certain important commonly used drugs.

The Objective of the study is also to find answers for the following questions:

1. What price do people pay for their medicines in Lebanon?
2. What is the price of the medicines that are purchased by the government for the public sector in Lebanon?
3. Do the prices of these drugs vary in different sectors e.g., public, private and by different purchasers?
4. What is the difference in prices of innovator brands, most sold generic and lowest price generic medicines?
5. How do the prices of medicines in different sectors of a country compare with international reference price?
6. What is the availability of these identified medicines in different sectors?
7. What are the various price components that contribute to the retail price of a drug?
8. How affordable are medicines for low-income people in Lebanon?

### **Geographic and Economic background information**

Located in the Middle East at a strategic crossroad between East and West and on the Eastern shore of the Mediterranean Sea, Lebanon is a small country with a total area of 10,452 square kilometers (sq. km.). The country is administratively divided into 6 regions (Mouhafazat): Beirut, North Lebanon, Mount Lebanon, South Lebanon, the Bekaa Valley, and Nabatiyeh (Administrative Map of Lebanon: Annex I).

The population of Lebanon is approximately 4 Million excluding foreign residents and refugees in Lebanon. It is considered as a densely populated country (approximately 383 inhabitants per sq. km.). Lebanon spends approximately 12.4% of its GDP on health, which is the highest rate in the region and higher than those of many other upper-middle income countries (e.g. Canada and France). The proportion of government budget allocated to the health sector is 6.6%. Spending on pharmaceuticals alone exceeds 25% of the total.

15.2% of household spending on health goes for the direct purchasing of drugs. Considering that pharmaceuticals represent 20 % of the hospital bill, and 11.6% of ambulatory expenses, their share would be then 21.5% of the household health expenditures.

The average annual exchange rate of Lebanese Pound (LBP) to US\$ is around 1510.

### **Healthcare sector in Lebanon**

#### **Private Sector**

Lebanon is reported to have more than 7500 registered drugs out of which 4000 drugs are estimated to be on the market. Lately, the re registration of about 2000 old drugs was cancelled.

Imported drugs are produced by 380 firms in 21 countries of origin. Their share exceeds 90% of the market. Nine local manufacturers, all operating below capacity, have only 10% share (value) of the

pharmaceutical market. The generics non-proprietary account for not more than 3% while branded generics account for 19% of the global Lebanese drug market (10% locally and 9% from abroad). More than 20 generic manufacturers are registered. Lebanese market of drugs reached US\$352 million in 2001. 78% were imported brand names (Value in US\$= 274.56 million) and the remaining 22% (Value in US\$= 77.44 million) were Generics (brand name generic and generic non-proprietary).

A parallel import is estimated to be 10% mainly from UK and Belgium.

The Pharmacy department in MOH is the regulatory body for pharmaceuticals and drug dealers. It is assisted by a Technical Committee, which includes members from professional associations and universities.

The Technical committee was created in accordance with the 1994 Pharmacy practice law, and is responsible for registration of new or imported drugs. Drug samples are tested at The Chemistry Branch in the Central Laboratory prior to registration.

Drug prices are set by the MOH based on the importers documentation. According to the law, MOH sets a fixed price for marketed drugs that takes into consideration the ex-factory price, shipping and other fees and the profit margins for importers and pharmacists. The price of the imported drug is based on the cost price (means ex-factory price) in the country of origin. To this price 7.5% is added as freight expenses and 11.5% for clearance duties and other expenses if the price is FOB. In case the price is CIF then only 11.5% for clearance duties and other expenses is added. Both prices FOB or CIF are converted to public prices in Lebanese pounds according to an index related to the movement of exchange rates. The importer's profit is set at 10% and the pharmacist's at 30 % of the drug's price. An incremental pricing formula is applied as follow:

<b>FOB</b>	<b>100</b>
<b>Cost, freight, insurance (CIF Price)</b>	<b>107.5</b>
<b>Customs clearings and commission</b>	<b>119.8</b>
<b>Importer profit</b>	<b>131.8</b>
<b>Pharmacist profit</b>	<b>171.4</b>

Drugs retailers should stick to the set price. While MOH sanctions overpricing, the Order of Pharmacists is more concerned with underpricing to "prevent illegal competition".

In Lebanon, there are 8700 doctors, 3562 pharmacists, and around 4000 nurses.

The characteristics of the medical practice in Lebanon include freedom to prescribe medicines, patient's freedom to choose the doctor and direct agreement concerning fees. The physician therefore can market any specific brand.

By law, the pharmacist is not authorized to change the dosage of the prescription or to substitute another drug for the prescribed drug.

There are around 118 pharmaceutical traders importing brand name patented, brand name generic and generic non-proprietary pharmaceutical products from many different foreign laboratories.

There are around 1590 pharmacies distributed all across the Lebanese territories with one pharmacy for every 2515 citizens.

In Lebanon there are 160 private hospitals, 756 dispensaries, and 107 public health centers.

### **Public sector**

Lebanon enjoyed a high standard of healthcare pre-war. 17 years of war however took its toll. Due to lack of administration and funding, services steadily deteriorated.

The provision of health services by the government has witnessed a meaningful decline during this period. In the meantime, the private sector had developed both in number and capacity representing 90%

of the total number of hospital beds in the country. There are two public reimbursement institutions, the National Social Security Fund (NSSF reimburses 80 percent of the drug healthcare bill) and the Cooperative of Civil Servants (CCS reimburses 75% of the drug bill), which cover private sector and public sector employees, respectively.

### **Public procurement drugs**

#### ***A- Central warehouse***

As for the pharmaceuticals, the MOH share of the pharmaceutical market is 6%, whereas the private sector monopolizes the rest. The MOH supplies drugs by tenders or agreements through only one central warehouse.

It provides, free-of charge, expensive drugs to uninsured citizens suffering from cancer, Multiple sclerosis, mental illness etc...The MOH provides also vaccines and Essential Drugs for public healthcare dispensaries, public hospitals and NGO's health centers. In return those centers are required to provide vaccines free of charge while they are allowed the collection of nominal user fees for consultations and essential drugs.

Last tender took place in May 2003, the next is scheduled after exactly one year that is in May 2004. Renewal contracts for the same drug can be extended for a maximum of one year. Drugs are divided into two categories: very important and less important.

Very important drugs: Anti HIV/AIDS drugs, Cancer drugs, MS drugs, and mental illness medicines are purchased through the warehouse and delivered to patients free of charge through a modern computerized central facility "Distribution Center at Karantina".

Less important drugs: General line Drugs are purchased through the warehouse as mentioned above and distributed to MOH dispensaries and public hospitals than delivered to patients at no charge.

The MOH drugs Budget for 2003 was around 30 billion Lebanese pounds. (US\$. 20 million).

#### ***B- YMCA***

The Medical Assistance Program started in 1988 through the initiative of YMCA Lebanon to provide chronically ill patients with required and necessary drugs during the hard time of war in Lebanon. The project was directed towards chronically ill subjects with acute poverty or towards those who were refugees due to the war situation and the project aimed to provide these subjects with drugs free of charge through the existing organization of local dispensaries, run by local NGOs.

In 1993, and as a recognition of the importance of this program and the role it has been playing in securing the medicines on regular basis along with the efficiency the program has been implemented, the Ministry of Public Health intervened with its support of one billion Lebanese pounds in 1993 then the Parliament approved two billion Lebanese pounds in 1994, the Ministry's contribution starting 1998 became 3 billion Lebanese pounds (US\$. 2 million). As of the year 2003 the government contribution is around 4 billion Lebanese pounds (US\$. 2, 6 million).

#### ***C- UNICEF***

An agreement was made between the MOH and the UNICEF who provides another kind of medicines such as: Vaccines, Antibiotics, Analgesics, etc... The UNICEF medicines are distributed through the warehouse whereas those of the YMCA are directly distributed by the latter to the drug outlet. The Ministry's contribution is around 1 billion and 500,000 Lebanese pounds (US\$. 1 million). NGO's provide logistical support through purchasing, stocking and distributing essential drugs to a vast network of Primary Health Care centers, thus ensuring the follow-up of chronically ill patients.

#### *D- State of drugs distribution in the public sector*

The MOH warehouse dispenses medicines free of charge to the uninsured citizens thru the 36 operational MOH dispensaries and to operational public hospitals that are spread all over the country. It has been two years since the MOH didn't purchase the "less important drugs" due to the short governmental budget; this endeavor has remained in vain. In 2003, the MOH budget for drugs was insufficient to buy all medicines. Consequently, the UNICEF dispenses its drugs to public health outlets.

## **2. Method**

A field survey on the prices of medicines was carried out in the major cities of Lebanon. The survey took six weeks (February 1 till March 15, 2004).

### **Sampling**

The sampling method described in the WHO/HAI manual for selecting a representative number of public health facilities and pharmacies was used. The survey was undertaken in 4 geographical areas Beirut, North Lebanon, Mount Lebanon and South Lebanon. The survey measures prices of medicines in 3 sectors:

1. Public Procurement sector
2. Public sector
3. Private sector

The other Sector patient prices is too complicated because of the overlapping interferences between the NGO's, the international or national donations, and their occasional procurement of drugs from the MOH.

For the public procurement data, we have collected the prices from MOH warehouse and UNICEF. In each area, 10 private pharmacies were taken. In the public sector, where only availability of drugs is collected, some areas present a few number of facilities (Beirut, only 3 public dispensaries). We have collected all the availability data that exist in this area and we have added extra-facility in other region where there were many facilities (such as North). Thus, a total of 20 public facilities and 40 private pharmacies were randomly selected from four regions.

### **List of Medicines**

Out of 30-core list of medicines, 4 were dropped because the strength of medicine was not available/use in Lebanon. These are Artesunate (100mg), Fluconazole (200mg), Lovastatine (20 mg) and Pyrimethamine - Sulfadoxine (25mg +500mg).

Our supplementary list had 6 drugs. We added the following substances:

- Amiodarone (200 mg)
- Amoxicillin (500mg)
- Cephalexin (500mg)
- Ibuprofen (400 mg)
- Isosorbide dinitrate (10 mg )
- Metronidazole (250 mg)

An international medicine reference prices (MSH) were available for the supplementary drugs. Therefore, the result has been analyzed for a total of 32 medicines: 26 core medicines and 6 supplementary medicines. The list is attached as Annex IV.

### **Finalizing the MPDC Form for price and availability**

For each medicine, up to three products were monitored, namely:

- Innovator brand
- Most sold generic equivalent
- Lowest priced generic equivalent.

Confirmation of innovator brand name and the availability for core and supplementary list of medicines was done. The most sold generic equivalent was identified by consulting IMS Health in Beirut.

### **3. Data Collection**

The survey team consisted of 3 data collectors (2 pharmacists and one MOH worker) and a project manager.

A standardized medicine price data collection (MPDC) form was used for data collection for price and availability of core and supplementary list of drugs. Data collectors were trained in a two day workshop and a pilot survey was undertaken to clarify any doubts of the data collectors.

The project manager collected prices from the both sources of procurement data namely the MOH warehouse and UNICEF.

### **4. Results**

Data entry was done in the specially designed computerized WHO/HAI Medicine Pricing Workbook that accompanied the manual. After data has been entered, the workbook automatically generates summary tables and displays results.

The exchange rate is entered on the first day of data collection, (local currency, i.e. Lebanese pounds (LBP) to the US Dollar) on the international medicine reference price data page. The Management Science for Health (MSH) reference prices has been selected for comparing 26 core drugs and 6 supplementary drugs. Once price data has been entered, automated summary tables compare median prices.

The following analysis is presented

1. Median medicine price ratios of Public Procurement prices in comparison with international reference prices (IRP).
2. Median medicine price ratios of innovator brands and generics in the private-for-profit sector in comparison with international reference prices (IRP).
3. Price variations in different regions in Lebanon
4. The availability of medicines on the day of data collection, in private and public sectors.
5. The affordability for low income people of treatment regimens from private sector for selected common conditions with innovator brand, most sold generic and lowest priced generic medicines.
6. The cumulative level of duties and mark-ups as it adds on the ex-manufacturer's price and that comprise the final retail medicine price.

#### 4.1 Medicine price in the public sector\*

The prices of 2 sources of procurement data, the MOH warehouse and UNICEF are collected and analyzed separately because those institutions may supply sometimes the same products.

In the Warehouse, 5 innovator brand medicines were purchased. Till now, they do not have any equivalent generics in the country. Three of them are AIDS molecules\*\* purchased only by the MOH drugstore (Indinavir, Nevirapine and Zidovudine) and the remaining two molecules (Phenytoin and Amitryptilline) do not have any market authorization for their generic.

All other procured drugs (16 drugs) were generic equivalent and the median price was 1.43 times the IRP with 50% of the median being in the range of 1.21 to 3.39 times the IRP.

UNICEF drugs (6 drugs) were also generic but not registered as regular drugs in the MOH. The median price ratio in the range of 0.83 with 50% of the median being in the range of 0.82 to 0.91.

	No. of substances Found available			Median price ratio		25 <sup>th</sup> Percentile		75 <sup>th</sup> Percentile	
	Innovator brand	Most sold generic	Lowest priced generic	Innovator brand	Lowest priced generic	Innovator brand	Lowest priced generic	Innovator brand	Lowest priced generic
<b>WAREHOUSE</b>	<b>5</b>	<b>0</b>	<b>16</b>	<b>5.92</b>	<b>1.43</b>	<b>4.86</b>	<b>1.21</b>	<b>6.38</b>	<b>3.39</b>
<b>UNICEF</b>	<b>0</b>	<b>0</b>	<b>9</b>		<b>0.83</b>		<b>0.82</b>		<b>0.91</b>

\*Public Sector means Ministry of Public Health Sector

\*\* Lately, MOH is purchasing Anti HIV/AIDS drugs with very lowest prices (more than 80% discount) according to an agreement between the original manufacturer and the MOH.

**Table 1: Median price ratios in the public sector (2 sources of Procurement prices)**

#### 4.2 Comparison of median MPRs procurement prices for some medicines in the public sector

Prices at which government purchase the generic drugs for public facilities are different according to the source. UNICEF procurement prices are less expensive than the warehouse tender price. In fact, The UNICEF procurement prices for the generic were almost 1.72 times less than the warehouse procurement price (Table 1).

Medicine name	Median price ratio UNICEF	Median price ratio Warehouse
<b>Amoxicillin 500</b>	0.84	1.78
<b>Co-trimoxazole</b>	0.82	1.37

<b>Metronidazole</b>	0.8	8.49
<b>Salbutamol</b>	0.94	1.49

**Table 2: Comparative medicine price ratio between the UNICEF and Warehouse**

When comparing the prices of all generic medicines purchased by the warehouse, the cheapest and the most expensive were found to be 0.89 times and 14.44 times the IRP while the cheapest brand was 1.4 times the IRP and the most expensive one was 15.89 times the same reference. The same comparison is made also for UNICEF drugs. The cheapest and most expensive for the generic drugs purchased by UNICEF were found to be 0.59 and 1.16 the IRP.

#### **4.3 Medicine prices in the private for-profit sector (private pharmacies)**

In the private for-profit sector, when medicine prices were compared with the international reference prices, the 32 innovator brand products were found to be priced at 13.57 times the international reference prices with 50% of the medicines being sold in the range of 9.5 to 28.89 times the reference price (Table 3). For most sold generics, the median price ratio was 8.23 with 50% of the medicines being sold in the range of 5.38 to 19.73 times the reference price. For lowest price generic, the median price was 6.53 times the IRP with 50% of the median being sold in the range of 4.92 to 15.51 times the reference price.

	<b>No. of medicines</b>	<b>Median price ratio</b>	<b>25<sup>th</sup> percentile</b>	<b>75<sup>th</sup> percentile</b>
<b>Innovator brand</b>	26	13.57	9.5	28.89
<b>Most sold generic equivalent</b>	24	8.23	5.38	19.73
<b>Lowest priced generic equivalent</b>	24	6.53	4.92	15.51

**Table 3: Summary of median price ratios, private for-profit sector**

For the generically equivalent products, the difference in price between the most sold and the cheapest was not so large; some substances were not available as more than one generic product and have, for the sake of analysis, been entered both as the most sold and lowest price generic equivalents.

On the contrary, the price of innovator brand varies a lot from the most sold generic, e.g., Atenolol brand (MPR 47.81 vs. 9.8), Glibenclamide brand (MPR 29.26 vs. MPR 6.19).

For Isosorbide dinitrate (MPR 5.64 vs. 5.17), there is not much difference between MPR for brand and the most sold and lowest price generic.

Interestingly, for Amoxicillin 500 mg the innovator brand is cheaper than the most sold generic equivalent.

None of the innovator brands has shown a price less than the IRP. One drug Losartan, is the only medicine who shows a most sold and lowest price generic less than the IRP (0.7).

Diazepam and Fluphenazine are found only as innovator brand despite that their generics equivalent are already in the market. On the other hand, the Hydrochlorothiazide and Metformine generics are much more sold than their unfound innovator brand in the market.

Medicine name		Median price ratio	25 <sup>th</sup> percentile	75 <sup>th</sup> percentile
<b>Diclofenac 25 mg</b>	Innovator brand	51.10	51.10	51.10
	Most sold generic	44.08	44.08	44.08
	Lowest priced generic	44.08	44.08	44.08
<b>Fluoxetine</b>	Innovator brand	64.09	64.09	64.09
	Most sold generic	57.97	57.97	57.97
	Lowest priced generic	29.16	29.16	29.16
<b>Losartan</b>	Innovator brand	1.48	1.48	1.48
	Most sold generic	0.7	0.66	0.7
	Lowest priced generic	0.7	0.66	0.7
<b>Ciprofloxacin 500mg</b>	Innovator brand	104.06	104.06	104.06
	Most sold generic	29.27	29.27	29.27
	Lowest priced generic	29.27	18.54	29.27
<b>Amoxicillin 500 mg</b>	Innovator brand	13.01	13.01	13.01
	Most sold generic	14.99	14.99	14.99
	Lowest priced generic	4.95	4.95	4.95
<b>Atenolol</b>	Innovator brand	47.81	47.81	47.81
	Most sold generic	9.8	9.8	9.8
	Lowest priced generic	9.8	9.8	9.8
<b>Glibenclamide</b>	Innovator brand	29.26	29.26	29.26
	Most sold generic	6.19	6.19	6.19
	Lowest priced generic	5.99	5.99	5.99
<b>Isosorbide dinitrate</b>	Innovator brand	5.64	5.64	5.64
	Most sold generic	5.17	5.17	5.17
	Lowest priced generic	5.17	5.17	5.17

**Table 4: Examples of medicine price ratio**

When comparing the prices of all medicines, the cheapest item for most sold and lowest price is 0.7 times the IRP (Losartan) whereas most expensive item for innovator brand is 104.06 times the IRP (Ciprofloxacin), for most sold is 57.97 times IRP (Fluoxetine) and for lowest price generic is 44.08 times the IRP (Diclofenac).

Consequently, the lowest price generic equivalent was found to be 0.7 times the international reference price, while the most expensive generic equivalent was 57.09 the same reference.

#### **4.4 Comparison of Wholesale price of some medicines for private pharmacies and for the public sector (Warehouse tender 2003)**

Comparing the selling price of medicines in the public sector to the ones in the private sector seems to be not feasible due to the fact that the MOH warehouse dispenses those medicines free of charge. Nevertheless, comparing the wholesale price for the pharmacist with the one for the warehouse is more likely feasible.

	<b>Retail Price (LBP)/box</b>	<b>Wholesale price to private pharmacies (LBP)/box</b>	<b>Wholesale price for the warehouse (LBP) /box</b>	<b>Wholesale Discount to the warehouse</b>
<b>Atenolol (generic)</b>	3,230	2,503	1,671	33.25%
<b>Fluoxetine(generic)</b>	19,928	15,444	8,372	45.79%
<b>Glibenclamide (generic)</b>	2,400	1,860	270	85.48%
<b>Zidovudine (brand)</b>	433,774	336,175	296,100	11.92%

**Table 5: Comparison of wholesale price of some medicines**

Table 5 shows that the wholesale discount to warehouse for the brand innovator drugs does not exceed 12% (Zidovudine) whereas the discount for generic equivalent reaches sometimes 85.5% (Glibenclamide).

The tender prices obtained by the warehouse are considered to be very satisfactory if compared with the wholesale prices for the private pharmacies, but not when compared to IRP.

One Glibenclamide box bought in a pharmacy may cost 85 times the warehouse procurement price.

The government procures medicines for poor patients at almost more than half the price in comparison to the private sector from where most of the population purchases medicines.

#### **4.5 Availability**

The public facility surveyed (MOH dispensaries) for availability, sustained a regular supply of medication free of charge from the government or from UNICEF through the central warehouse.

It has been two years since the MOH did not purchase the General line drugs. The only availability generic drugs in public outlets are UNICEF drugs. The drugs purchased by UNICEF are limited besides their availability is low.

The public sector is said to cover more than 50% of the population but the survey identified a big problem of availability of general line products. It means that many people will either have to go without treatment or to spend considerably more money to purchase medicines in the private sector.

In the private sector, the median availability for innovator brand is 95.0%, 77.5% for most sold and 83.8% for lowest price generic drugs.

Only the Anti HIV/AIDS drugs\*\* are not available in private for profit pharmacy in Lebanon. They are available upon request. Hence, the resultant availability in the private sector is very good. Moreover, it is to be kept in mind that availability is based on a “one point in time” investigation.

#### 4.6 Affordability

A complete list of the 8 conditions for which the affordability of treatment is measured is included in the workbook. The monthly salary of the lowest paid government worker is LBP. 300.000 i.e. LBP 10.000 per day.

Treatment	Type	Private sector		Public sector	
		Median price	Days wages	Median price	Days wages
<b>Hypertension: Atenolol 50 mg x 1 for 30 days</b>	Innovator brand	47.81	1.8	NA	
	Most sold generic	9.8	0.4	NA	
	Lowest priced generic	9.8	0.4	4.53	0.2
<b>Diabetes Glibenclamide 5 mg x 3 for 30 days</b>	Innovator brand	29.26	1.3	NA	
	Most sold generic	6.19	0.3	NA	
	Lowest priced generic	5.99	0.3	1.22	0.1

**Table 6: Cost of treatment for Hypertension and Diabetes**

For the treatment of hypertension with Atenolol, a full month course will cost the lowest paid government worker 1.8 for the innovator brand and 0.4 days' wage for the two forms of the generic equivalent from private for profit pharmacies. For a course Glibenclamide to treat diabetes, a patient would need to pay the equivalent 1.3, 0.3 and 0.3 days of salary for brand, most sold and lowest price generic from private for profit pharmacies.

It is important to note here that these costs are to purchase medicines from the pharmacy. Doctor's consultation fees and diagnostic tests are not included in the drug cost. It may mean that the total drug cost to the patient would be considerably higher.

#### 4.7 Price components and cumulative mark-up

For imported brands and generics medicines in private sector as well as purchased on the public tender, the price components are the same.

According to the law, MOH sets a fixed price for marketed drugs that takes into consideration the ex-factory price, shipping and other fees and the profit margins for importers and pharmacists. An incremental pricing formula is applied as follows:

Component	Amount of charge	Price (LBP)
FOB	NA	2064.6
Cost, freight, insurance (CIF Price)	7.5%	2219.4
Customs clearing and commission	11.5%	2474.63
Importer profit	10%	2722.09
Pharmacist profit	30%	3538.72

**Table 7: Price components and cumulative mark-up for Atenolol 30 tablets**

For locally produced generic equivalent, the Ministry of Industry fixed the prices according to a specific confidential formula that varies from one industry to another. The price calculation takes into consideration the price in USD of imported raw materials, some indirect cost like salaries, packing materials, charges, drugs marketing, and other miscellaneous costs. The Ex-factory price of local products is known. A 10 % and 30% are added to it as distributor profit and pharmacist benefit respectively like imported drugs.

#### **4. Discussion**

The survey done in Lebanon has shown that the prices at which government purchases drugs for public facilities are not so high but can be even less.

MOH warehouse purchases drugs from national importers or local manufacturers. It has the advantage of being innovator or branded generic while keeping the normal packaging and the acceptable number of units. Another advantage, the agreement for procurement drugs obligates the supplier to take back products 3 months before their expiration or to exchange them with the same drug or with another having new expiry dates.

On the other hand, UNICEF purchases the drugs from abroad. The possibility of exchange and supply's return of drugs is somehow impossible.

For the UNICEF procurement prices proposed above, clearance, freight up to Beirut, customs and handling fees are the responsibility of MOH. Those expenses vary between 7 to 15% and sometimes up to 25% of the invoice total amount. These expenses increase the price of the generic medicines to an extent that they may exceed, in some cases the MSH prices.

In addition, UNICEF supplies generic drugs in bulk packages. Most patients are complaining about acquiring these bulk medicines in either plastic or paper bags. We note also that a small expired quantity of UNICEF drugs is generated and the warehouse can't face the problem of their disposal and sensitive treatment.

The median MPR (median price ratio in reference to IRP) of the medicines surveyed in public sector, when analyzed in a combined manner between both sources is 1.24. It means that it is fairly close to the international reference price; implying that the government is buying these medicines at a reasonable price. But, the low availability of those medicines in public sector is unacceptable as this is the sector where poor people hope to receive a free of charge drugs. The major cause of this low availability is explained by the lack of funding and the inexistence of one organizational unit for purchasing all general line medicines for the public sector. Therefore, price and availability in the private sector are of utmost importance.

In private pharmacies, it was observed that median MPR is 13.57, 8.23 and 6.53 for innovator brand, most sold and for the lowest price medicines. Hence, there is a difference in the price of brand, most sold and the lowest generic equivalent medicines available at the pharmacies. Often, the least sold is the generic which is the most available in private pharmacies.

The prices of medicines (brand and generic) are very high in the private sector and there is a difference in prices of innovator brand and generics. For a number of medicines, there was very little variation in price when comparing the most sold or lowest price generic equivalents. However, the innovator brand product was about 1.09 (Isosorbide dinitrate) to 4.87 (Atenolol) times the price of the most sold generic equivalent.

Moreover, comparing the wholesale price to the one of the private sector and the wholesale price to the one of the public sector, the discounts obtained by the warehouse are very satisfactory.

There is not much variation in the prices of the same medicine in different regions. Drugs retailers should stick to the set price. While MOH sanctions overpricing, the Order of pharmacists is more concerned with underpricing to “prevent illegal competition”.

Availability of medicines in the private sector was found to be 95.0%, 77.5% and 83.8% for brand, most sold and lowest sold generic equivalent. Medicines that are generally not available are anti-HIV/AIDS drugs.

Most of the generics found at the private pharmacies are manufactured by either multinationals or reputed companies that ensure their high quality. Despite the limited capacity of drug analysis at the Central Laboratory, the strict regulation of drug registration guaranties to a large extent the quality of import and domestic drugs.

The affordability indicators imply that the treatment of chronic diseases should not be difficult for patients if generics were more widely prescribed. The deteriorated economic situation is not however in favor of the less fortunate people that may not be able to purchase generic medicines despite their acceptable price.

## **5. Conclusions and Recommendations**

The principal conclusions of the study are as follows:

1. Lebanon public health sector is relatively efficient in procurement and is purchasing medicines at a reasonable price for poor patients. The latter can supply their medicines free of charge from public health facilities.
2. In the private sector almost all the surveyed medicines are priced higher than the international reference price and the prices of innovator brands are considerably higher than the prices of their generic equivalents.
3. Prices are considerably higher in the private sector and innovator brands are possibly used more extensively as there are no incentives to prescribe and sell generic equivalents.
4. There is not much variation in price of the same medicine in different geographical areas of Lebanon.

5. Availability in the public sector is very low and far from optimal, so poor patients are forced to buy expensive medicines from private pharmacies or to supply it from a private dispensary or NGO's Health centers for a symbolic fee or simply go without treatment.
6. Anti HIV/AIDS are delivered to patients free of charge through a central public facility "Distribution Center at Karantina" so those drugs are not available in surveyed public facilities. On the other hand, availability of AIDS drugs is poor in private sector.
7. The taxes, tariffs and mark-ups are relatively high and contribute to making many medicines unaffordable for the majority of patients.
8. Ministerial Order N<sup>o</sup>208/1 dated 3 May 1983, defining the pricing principles of pharmaceuticals is outdated.

On the basis of the findings of the study, we recommend the following:

- a. To adopt, print and widely distribute the re updated Essential Drug list (2003) in the public sector, and to use it for practical purposes for example, in government procurement of drugs.
- b. To unify the different purchasing sources of medicines in the public sector, to opt for purchasing the cheapest yet with the best quality among the different offers and especially to encourage the MOH to purchase drugs using international tenders.
- c. To review the public sector drug procurement procedures by detailing and clarifying the processes and methods for procurement and its monitoring.
- d. To streamline and speed up the complicated public sector proceedings in order to eliminate delays in expected lead-times and disruptions in the public supply of essential drugs.
- e. To allocate regularly an annual amount of money out of the MOH budget for pharmaceuticals. This money will help in purchasing essential drugs and therefore dispense them via the warehouse to compensate the shortage in public facilities.
- f. To enforce the current pharmaceutical law and regulation by not allowing NGO's or international organizations to import drugs without registration. In fact, in order to solve the availability problem, NGO's can import drugs without licenses, mainly donations. The NGO's drugs reach dispensaries obtaining a special permit from the Minister of Health.  
An increasing awareness about the safety of donated drugs is taking place, and the problem should be dealt with at a political level.
- g. Ministerial Order N<sup>o</sup>208/1 needs to be reviewed in light of the changes in the health services, and the development of pharmaceutical expenditures in Lebanon
- h. To adopt a drug cost containment measures. Some areas of intervention can be identified for cost containment:
  - According to the price structure, the imported drug price is set as at 1.7 times of its FOB price. The price-dependent profit margin is thought to encourage importation and dispensing of expensive drugs. A degressive scale was proposed starting with a higher profit percentage for cheaper drugs. However this proposal would have had an adverse effect on the total bill, since the market share of cheaper drugs is much higher than that of expensive ones. Considering the sale value for the year 2000, drugs with a unit price less than 5 US\$ represented 37% of the total bill, and those less than 10 US\$ 60%. Drugs with a unit price exceeding 20 US\$ accounted for less than 15% of the total expenditure on Pharmaceuticals.

- Country of origin of FOB price should be clearly defined, or better, be replaced by a rewritten legal text. Is it the country of export, or is it the country where the drug was manufactured, if this is different from the country of export?
- Review the pricing scheme to verify the validity of the percentages applied in the first two steps of the current price calculation:
  - The freight percentage 7.5% should be justified. Shipping and insurance expenses are uniformly calculated for both far and close countries. It may be overestimated for most pharmaceuticals imported from the nearby European countries.
  - The freight is calculated as a percentage of the price, not in relation to shipment fees which are based on volume. This means that expensive drugs with small volume and high price generate more profit than less expensive ones. This phenomenon is further magnified by the cumulative price structure.
  - The 11.5% margin allocated for clearance, commission and other expenses is exaggerated and should be verified.
- Expenses and profit margins as well as the incremental calculation method should be revised. New incentives should be created through a new price structure to encourage the importation of cheaper drugs.
- The Technical Committee (TC) prices the drugs once they were accepted for registration. The TC for drug registration in the MOH should study only the files of drugs technically. A Price Committee needs to be strengthened with specialist in drug pricing and that international comparison information should be regularly obtained.
- The current price structure does not encourage the importation of inexpensive generics. Allow generic drug substitution by law (The Pharmacy Practice Law 1994 does not allow the pharmacist to substitute one drug with another even if they have been registered as bioequivalent versions) and by displaying drug price comparison tables in pharmacies is recommended.
- Generic substitution should be practiced and encouraged. Prescribers, patients and pharmacists should be educated about the economic benefits of substitution: Pharmacists should educate their patient about the benefits of drug substitution and prescribers should encourage substitution due to tremendous cost saving that substitution permits.
- i. To encourage the local manufactured generic drugs. In fact, Lebanon is considered a “brand name” country, and thus confidence in the locally manufactured medicines is not as high as that in original branded products. The consumer, uncertain of the capacity of the authorities’ quality control measures and testing to control the medicine market, finds its refuge in the very well known trademarks. Trust and confidence towards locally manufactured drugs are not granted and are therefore not always prescribed nor consumed. Physicians prefer to prescribe new products to maximize safety and results but also because their university education and hyper promotion campaigns constitute the main source of pharmaceutical information for many of them.

The finding of this study reveals that some commonly used medicines are quite expensive, so measures should be taken by the pricing authority to decrease the prices of such medicines.

It is recommended to formulate a National Drug Policy with the ultimate aim of making safe and good quality drugs available and affordable to the population at reasonable costs.

## **Annexes**

- I. Map of Lebanon**
- II. Institutional Framework of the Lebanese Pharmaceutical Sector**
- III. Chart of Institutional Framework of the Lebanese Pharmaceutical Sector**
- IV. List of medicines surveyed**
- V. Bibliography**

# LEBANON

## MAP OF ADMINISTRATIVE DIVISIONS



## **ANNEX II**

### **INSTITUTIONAL FRAMEWORK OF THE LEBANESE PHARMACEUTICAL SECTOR**

The Government through the Ministry of Public Health regulates the pharmaceutical market through a set of policies and regulations. The Ministry impacts drug production and quality control, licensing, import, registration, pricing, and inspection.

#### **Establishment, Production, & Quality Control**

With regards to drug manufacturing, the Government intervenes in setting the norms and standards regarding the establishment, setting, construction, and operation of pharmaceutical companies (Decree No. 106, 09/16/1983). In order to ensure that pharmaceutical products are consistently produced according to quality standards, the Government, through Decision No. 35, 2/20/1985, formulates its own requirements for Good Manufacturing Practice (GMP) based on WHO guidelines. Emphasizing that good quality must be built into the manufacturing process; GMP law covers all aspects of the production process including materials, premises, equipment, training of personnel, and hygiene of staff, etc. It is concerned with sampling, testing, documentation and release procedures that ensure that the necessary and relevant tests are properly carried out throughout the production process.

#### **Registration and Pricing**

Whether being produced locally or imported, all pharmaceutical products must be registered at the MOPH. Any importation or distribution of drugs that is not submitted to the control of the MOPH is considered illegal and therefore subject to seizure.

The drug registration process follows a chain of links that are all submitted to the control of a Drug Registration Technical Committee (DRTC) at the MOH. Registration includes two distinct but equally important parts, (1) registration of the manufacturer as a company (entity), and (2) registration of each individual drug. The DRTC is expected to study the drug's files within a maximum period of three months. Once the drug meets MOH requirements, the DRTC sends the drug's samples to the Central Laboratory for testing. If approved, the file is then forwarded to the Pricing Committee to price it within one month.

Several factors such as technical, administrative, and economic considerations come into play while fixing the price of the drug to consumers. The price of the imported drug is based on the cost price or the sale price in the country of origin according to duly authenticated documents. To this price 7.5% is added as freight expenses and 11.5% for clearance duties and other expenses if the price is FOB. In case the price is CIF then only 11.5% for clearance duties and other expenses is added. Both prices FOB 9 or CIF 10 are converted to public prices in Lebanese pounds according to an index related to the movement of exchange rates. The importer's profit is set at 10% and the pharmacist's at 30 % of the drug's price. It is worth noting that drug importers pay a fee of 0.75% of the import bill to the Lebanese Order of Pharmacists, of which 0.25% is deducted from the pharmacist's profit. An additional fee of 0.25% of the import bill is also paid to the Lebanese Order of Physicians.

Factors that come into play while fixing the price of the locally manufactured drug include cost of production, public price of similar products marketed in Lebanon, cost and profit index, and classification of pharmaceutical manufacturing companies. It is worth noting that manufacturers pay a fee of 0.25% of their export bill to the Lebanese Order of Pharmacists.

In case the DRTC and the Pricing Committee could not decide upon the approval or rejection and price of the drug respectively, the Minister of Public Health has the right to give the approval to import the product and sell it at the price set in the presented file until the Committees decide about its status.

Parallel importation is legal in Lebanon. Decision No. 96/1 dated 13/2/2002, allows companies other than official agents to bring medicines into Lebanon on a condition that the invoice is lower than the export registered price.

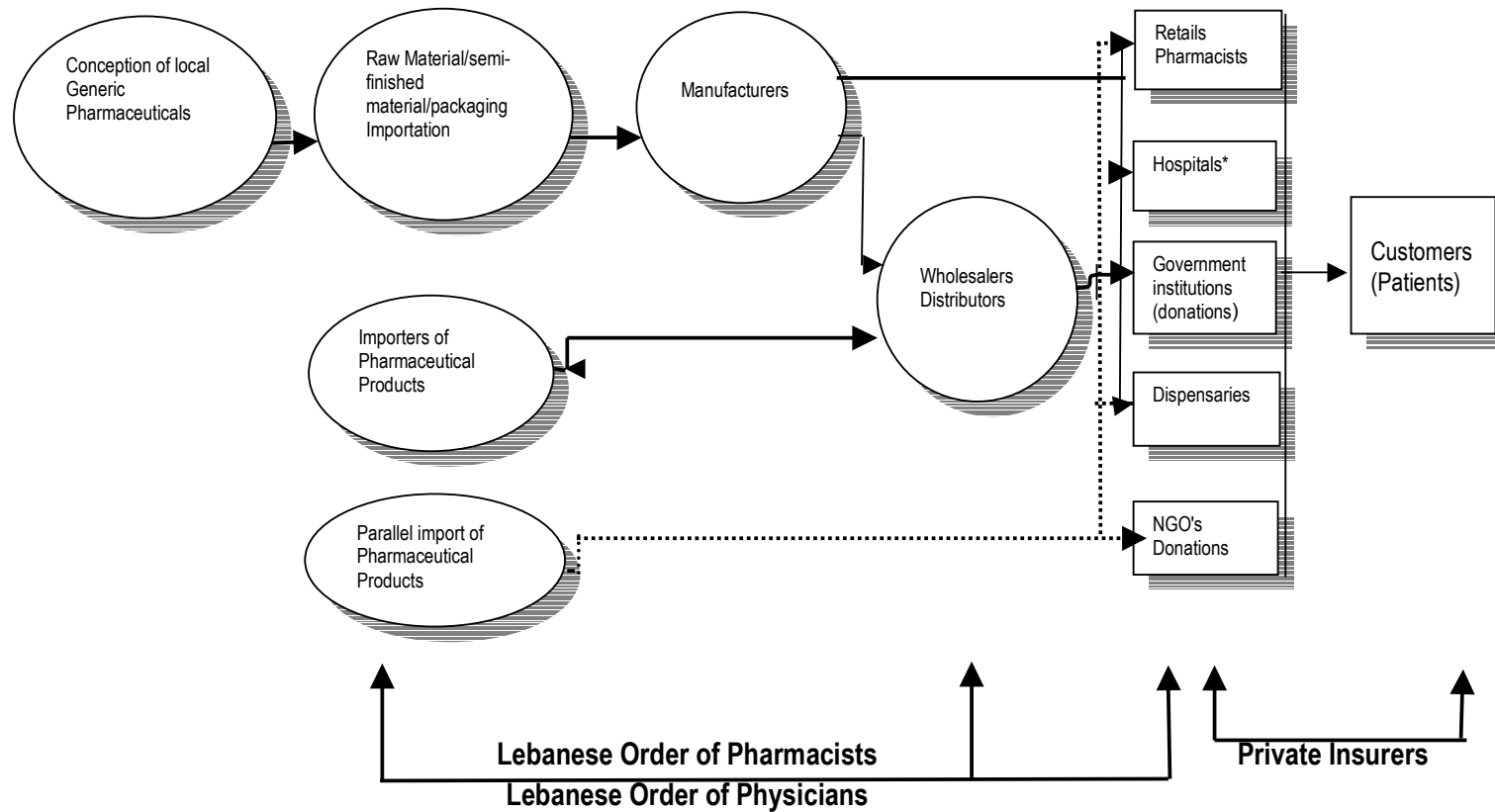
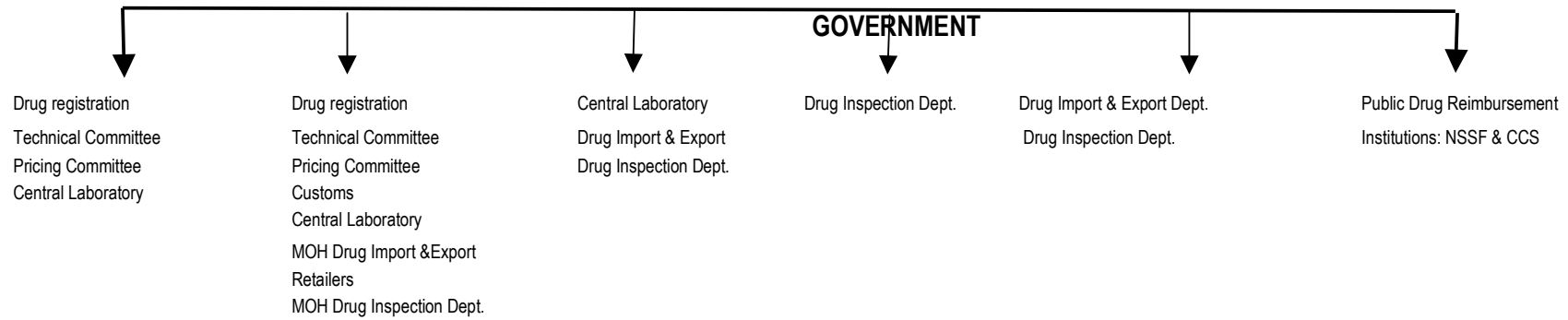
Within the system of registration, the MOH drug inspection unit has the responsibility to inspect the manufacturing establishments, inspect the drugs at Customs, and inspect retailers, hospitals, Government institutions that provide health services, dispensaries, and NGOs.

The pharmaceutical cycle is best described the Chart in Annex III.

## **Annex III**

### **Chart of Institutional Framework of the Lebanese Pharmaceutical Sector**

# Institutional Framework of the Lebanese Pharmaceutical Sector



\* Private hospitals can import medicines directly from foreign suppliers for educational purposes

## **IV. LIST OF MEDICINES SURVEYED**

### **LIST OF CORE MEDICINES SURVEYED**

1. Aciclovir tab 200 mg
2. Amitriptyline tab 25 mg
3. Amoxicillin cap 250 mg
4. Atenolol tab 50 mg
5. Beclomethasone inhaler 50 mcg/dose
6. Captopril tab 25 mg
7. Carbamazepine tab 200 mg
8. Ceftriaxone inj 1 g powder
9. Ciprofloxacin tab 500 mg
10. Co-trimoxazole paed suspension (8 + 40) mg/ml
11. Diazepam tab 5mg
12. Diclofenac 25 mg
13. Fluoxetine tab 20 mg
14. Fluphenazine decanoate inj 25 mg/ml
15. Glibenclamide tab 5 mg
16. Hydrochlorothiazide tab 25 mg
17. Indinavir cap 400 mg
18. Losrtan tab 50 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. Ranitidine tab 150 mg
25. Salbutamol inhaler 0.1 mg per dose
26. Zidovudine cap 100 mg

### **SUPPLEMENTARY MEDICINES SURVEYED**

1. Amiodarone 200 mg tablet
2. Amoxicillin cap 500 mg tablet
3. Cephalexin caps 500 mg tablet
4. Ibuprofen tab 400 mg tablet
5. Metronidazole 250 mg tablet
6. Isosorbide dinitrate 10 mg tablet

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