

Cost Impact of Purchasing Pharmaceuticals Jointly In the Public Health Sector In Jordan

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ABSTRACT

This study aims at investigating the cost impact of purchasing medicines jointly by the Joint Procurement Directorate (JPD).

The pharmaceutical sector in Jordan is considered a high priority to be looked at by the government as it represents almost 35% of health spending. Double purchase is still considered a major problem that led to higher spending and poor availability of medicines. Joint Procurement Directorate (JPD) was established in Jordan in 2004 and the first joint tender was issued in 2007.

Methods: Medicine lists of purchased quantities and their tender winning prices were obtained for 2006 and 2007. Defined Daily Dose (DDD) was used for comparing the costs of purchased drugs in 2006 and 2007 by converting actually purchased quantities into DDDs for each dosage form for each product for 2006 and 2007. Having DDDs for all dosage forms, estimated cost savings were calculated for each product assuming that the same quantities purchased by each participating party in 2006 will be purchased through the JPD in 2007.

Results: Estimated savings achieved were 5.2% which could be increased to 17% after excluding one item due to raw material price increases.

Conclusions: Purchasing pharmaceuticals through JPD is recommended to reduce spending and improve availability.

Keywords: Jordan Public Health Sector, Pharmaceuticals Joint Purchase, Defined Daily Dose (DDD), Estimated Cost Savings.

INTRODUCTION

The increasing imbalance between supply and demand for healthcare resources is a well documented trend worldwide¹. Spending on prescription drugs is one of the fastest growing cost components of modern healthcare systems². At a time of scarce resources and in an era of escalating healthcare costs, prescribing costs are increasing in all developed countries³ as well as developing countries such as Jordan.

Jordan is one of the fastest growing and most modern

countries in the Middle East, small in size with a total population approaching 6 million inhabitants by the end of 2008; the majority (80%) of the population lives in urban areas and about 76% of Jordanians are covered by health insurance⁴. Life expectancy at birth is 72 years, with only about 4 % of the population over the age of 65 years⁴. Jordan is classified as a lower-middle income country with a GDP of US \$14277 billion and US \$2417 per capita of GDP (2006)⁴. The GDP growth rate in Jordan increased from 3.3% in 2002 to 7.6% in 2006⁴. Approximately, 10% of the Jordanian GDP is spent on health with almost one third of this spent on pharmaceuticals (a high percentage when compared to those of other developed countries which range from 12%

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to 23%)⁴. Because of this, the pharmaceutical sector is considered a high priority to be looked at by the Jordanian Ministry of Health (MoH).

More than 72% of drug expenditure is spent in the private sector with the remaining 28% spent in the public sector⁷. Expenditure on drugs in the public sector by the Jordanian government was almost doubled between 2002 and 2006 and it was growing at 24.75% per annum (from US \$38 million in 2002 to US \$93 million in 2006) on average⁵. The public sector represents the MoH (which is composed of tertiary hospitals, primary health care centers and rural health posts), Royal Medical Services (RMS; Military sector), Jordan University Hospital (JUH) and King Abdullah University Hospital (KAUH) representing 37%, 27%, 21% and 15.5% of drug expenditure, respectively⁵.

Seventy four percent of medicines are usually imported into Jordan, of which a high percentage is originator products (either still patented or off patent) and a small percentage is imported generic products, and 26% are locally manufactured products usually sold under a trade name (known as “branded generics”). About 5% to 10% of branded generics are produced under license through an agreement with multinational companies. The sale of medicines in the private sector is regulated by the Drug and Pharmacy Law⁶, as enforced by the Jordan Food and Drug Administration (JFDA). For the public sector, medicines are purchased through annual tenders issued by the generic (or scientific) name of the medicines or therapeutic groups and are conducted through MoH, RMS, JUH and KAUH.

It was stated in the National Drug Policy⁴ that the pharmaceutical sector in Jordan is suffering from several problems; the most important are: double purchase in the public sector (that is, buying the same drug more than once at different prices by more than one public health institution in the same year in which there is one payer); the government, irrational use of medicines and the absence of a careful annual estimation of needed quantities of medicines, which led to inadequate pharmaceutical financial management and more spending on drugs leading to poor availability of medicines

throughout the year. A report of the Jordan Audit Bureau for 2003⁷ explained that the exchequer of the Hashemite Kingdom of Jordan incurred additional financial burdens amounting to a minimum of US \$70 million as a result of the purchase price disparity within different major public sector departments (MoH, RMS, JUH and KAUH) for the period between 1999 to 2003. Because of this, better management of purchasing pharmaceuticals in Jordan health sector is considered extremely important.

Faced with the rising drug bills, healthcare organizations have focused on methods of cost containment⁸. Group purchasing is a cost saving method which takes advantage of the power of bulk group purchasing through tender prices (in other words, utilizing economies of scale). The joint purchasing of pharmaceuticals is not new internationally; it was traced back to the seventies of the last century when the nearby countries of the Gulf Cooperation Council (GCC; 6 countries) started to purchase pharmaceutical products jointly in 1976 for seven Arab Gulf States. This program initially started with 32 pharmaceutical products, the value of which was one million US dollars. GCC countries were considered of the earliest successful countries applying joint procurement in the region achieving total savings of 30%⁹. The Organization of East Caribbean States (OECS) achieved an overall economy savings of about 44% when they started to apply joint procurement while purchasing drugs. Pan American Health Organization (PAHO) countries of America (North, Central and South) achieved savings reaching 312% to 452% when purchased jointly, the Group of Central American countries and Panama achieved 64%, the West Arab Union 15% to 20% and Pacific Islands 10% to 96% savings¹⁰. One of the reasons for this success is the standardization of the whole purchasing process (including the stages of tendering, awarding, receiving and payments to suppliers).

Joint Procurement Directorate (JPD) in Jordan was established in 2004. The JPD started bidding for drugs gradually to the four participating parties (MoH, RMS, JUH and KAUH) in July 2006 aiming to unify the purchase of drugs and medical supplies in order to reduce

the cost of purchased drugs, manage operations electronically, uniting the medicines utilized by the different participating parties, and ultimately enhancing the patients' confidence in taking medications in the public sector, this will lead to reduced waste and help optimize the allocation of scarce resources for health services in Jordan. The first tender was issued by JPD in August 2007 for the four participating parties (for antibiotics, anti HIV products and anti-tuberculosis agents; which represented 15% of the annual pharmaceutical public tender in Jordan).

The aim of this study was to investigate the impact of purchasing these medicines jointly by the JPD for the four participating parties (MoH, RMS, JUH and KAUH) in the first tender on the costs of purchasing them by each party independently, in order to inform the JPD board of directors so that they can make a decision to continue purchasing pharmaceuticals jointly for the public health sector in Jordan in the coming years.

Methods

In order to perform this study and for achieving the stated purpose, a research committee was constituted as follows:

I. A Secretary General of the Jordan Higher Health Council; Medical Doctor, expert in health planning policies as a chairman.

II. A Pharmaceutical academic specializing in pharmacoconomics.

III. A pharmacist; who is an expert in the purchasing of pharmaceuticals – the private sector.

IV. A statistician; Head of prices and living costs- Department of Statistics, Jordan Ministry of Manufacturing and Trade.

V. The chairman of the tenders committee – JPD; a pharmacist as the reporter of the committee.

Lists of purchased quantities and their tender winning prices for antibiotics, anti-tuberculosis and anti HIV medications for the years 2002 to 2006 were requested from each of the four participating parties (unfortunately data were provided only for the year 2006, so the comparison was only between 2006 and 2007), and the

same lists for the year 2007 for each participating party were requested from the JPD.

In order to perform a meaningful evaluation of drug usage, a common denominator was required. The Defined Daily Dose (DDD) meets this objective; since each drug entity is allocated a value that represents the assumed average maintenance dose per day for the drug used for its main indication in adults. The DDD is the World Health Organization (WHO) unit of assessment for drug utilization comparative studies^{11, 12}. DDD, as a comparative unit of drug use, is robust across therapeutic classifications, dosing forms and diverse populations¹³.

DDD Methodology Steps:

- Purchased drugs were classified according to the Jordan Rational Drug List (RDL) Code showing both the scientific and brand names used by each party.

- DDD profiling was performed by converting the total annual usage data to DDDs for all purchased drug entities for each party for 2006 and for 2007. These DDD units were profiled into regular fractions of DDDs, e.g. 0.25, 0.5, 1.0, 2.0, 3.0.

- A refining process was required in accordance to the available strengths of the selected product lines, taking into account odd DDD units and/or very small quantities of the medication and adding this to the nearest DDD category. In addition, if there was more than one pharmaceutical form e.g. tablets and oral liquid, two separate DDD profiles were created, one for oral solids and one for oral liquids.

- The final DDD profile was used for cost calculations. Cost was calculated for each product line by multiplying the quantities necessary to match the specific DDD demand, with the tender prices both in 2006 and 2007. In performing these cost calculations, it was assumed that the same demand purchased by each participating party in 2006 will be purchased through the JPD in 2007 (prices of 2007).

- A comparison of the total annual cost for each individual product to meet the total DDD requirement was the final task prior to the final calculation of any estimated cost savings between purchasing independently in 2006 and jointly in 2007.

Results and Discussion:

Data received from the four participating parties were for 174 out of the total of 229 awarded products in the 2007

tender (due to cancellations or no submissions) as detailed in Table (1). The DDDs for all tendered items in 2006 and 2007 were obtained from the WHO website ¹¹

Table 1: Products included in the comparison i.e. available winning prices

Participating party	Number of products awarded in 2007	Number of products included	Number of products not included
MoH	85	55	30
RMS	66	64	2
JUH	35	29	6
KAUH	43	26	17
Total	229	174	55

- Estimated Cost Savings:**

The results of this study showed a percentage of savings when buying pharmaceuticals jointly in the public health sector in Jordan. The estimated savings achieved from the purchase of all drugs through JPD based on DDD methodology was 5.2% (see Table 2).

The estimated savings achieved from the purchase of those drugs through JPD when excluding cephalixin from the comparison was 17% (Table 2). The raw material prices of cephalixin were increased markedly in 2007 compared to 2006.

Table 2: Estimated savings achieved from the purchase of the drugs through JPD (2007) in comparison with each participating party itself (2006): DDD methodology

Category	Sr.No	Description	All Drugs	All Drugs Except cephalixin
All parties (2006)	1	QTY *	86,438,776	77,766,144
	2	Cost/DDD	0.132488	0.134884
	3	Total Cost	11,452,126	10,489,430
Joint Procurement Department (2007)	4	QTY	88,877,208	80,309,208
	5	Cost/DDD	0.124204	0.114133
	6	Total Cost	11,038,920	9,165,945
	7	QTY-2006 as in 1	86,438,776	77,766,144
	8	Cost/DDD-2007 as in 5	0.124204	0.114133
	9	Total Cost	10,888,070	8,992,223
Estimated annual savings		JDs (3 minus 9)	564,056	1,497,207
		%	5.2%	17%

* All quantities (QTYs) are in DDD and all costs are in Jordanian Dinars (JDs): 1\$=0.71 JD

Some suppliers who were producing raw materials for antibiotics worldwide were closed by the end of 2006 (similar to what happened in China). This resulted in a reduced supply of these raw materials leading to an

increase in its demand, pushing toward higher prices globally. Because of this happening, there was an international shortage of some sources of raw materials for pharmaceuticals especially bulky ones such as

antibiotics. For cephalexin, a first generation oral cephalosporin, the annual bidden amount was 23,500,000 capsules. The raw material prices for this item were increased dramatically in 2007 compared to 2006 (the prices almost doubled).

It is worth mentioning that in the case of RMS no savings were observed. This is justified when knowing that RMS usually buy medicines directly from the

manufacturing companies, not through the local agent, and this enabled this party not to pay 6% to 10% of the total cost of purchasing as there were no payments for customs clearance, transportation, storage and banking expenses.

In this regard, it was also noted that the custom fees and taxes levied on purchased drugs were not uniform for each participating party as illustrated in Table (3).

Table 3: Fees and taxes levied by each participating party when purchasing drugs in Jordan for the public sector

Participating party	Sales tax on all purchased drugs	Custom fees on imported drugs
MoH	nonexempt	nonexempt
RMS	exempt	exempt
JUH	nonexempt	exempt
KAUH	nonexempt	exempt

Another important issue is the basis that is used for selecting drugs to be included in the tendering process in the public health sector in Jordan for the years 2007 and 2006; these bases differed from one participating party to another. Each party has its own method of selecting drugs to be added to its formulary in order to be included in the bidding list. Each method is considered highly subjective as it is based on what is called “a trial period” in which any company wants to add any new product (either a brand or a branded generic) to any participating party’s formulary has to submit enough free samples (usually less than 50 pieces) of that product to be prescribed by physicians at that party to their patients for evaluation purposes for a certain period of time. Although usually there are written evaluation documents, the selection process is mostly based on the experience of the physician with that product prescribed to his or her patients and sometimes not evidence based. For example, in some cases it was found that a drug product approved by RMS to be included in their formulary which was manufactured by a certain company and the same product from the same manufacturer was not approved by JUH.

In this regard, it was recommended that the reference for any item to be included in the bidding process by JPD was that it had to be registered i.e. approved by the JFDA, and

meanwhile the four parties should unify the requirements for drug inclusion to their formularies to be the same. This recommendation will lead to more competition as more products can participate in the tendering process, as well as objectivity will be increased when more physicians participate in the selection process. This also would encourage *Generic Substitution*, which proved to be effective and efficient globally by providing notable savings while maintaining the same quality (14), especially at a time of continuous annual increases of drug consumption all over the world by not less than 11% ^{15, 16}.

Furthermore, unification of the product consumed in the public sector in terms of its trade name, dosage form and same packaging will have a positive impact on a patient's commitment towards taking therapy (i.e. increasing patient compliance) especially for elderly people, and this will lead to decreased medication errors ^{17, 18}. This also will help in enhancing the citizens’ confidence in the health institutions in Jordan and in reducing confusion that might result from duplication of access to the service from different health facilities ¹⁹.

In addition, the unification of the products in the four parties will play an important role in reducing the patients’ demands and expectations to obtain new medicines (which are very expensive) specially when

they hear about them from friends (word-of-mouth) or after reading more about their health states from the widely distributed and easily available drug information sources nowadays from the internet²⁰. By this, patients' pressures to ask for new medicines will decrease leading to more financial sustainability and ensuring continuous availability of drugs to more people.

As inappropriate prescribing reduces the quality of medical care and wastes resources, the periodic updating of the Jordan National Drug Formulary (JNDF) is required in order to be the referenced base for bidding by all participating parties in the annual joint procurement tendering process for pharmaceuticals in Jordan.

Although any JFDA approved (i.e. registered) product line could be included in the bidding process –no matter who is the manufacturer- for any JNDF listed medicine, it was agreed by the research team that written feedback should be provided by physicians who do have used these products in any of the four participating parties.

As there are some differences among the perception of the services by vendors in the four different participating parties, a complete implementation of all stages of tendering and purchasing process i.e. assignment, receipt, financial payment has to be through JPD. Also, the general sales taxes and clearance customs have to be paid or unpaid equally by the four participating parties i.e. through the JPD.

- **Limitations of the Research:**

The inflation rate was not considered in this study as the comparison was only for one year in which the work took most of the year (Jordanian Dinar was bound to the US Dollar and has a fixed rate of one Dinar=0.71\$ since 1996).

Also, it was planned to include more data from previous years (2002 to 2006), but unfortunately the data obtained from the participating parties were only for 2006. Finally, the time allocated to finish this research

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was limited (just less than a year).

Conclusions:

At a time of scarce resources and when the drug bill is increasing year after year, the main concern of healthcare decision-makers is to contain costs while retaining the same quality of patient care. Although the introduction of new drugs into the market can contribute towards better healthcare, it is clear that there is no need to include all members of a particular drug class in a formulary. It is also clear that joint formularies, which bridge secondary and primary care, have the potential to enable better efficiency across the primary-/secondary-care interface.

Since the results obtained in the present study were encouraging, it was concluded that the application of a joint procurement system for medicines and medical supplies in Jordan is important and necessary to:

- reduce waste and reduce the double purchase of pharmaceuticals in the public health sector in Jordan;
- optimize the use of scarce resources and increase the rational use of drugs;
- reduce the expenditure for the purchase of medicines in the public health sector in Jordan; and
- provide poorly available medicines all over the year continuously to patients in the public health sector in Jordan.

Further research will be required to assess the long-term economic benefits of applying JPD and the compliance rate to the new prescribing policy facilitated by JPD.

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(%35)

2004

2007

Defined 2007 ()

Rational 2006 (DDD) Daily Dose

2007 2006 Drug List

.DDD DDD DDD

(%17) (%5.2)

DDD

2010/7/22

2010/2/23