

PM-ABA-612  
ICM-57015

PHARMACISTS, PHARMACIES, AND THE PHARMACEUTICAL SECTOR  
IN JORDAN

Implications for Basic Health Care

January, 1983

Henry E. Cole  
Rosalyn King  
Sohair Sukkary

## ACKNOWLEDGEMENTS

The study team members would like to thank the following people for their help and assistance in conducting this project.

Mr. Jack Thomas, Population and Health Officer,  
USAID, Jordan

Mr. Scott Edmonds, Director Health, Education  
and Nutrition, USAID, Jordan

Dr. Khalil Katounah, Chief Pharmacist for the  
Jordanian's Ministry of Health

Ms. Nadia Sayegh, Assistant to the Jordanian  
Minister of Health for Foreign Relations

Our collective gratitude is offered for a large number of others, both in the Jordanian government, in private pharmacies and drugstores, and in the manufacturing industry. They provided invaluable assistance without which this report would be considerably diminished.

In particular we would like to acknowledge the contribution to this project of Dr. Pamela Johnson of the Near East Bureau of AID who was instrumental in the assigned concept and design of the study and whose insights into health care issues in the Near East region proved invaluable in the formulating the final recommendations.

## TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
I. EXECUTIVE SUMMARY AND RECOMMENDATIONS	1
A. INTRODUCTION	1
B. OVERVIEW	1
C. MICRO ANALYSIS	6
1. Types of Pharmacies	6
2. Pharmacist/Client Interaction	8
3. Clients' Cultural Attitude Toward Drug Intake	9
4. Client/Pharmacy Selection Criteria	9
5. Self-Prescribing and the Pharmacist	9
6. Weaning Foods and the Pharmacy	10
7. Contraceptives and the Pharmacy	11
D. SUGGESTIONS AND RECOMMENDATIONS	13
1. Logistics Management	16
2. Health Education	16
3. Primary Health Care Support and Information	17
4. Product Activities	18
5. Administrative Practices	19
II. AGGEGATE FACTORS OF THE PHARMACEUTICAL SECTOR IN JORDAN	20
A. PHARMACEUTICAL EXPENDITURE AND PRODUCT	20
1. National Expenditure	20
2. Domestic and Foreign Product	22
3. National Health Expenditure	22
a. Public Health Expenditures	22
b. Private Health Care	26
c. Combined Health Sector	26
B. INDUSTRY STRUCTURE	28
1. Domestic Manufacturers	28
a. Production	31
b. Investment	33
c. Quality Control	36
d. Public Service Information	36
e. Medical Representatives	37
2. Importers-Wholesalers	37

## TABLE OF CONTENTS (Cont.)

<u>SECTION</u>	<u>PAGE</u>
C. PUBLIC SECTOR PHARMACIES	78
1. Establishment Characteristics	78
2. Products	78
3. Recordkeeping	79
4. Client/Pharmacist Interactions	83
D. THE ROLE OF THE PHARMACIST IN JORDAN	84
1. The Role of the Assistant Pharmacist	85
2. The Role of the Drugstore Agents	86
3. Profile of Male Pharmacist	88
4. Profile of Female Pharmacist	92
E. PHARMACIES IN THE SOCIAL CONTEXT	93
1. The Pharmacy as a Family Business	93
2. Profile of a Woman in a Palestinian Refugee Camp	94
F. PHARMACISTS' CLIENTS	99
1. Sex, Age, and Socioeconomic Levels	99
2. Clients' Attitudes Toward Drugs and Sickness	100
3. Clients and Cosmetics	101
4. Clients and Baby Foods	102
5. Clients and Drug Identification	103
6. Drug Preferences, Tastes and Habits	103
7. Clients' Selection Criteria for Pharmacies	105
8. Patient Self-Prescribing and Pharmacist/ Client Interaction	106
9. Contraceptives and Client Use	106

## APPENDICES

- II-1 Jordan Estimates of 1979 Health Care Expenditures
- II-2 Major Pharmaceutical Products of the Arab  
Pharmaceutical Manufacturing Co.
- II-3 Major Pharmaceutical Products of the Jordanian  
Pharmaceutical and Medical Equipment Co., Ltd.
- II-4 Dar Al Hickma Brochure on Coughs (Untranslated)
- II-5 Registered Drug Stores in Jordan and Companies  
Represented
- II-6 Pharmacy Curriculum University of Jordan
- II-7 Pharmacy Curriculum Yarmouck University
- II-8 Law of Practicing the Profession of Pharmacy.  
Jordan: Law 43, 1972
- II-9 Law of Practicing the Profession of Pharmacy in  
Jordan: Responsibilities of the Pharmacy  
Department
- III-1 Research Methodology
- III-2 Statement of Work

## SECTION I. EXECUTIVE SUMMARY AND RECOMMENDATIONS

### A. INTRODUCTION

It is generally agreed that pharmacists and pharmacies play an important role in the delivery of health services in the Near East. This role includes supplying drugs and health care advice and information. Yet, the detailed knowledge of the products, services, characteristics, ownership and operation of pharmacies along with the education and client interaction of pharmacists have not been studied and chronicled. The purpose of this study is to describe and assess the role of the pharmacy sector—pharmacists, pharmacies, pharmaceutical manufacturers—in the delivery of primary health care, including family planning services.

The USAID mission in Jordan points to ten areas for possible future intervention and support in health. Of the ten, eight are areas in which the pharmaceutical sector plays or can play a supportive or key role. It appears useful, then, for this study to assist in identifying key elements of the sector, both public and private, and ways in which the sector's resource can be tapped.

### B. OVERVIEW

The pharmaceutical sector in Jordan is a significant and fully viable element of the Jordanian economy and health care system. Table I-1 reviews briefly the major indicators of the pharmaceutical sector in Jordan.

Drug expenditure in Jordan averaged JD 5.6 (\$15.68) per Jordanian in 1980 and had risen to JD 7.5 (\$21) in 1981 with total expenditures in 1980 of Jordanian JD 12.1 million and JD 16.9 million in 1981. This amounted to 1.2 percent of the

TABLES I-1

Population, Economic and Pharmaceutical Sector  
Indicators for Jordan

Population (1980)\*

Population (Million)	2.23
Rate of Natural Increase (%)	3.3
Birth Rate/1000	48
Life Expectancy (years)	
males	61
females	64
Infant Mortality Rate/1000	69.5

1980\*\* Economic (JD= Jordanian Dinar)

Gross Domestic Product (JD Million)	314
Gross National Product (JD Million)	1011.0
Gross National Product per capita (JD)	439.5
Imports (excluding reexports) (JD Million)	664.50
Domestic exports (excluding reexports) (JD Million)	120.1

Exchange rates

1979 - \$US1 = JD	0.308
1980 - \$US1 = JD	0.298
1981 - \$US1 = JD	
1982 - \$US1 = JD	0.357

Cost of Living

1976-1980 annual rate 10% (High 14% 1979; Low 7% 1977)

Government Health Expenditure (1979)\*\*\*

Government Current Health Expenditure (JD Million)	23.0
Government Health Expenditure as % of Total	
Government Current Expenditure (%)	4.4
Government Health Expenditure per capita (JD)	10.69

Channels of Government Health Expenditure (1979):

	<u>JD Million %</u>	
Ministry of Health	11.3	51.3
Royal Medical Service	8.4	36.5
Jordanian University Hospital	2.3	12.2

Percentage of Patients who are eligible to receive free or subsidized medication out of total population

Ministry of Health	(%)	62.0
Royal Medical Service	(%)	17.4
Jordanian University Hospital	(%)	0.1
United Nation Refugee Relief	(%)	7.1

Pharmaceutical Sector\*\*\*

Ethical Pharmaceutical Market (JD Million)

<u>Year</u>	<u>Imports</u>	<u>Local Manufacture</u>	<u>Total Consumption At FOB * Level</u>	<u>Total Consumption At Retail</u>	<u>Consumption Percent Increase</u>
1976	4.10	0.72	4.82	6.79	20.4%
1977	6.37	1.05	7.92	10.93	60.9%
1978	4.72	1.16	5.88	8.16	-25.3%
1979	6.43	1.45	7.88	11.67	43.06%
1980	5.51	2.12	7.63	12.09	3.5%
1981	8.33	2.81	11.64	16.94	40.0%

Average Annual Individual Consumption of Pharmaceuticals

<u>Year:</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
JD	3.20	4.81	3.67	5.42	5.6	7.5

Ministry of Health Purchases of Pharmaceuticals  
(JD Million)

<u>Year:</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
JD	1.13	1.19	1.30	1.40

Number of Pharmaceutical Presentations (P.H.P.) & Companies (CO.)

<u>Year</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
PH.P.	3463	2791	2505	2538	255	2819
CO.	302	201	225	189	177	187

\* Freight on Board

### Active Medical Manpower - (1979)

	<u>M.O.H.</u>	<u>R.M.S.</u>	<u>J.U.H.</u>	<u>Total Gov't</u>	<u>Private</u>	<u>Total</u>
Physicians	558	416	119	1093	300	1393
Dentists	59	57	-	116	207	323
Pharmacists	34	23	4	61	454	515
Staff/Nurses	220	311	177	708	95	803
Midwives	153	22	3	178	49	227

### Pharmacists (1980)

Authorized:	1156
Working in Jordan:	589
Working Abroad:	567

Physician per population: # 7.7/10,000  
Pharmacist per population: # 2.6/10,000

### Private Pharmacies

Year	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Number	163	173	195	214	226	266

### Drugstores (Wholesalers)

Number of Drugstores: # 51 (40 deal in medicines)

### Jordanian Pharmaceutical Manufacturers (1980)

Number of Manufacturers:	4
Percent of Domestic Market:	25-28%
Percent of Government Market:	30-35%

### Medical Laboratories

	<u>Government</u>	<u>Private</u>	<u>Total</u>
Number of Labs:	198	44	242

---

\* National Census 1979

\*\* Statistical Yearbook 1980

\*\*\* Appendix II-1, Medical Statistics of the Ministry of Health, 1980; and Health Insurance in Jordan, U.K. Overseas Development Administration, July 1980.

1980 gross national product. The market is growing at nearly 20 percent per year in nominal terms.

Currently, over 25 percent of the drugs are provided for the domestic market by local manufacture from four Jordanian firms. The remaining 75 percent are imported from 183 companies each represented by one of fifty-one Jordanian drug wholesalers (termed drug stores in Jordan).\* In total, the system supplied 1,597 basic medicines in 2,819 pharmaceutical presentations.

Distribution to the final users is through the public sector clinics and hospitals and 266 (1980) private pharmacies. In value terms, the public sector share of drug distribution is approximately 30 percent of the market. Drug expenditures by the Ministry of Health amounted to JD 1.3 million in 1980. Local purchases by the Ministry of Health of up to JD 1,000 may be completed without supply tenders, but larger purchases must be secured by the Supply Department with Ministry of Finance approval. Of the 1,156 registered pharmacists in Jordan in 1980, slightly less than one-half (567) were working outside the country. Of the 589 in the country, 75 worked in the public sector of the Ministry in the clinics or hospitals or armed forces; approximately 35 worked in manufacturing, while the remaining 480 were working in the private sector pharmacies and drugstores. Pharmacists prefer the work and profit from locations in the urban areas; the distribution of pharmacies is accordingly skewed in favor of Amman and other large cities. This preference is manifest in the waiting list of more than 400 applicants (1981) for new urban pharmacies. New pharmacies must be licensed by the government which gives preference to rural pharmacies. As with other medical services, pharmaceutical care suffers in rural areas.

---

\* Only 40 of these actually distribute pharmaceutical preparations. The remaining eleven deal primarily with medical equipment and supplies.

Regulation of the pharmacy sector is structured by Public Order 43 of 1972. Committees that govern this regulatory structure are comprised of Ministry of Health, syndicate of pharmacists, manufacturer, and university appointments. The Director of Pharmacy suggests and oversees much of the regulatory activities. All private pharmacies as well as pharmacists must be licensed. Standards are set for pharmacy operation and from time to time all pharmacies are inspected. Health Ministry pharmacies and all other public sector facilities are inspected or regulated by a different set of personnel who check primarily for inventory and maintenance. Quality control testing is done by the Ministry through its local manufacturers, but a full quality-control lab within the MOH is a high priority, particularly as domestic production rises. Registration of new drugs is by technical committee with the application itself made by the drug stores or by local manufacturers. Processing requires approximately 1.5 years, except for "breakthrough" drugs. All pharmaceutical prices are regulated and set by the Tariff Committee during the registration process. Prices may be updated upon request, although such requests may take up to three years. The committee attempts to set prices according to the lowest similar product in the market, adjusting for quality and best available. Usually the committee looks at the originator's cost and permits 70-80 percent of that price. There is generally a 20-30 percent difference in price set for domestically produced products below those for imported products. Selling prices are set for the wholesaler and retailer. The drugstore is permitted a 19.5 percent margin yielding about 10 percent profit and the retailer a 26.5 percent margin.

### C. MICRO ANALYSIS

#### 1. Types of Pharmacies

Rural pharmacies are scarce in Jordan. Pharmacists prefer city life and do not see a reasonable profit in rural areas due to small populations and

competition with rural government clinics that sell drugs at nominal prices. Rural pharmacies tend to be small in size, stocking a limited number of drugs and inexpensive cosmetics. They generally situate in central villages that are well connected to hamlets by surface transportation.

There are two types of urban pharmacies: central location pharmacies and neighborhood pharmacies. Central location pharmacies are those located in downtown sections close to doctors' clinics and at major circles. Central location pharmacies carry large supplies of drugs and expensive brands of cosmetics. Jewelry, strollers, baby-care items, etc., are usually displayed to attract clients. Neighborhood pharmacies are located in different residential areas. They carry a limited number of drugs based on what the pharmacist knows from experience his clients will need. Cosmetics, baby food, and baby-care items are important parts of the inventory in neighborhood pharmacies.

Fieldwork for this study indicates that about 30 percent of the pharmacies visited are non-owner-managed pharmacies. Pharmacists take jobs in other Arab and Gulf countries and leave the management of their pharmacies to a family member. The income from other Arab employment helps solve cash flow problems of the pharmacy.

Owners may also engage in other financial ventures, and trust the management of a pharmacy to a hired pharmacist. Female owners frequently hire part-time junior pharmacists to work either the day or night shift to allow them personal time for family or other interests.

Government pharmacies are located in hospitals, health centers, and village clinics. Supplies are procured from the Ministry of Health warehouses and sent to the capital's health center. Each capital of the five governorates in Jordan receives drugs that are to be distributed to village clinics and small health centers. Only the capital's government health center pharmacy is operated by a resident

pharmacist. Health centers at Kad'a and Nahia are operated by assistant pharmacists. Village clinic pharmacies are operated by an assistant nurse. Drug orders are forwarded once every two months to the capital's combined health center. About 90 percent of the available drugs in government pharmacies are locally manufactured. The 10 percent of imported drugs used include some brands of antibiotics and antidiarrheal medicaments.

According to a Ministry of Health directive, government pharmacies can dispense medications sufficient for only 4-6 days use at a time. The directive is aimed at reducing drug waste.

## 2. Pharmacist/Client Interaction

Clients utilize pharmacies for the following reasons:

- OTG drug purchases
- cosmetic purchases
- drug prescriptions
- first-aid applications
- advice on drug substitutes
- doctors' referrals
- general drug use instructions
- diet recommendations for the sick
- weaning practices
- cosmetic and skin problem recommendations
- family planning advice.

Generally speaking, the relationship between clients and pharmacists is strong in rural pharmacies and neighborhood pharmacies. A patronage system develops whereby the pharmacist extends extra privileges, and clients buy their drug/cosmetic needs from their favorite pharmacy. Pharmacists may give small gifts of sample cosmetics or procure a hard-to-find drug for their preferred clients. With the patronage, a strong social relationship develops, and the role of the pharmacist evolves from a salesperson to a consultant on all health matters.

Central location pharmacies and government pharmacies function more as dispensaries with minimum social interactions. The majority of the clients are not known to the pharmacist, and the impersonal nature of the transactions does

not allow for a strong rapport to develop between pharmacists/assistant pharmacists and clients.

### 3. Clients' Cultural Attitude Toward Drug Intake

Most Jordanians identify drugs in two ways. Natural drugs are herbs and spices used in minor cases of indigestion and diarrhea, e.g., Miramiya (sage), cumin, mint, anis, and lemon. Pharmaceutical drugs are unnatural, which should not be taken except when necessary. In fact, fear of side effects and general impact of "unnatural" drugs on health lead some people to stop taking drugs at the first sign of improvement. Improper antibiotic intake is common because of the cultural bias against pharmaceutical drugs.

Payment for a drug is viewed to be an inherent part of the treatment for the sick. Free drugs are perceived as not potent enough to affect sickness. Fieldwork observations indicate that clients have many options to obtain reasonably priced medical care and drugs, so that prices do not seem to be a problem in procuring the needed medicament.

### 4. Client/Pharmacy Selection Criteria

Urban clients can choose from among the many pharmacies available in major cities and towns. Clients reported that they select pharmacies based on:

- proximity to doctors' clinics
- treatment by the pharmacy staff
- availability of drugs and cosmetics
- availability of credit.

Clients who frequent a pharmacy for all their needs expect the pharmacist to provide discounts on cosmetics, extension of credit if needed, discounts on pharmacy-prepared drugs, gifts, or the ability to buy tranquilizers without prescriptions.

### 5. Self-Prescribing and the Pharmacist

Clients will consult with pharmacists after they try natural herbs and home remedies for simple maladies, e.g., colds, indigestion, etc. Only in areas

where clinics offer free medical examinations do clients consult with a doctor before seeing a pharmacist.

Typically, after a client describes the symptoms, the pharmacist asks about the age of the patient and the presence of fever. Observations indicate that pharmacists are reluctant to dispense medicine when they know that the patient has a fever. Drugs other than vitamins are not sold to pregnant women without a prescription.

Neighborhood pharmacies estimate that only 30 percent of their clients carry prescriptions; the rest could be visiting the pharmacy for a refill, a self-prescribed drug, or drugs bought on the advice of the pharmacist.

In central location pharmacies the percentage of prescriptions tends to be higher; about 40 percent of the clients have a prescription. Proximity to doctors' clinics explains the high percentage of prescription carriers.

In government pharmacies all drugs, including aspirin, are dispensed on the basis of a doctor's prescription. Assistant pharmacists and assistant nurses cannot dispense any medication without doctors' orders. At the village level, where doctors visit their clinics only twice a week and absenteeism is not uncommon, clients travel to the closest town to consult with pharmacists or doctors according to the severity of the illness.

#### 6. Weaning Foods and the Pharmacy

Available figures from the 1976 World Fertility Survey on the number of Jordanian mothers who breastfeed range as high as 91.5% over an eleven month period. However, pharmacists report that the majority of mothers bottlefeed because many of them work or do not feel that their milk is enough for the baby. Formulas are bought from pharmacies; supplementary foods are also available at pharmacies.

Many foreign brands of baby foods and cereals are on the market. A jar of Heinz baby food sells for 200 fils. Since one jar represents one meal, the cost becomes prohibitive except for high-income groups. Maliupa, a West German cereal with different fruit and vegetable flavors, sells for 900 fils a box. A box can represent ten meals when mixed with milk, fruits or teas. Bledine, a French cereal, sells for 850 fils.

Some mothers introduce solid foods in a mashed form to their babies as early as the fourth month. Yogurt, honey, tea, biscuits, and rice with tomato sauce are all home-prepared meals that mothers let their babies taste on a gradual time schedule between bottles of milk. By the fifth month, mothers report giving their babies mashed potatoes, carrots, eggs, and plenty of fruit juices.

## 7. Contraceptives and the Pharmacy

### Orals

Jordanian pharmacies carry a limited number of contraceptives. Birth control pills are the most commonly sold contraceptive method. These birth control pills are available in the market:

Nordette	Ovulen
Neogynon ED	Nordial
Ovral	Eugynon L
Lyndiol	Anovlan 21
Metrulen	

Pharmacists reported the annual sale of approximately 100 boxes of each brand of pills, except for Neogynon sales (a low dose OC) that were higher (150 boxes). At Irbid the two pharmacists interviewed reported higher sales, 200 and 300 of each brand. Prices range between 450 fils (about \$1) to 550 fils.

Clients are most likely to consult with a doctor prior to purchasing birth control pills from a pharmacy. However, pharmacists are often asked about substitutes for the pills because of side effects reported by clients. Headache, stomach cramps, upset stomach, breakthrough bleeding, and general weakness are

the most common complaints associated with birth control pills. Consistent with the cultural attitude of taking fewer drugs, women prefer low-dose pills.

### IUDs

IUDs are sold at pharmacies and purchased by women for private clinic insertions. Pharmacists reported that IUDs are popular with rural women who dislike the routine of taking a pill every day and perceived side effects of the pills.

### Condoms

Condoms were found in only two of the thirty pharmacies visited. Generally, pharmacists confirmed that condoms are not in great demand in Jordan. However, a pharmacist at Irbid mentioned that he had ordered condoms because clients were starting to ask for them.

### Spermicides

Vaginal suppositories are also sold in pharmacies. Rendells are sold at the price of 230 fils per box. According to pharmacists, Delfen, a foam, is preferred by women who do not like taking the oral contraceptives.

Birth control pills or other types of contraceptives are used by women to space children. A two-year period is desired by women in order to be able to devote their attention to the child's well being. Contraceptives are also used by women who desire to limit the size of their families.

## Suggestions and Recommendations

The following recommendations result not only from the direct findings of this inquiry, but also from indirect observation and evaluation of pharmacists and pharmacies in Jordan. It was apparent to the study team that while the pharmaceutical sectors play an important role in helping to meet the health care needs of the population, that there are significant opportunities present to more fully utilize this sector.

The following matrix summarizes our recommendation:

RECOMMENDATION MATRIX

	<u>Logistics Management</u>	<u>Health Education</u>	<u>Primary Health Care Support and Information</u>	<u>Product Activities</u>	<u>Administrative Practices</u>
MOH & Public Sector Pharmacies	<ul style="list-style-type: none"> <li>o Improve Logistics Management for Drug Distribution</li> </ul>	<ul style="list-style-type: none"> <li>Develop Health Education Program for Implementation in Clinics</li> </ul>	<ul style="list-style-type: none"> <li>Sponsor Study Tours to Examine Drug Classification Systems</li> </ul>	<ul style="list-style-type: none"> <li>o Produce and make available ORT,</li> <li>o Consider Prescribing for Full Therapeutic Effect</li> </ul>	<ul style="list-style-type: none"> <li>o Conduct survey of Prescription Policies in Other Countries</li> <li>o Collect Data and Develop Health Insurance Data Base</li> <li>o Conduct Drug Utilization Studies</li> <li>o Coordinate with Ministry of Justice on Legal Issue Affecting Prescription Policies</li> </ul>
Private Sector Pharmacists & Pharmacies	<ul style="list-style-type: none"> <li>Develop Program to Make Hard to Find Drugs Available in Rural Areas</li> </ul>	<ul style="list-style-type: none"> <li>o Make H.E. Program Available At Site</li> <li>o Conduct Teach-Ins to Provide Health Education</li> <li>o Referral List of Clinics for Pharmacy Use</li> <li>o Develop Information on Use of ORT, F.P. and Weaning Practices</li> </ul>	<ul style="list-style-type: none"> <li>Participate in Drug Utilization Studies</li> </ul>	<ul style="list-style-type: none"> <li>o Encourage Manufacturer of ORT on site</li> <li>o Develop Information on Use of ORT, F.P. Products Weaning Foods</li> </ul>	

RECOMMENDATION MATRIX

	<u>Logistics Management</u>	<u>Health Education</u>	<u>Primary Health Care Support and Information</u>	<u>Product Activities</u>	<u>Administrative Practices</u>
<b>Manufacturers &amp; Pharmacist Syndicate</b>		<ul style="list-style-type: none"> <li>o Help Develop H.E. Content Materials</li> <li>o Offer Space for Training</li> <li>o Publicize H.E. Program via media and Representatives</li> </ul>		<ul style="list-style-type: none"> <li>o Increase Visits &amp; Information to Pharmacies, Particularly as New Drugs are Introduced</li> </ul>	Assist in Development of Drug Utilization Studies, if requested
<b>Universities</b>		Help Develop H.E. Content	Faculty Study Tours of Community Health Centers, IMOs, etc.	Develop Curriculum for ORT, F.P. and Weaning Foods	Assist in Design of Data Base and Drug Utilization Studies

As can be seen, we have grouped the recommendations into both functional areas and client areas. For the purposes of discussion, however, we will deal only with the functional areas.

#### Logistics Management

While the overall logistics and management of both the public and private sector pharmacies is extremely good, there appears to be two areas in particular where improvements could be made. For the public sector, there exists the possibility that a clinic could run out of products since the re-stocking and ordering schedule is as long as two months. Additionally, a more formal inventory control system at the clinic level would help insure that adequate stocks of pharmaceuticals are always maintained.

In the private sector, the unwillingness of pharmacists to stock important, but infrequently used drugs in the small towns and rural areas places an additional burden on the population to travel to central pharmacies. Considerations should be given to building an incentive to stock these products.

#### Health Education

At about all levels there appears to be both a need and the opportunity to develop and implement a variety of health education programs. Through both the private and public sector pharmacies and clinics pass a sizeable portion of the population, and in particular, that segment of the population which is most easily reached by a health education program.

The study team feels that the pharmacist could play an important role in providing information in such things as weaning practices, basic hygiene, childhood diseases, preventive medicine and first aid.

In order to develop such a program, it is recommended that faculty from the universities' pharmacy and medical schools, plus representatives for the pharmacy syndicate be involved in the actual development of the content for the program.

Once developed, the pharmaceutical industry itself should be used to help distribute the materials, while both MOH and pharmacy syndicate representatives could assist in direct implementation.

In addition, pharmacists should be given referral lists for immunization clinics, family planning centers, etc., and could be involved in health education "teach-ins" given on a rotational basis at various pharmacies throughout the country.

#### Primary Health Care Support and Information

There are a number of activities currently underway in Jordan which may change the nature of drug classification and information which may impact on the potential for utilizing the pharmacist as a provider of primary health care.

Medical representatives are a primary source of technical drug information, but they tend to direct their attention to physicians and ignore pharmacists. It is assumed that only doctors need to know about the availability and effects of drugs. In actuality, pharmacists also make judgments about illnesses and drugs and prescribe drugs with which they are familiar to their clients.

To ensure that pharmacists are well informed about the drugs they sell, several information channels can be utilized. These channels could include improved detailing, periodicals, conferences or seminars. Having more precise information on side effects, drug availability in the local market, etc. will definitely improve the ability of pharmacists to have improved drugs on hand and to play a more active role in promoting their effective use.

The study team found that pharmacists are currently collecting data on drug use by item, cost and therapeutic category because of the legal requirement to do so. Unfortunately, this valuable information is not being utilized in a fashion which would permit analyses of therapeutic/diagnostic disparities, procurement, inventory of management control or indices of diseases - all important for primary health

care planning. It is therefore suggested that the MOH or the Pharmacy Syndicate undertake to analyze these data and to construct a disease/therapeutic index which would allow for more precise health planning. In addition, it would be desirable for both representatives of the MOH and faculty of the two pharmacy schools to participate in study laws of appropriate U.S. and/or European institutions to learn more about other countries' experience in pharmacy and pharmaceutical regulation.

#### Product Activities

There are a number of areas where direct product information/activity could better utilize the skills of the pharmacy sector. In particular, the areas of Oral Rehydration Salts, weaning practices and family planning practices/products could be strengthened. The team recommends that the MOH give careful consideration to the local production of ORS with a view towards exporting to the countries of the Middle East. Not only would this strengthen local manufacturing, but it could have a multiplier effect in the region. Similarly, pharmacists and assistants need better information on the differences and uses of the two common kinds of ORS available in Jordan, and to reinforce techniques for appropriate mixing and use. Consideration should also be given to encouraging pharmacists to pre-mix and dispense ORS as a way of more actively involving them in health care delivery.

Similarly, pharmacists should be provided with better information on family planning in general and family planning products in particular, and also on weaning practices and general issues surrounding infant feeding problems.

The team feels that not only should the universities strengthen their curriculum in these areas, but they should be actively involved in developing a program for use with practicing pharmacists.

Finally, the limit of a 4-6 days prescription for government clinics should be re-examined in that it is less than the therapeutic regimen required for many drugs

(e.g. antibiotics) and could mean that clients who cannot return to the clinic on time would receive a sub-therapeutic dose of the prescribed product.

Present plans and health insurance mechanisms do not include a separate cost center for drugs even though drugs are a part of the coverage. We would suggest that it is important to monitor these costs over time so that, if necessary, disincentives for over-prescribing can be built into the system. Also, drug costs are usually a significant portion of costs after salary and hospital costs and should be maintained on an individual basis.

#### Administrative Practices

The team feels it would be valuable for the MOH to undertake a comprehensive study of prescription requirements, not only in other Middle Eastern countries, but also in other countries of the world. This would give MOH personnel a perspective on which drugs are typically taken off prescription and for what reasons, and on which ones the prescription requirement is being relaxed. In this way the MOH will have a firm international basis for comparison with current Jordanian practices. Additionally, the MOH should coordinate with the Ministry of Justice on those legal issues which affect the prescription requirements under Jordanian law.

## SECTION II. AGGREGATE FACTORS OF THE PHARMACEUTICAL SECTOR IN JORDAN

### A. PHARMACEUTICAL EXPENDITURE AND PRODUCT

#### 1. National Expenditure

Pharmaceutical expenditures in Jordan are a significant element in the Jordanian economy and of the health care system. Table II-1 indicates the magnitude of these expenditures in their distribution across the economy and over time. In 1980 consumption of drugs at retail prices was JD12.1 million (\$33.9 million in 1972 dollars). Preliminary estimates are that this increased to JD16.9 million in 1981. In fact, the average increase in consumption of pharmaceuticals in monetary terms has averaged nearly 20 percent over the period 1975-1981, and well above the 10 percent average inflation rate for that period.

For the nation as a whole, JD5.6 were expended on pharmaceuticals in 1980 for each individual (\$15.68), and JD7.5 in 1981. This is also well above the \$10 minimum standard for drug care in lesser developed countries suggested by the World Health Organization. The JD12.1 million also represents approximately 1.2 percent of the total Jordanian gross national product in 1980. Appropriately, drug purchases enter the Jordanian cost of living calculation at 1.2 percent.<sup>1,2</sup> (A 1 percent increase in medicine prices yields a 1.2 percent increase in the cost of

---

1. "The Cost of Living Index", The Hashmite Kingdom of Jordan Department of Statistics. August 1981.

2. It can be noted that the \$15.68 is a realistic representation of drug services given by the WHO \$10 since Jordanian drugstore priced at nearly world market prices. This contrast to Egypt, where per capita expenditure appear lower but in fact may indicate greater drug volume due to highly subsidized prices.

Table II-1

VALUE OF ANNUAL EXPENDITURES ON DRUGS  
JORDANIAN DINAR

	<u>Imported Final Products</u>	<u>Local Manufac- ture</u>	<u>FOB Consumption at Producer (Export- Import) Prices</u>	<u>Consumption At Retail Price</u>	<u>Per Capita Expendi- ture</u>	<u>Percent<sup>*</sup> Locally Produced<sup>*</sup></u>	<u>Annual Increase in Consumption</u>	<u>Percent Produced</u>
1975	3,216,659	621,559	3,838,208	5,296,952	2.717	16.2	45	83.8
1976	4,100,000	721,913	4,921,913	6,792,239	3.20	14.9	20.4	85.1
1977	6,870,743	1,049,933	7,920,276	10,930,532	4.81	13.2	60.9	86.8
1978	4,718,194	1,156,342	5,874,540	8,156,865	3.674	19.7	(-25.3)	80.3
1979	6,430,032	1,450,000	7,880,032	11,669,910	5.42	18.4	43.06	81.6
1980	5,508,080	2,122,249	7,630,329	12,087,279	5.60	27.8	3.5	72.2
1981 <sup>P</sup>	8,831,620	2,806,178	11,637,798	16,938,352	7.5	24.1	40.0	75.9

\* At producer (or export) prices.

P Preliminary.

Source: Medical Statistics of the Ministry of Health 1981, Table 106.

living, weighted 0.9 percent for prescription medicines and 0.3 percent for non-prescription medicines. Thus, drug purchases is given approximately the same weight in the index as are physician's fees.

## 2. Domestic and Foreign Product

Imported pharmaceuticals constitute the major supply of medicines for Jordanian consumption. The market share of imported pharmaceuticals has declined from about 35 percent in the mid-1970s to approximately 76 percent in 1981. During this same period, domestic producers have grown from one to four and the government is giving preferential purchase treatment to products domestically formulated or packaged from bulk pharmaceutical chemicals. The sale of local products has increased at an annual rate of about 30 percent over the last 6 years, and a pharmaceutical export industry has also evolved (See Section II-B). Total levels of imported pharmaceutical final product rose to JD5.5 million in 1980. This was almost 1 percent of total Jordanian imports, excluding re-exported imports. Local manufacture of pharmaceuticals contributed 0.34 percent to total domestic output of goods and services.

## 3. National Health Expenditure

Given the magnitude of medicine expenditures in the national economy, their major role in health care expenditure is clear. But, the statistics to measure this are difficult to produce given the nature of the market system in the private sector and the various divisions of the government that make up public health expenditure.

### a. Public Sector Health Expenditures

Public sector provisions for health care in Jordan consist of expenditures by the Ministry of Health, the Royal Medical Service, the Jordanian University Hospital, and the United Nations Refugee Programs. For this study, budgets —including drug expenditures — were available only from the Ministry of

Health and the Jordanian University Hospital. Approximations have been made for the other elements of the public sector, and these calculations are given in Appendix II-1.<sup>3</sup> The results of these calculations are given in Table II-2. The Ministry of Health recurrent 1979 budget of JD11.3 million was approximately 51.3 percent of total government health expenditure of JD23.0 million, with the Royal Medical Service constituting almost 36.5 percent, and the Jordanian University Hospital 12.2 percent. UNRWA contributes JD850,000. Over time, the Ministry of Health budget has been increasing at approximately 20 percent per year.

Ministry of Health purchases of medicines and other equipment is given in Table II-3. Medicines as a percent of the total Ministry of Health recurring budget (Table II-4) declined from approximately 16.6 percent in 1976 to 10.3 percent in 1980. Discussions with the Supply Division of the Ministry of Health indicate that this decline may end near the current 10 percent level, and that the decline may be due in part to greater purchases from local manufacturers. The amount of this decline, however, may have had impacted on public sector drug inventories, particularly the replenishment of drugs in government clinics and hospitals. Time did not allow for this study to verify this observation, although there were some indications that this has occurred, in some instances. (See Section III).

Jordanian University Hospital used 14.9 percent of its budget in 1978 on "drugs and supplies" and 11.3 percent in 1979 (JD330,000). Although this downward trend may be due to "supplies" and not drugs, it is similar to the decline in the Ministry of Health medicine budget.

---

3. Source: Table 25 Health Insurance in Jordan, U.K. Overseas Development Administration. July 1986.

Table II-2  
GOVERNMENT RECURRENT HEALTH EXPENDITURES 1979

---

	<u>(Million JD)</u>	<u>Percent of Total</u>
Ministry of Health	11.800	51.3
Royal Medical Service	8.400	36.5
Jordan University Hospital	2.800	12.2
Total Government Health Expenditures	23.000	100.0
UNRWA	0.852	

---

Source: See Appendix II-1

Table II-3

MINISTRY OF HEALTH ALLOCATIONS FOR MEDICAL  
AND NONMEDICAL EQUIPMENT, 1976-1980  
(10<sup>5</sup> JD)

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
MOH Total Budget	6.75	8.33	9.38	13.23	14.06
MOH Current Budget	6.24	7.39	8.43	11.80	13.00
Medicines	1.035	1.131	1.19	1.30	1.40

SOURCE: Medical statistics of the Ministry of Health, 1980, Table 108.

Table II-4

MINISTRY OF HEALTH MEDICINES BUDGET  
AS A PERCENT OF BUDGET FOR CURRENT OUTLAYS

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Percent	16.59	15.36	14.12	11.02	10.77

SOURCE: Medical Statistics of the Ministry of Health, Table 108,  
and Table II-3 of this Report.

The remainder of the public sector drug budget, which includes the Royal Medical Service, can be estimated using techniques given in Appendix II-1. Public sector drug expenditure in 1979 is approximated in that appendix as JD3.75 million (\$10.5 million), or 16.3 percent of current public health expenditure. This is very similar to Egypt's 16.3 percent for public health expenditure.<sup>4</sup> Estimates of Jordanian public health sector purchases of drugs are 32 percent of all domestic drug purchases.

b. Private Health Care

The value of private health services provided by private physicians and hospitals can only be approximated. Discussions with Jordanian officials by members of the United Kingdom Overseas Development Administration team studying health insurance in Jordan indicates levels of JD3.6 million for private hospital expenditures and JD8 million for private doctors. These levels are consistent with financial returns for Jordanian private practice doctors.

Since by law private practice doctors are not permitted to sell drugs, no drug expenditures are included in the JD8 million estimate. However, expenditures in private hospitals do include drugs. If these private hospital purchases of drugs are estimated at 3 percent of total private hospital expenditures, then private hospital drug purchases would be approximately JD1 million.

c. Combined Health Sector

Taken together (Table II-5), figures from the public and private health sector give an approximate JD42.3 million for total commercial health expenditures in Jordan in 1979, including medicines. (The figure excludes private

---

4. Table T. An Overview of Pharmacies, Pharmacists and the Pharmaceutical Distribution Sector in Egypt. Henry Cole, Robert Smith and Sohair Sukkary. May 1982.

Table II-5

JORDANIAN DRUG EXPENDITURE COMPARED TO 1979 EXPENDITURES

---

(JD Million)

	<u>Current Health Expenditure</u>	<u>Drug Expenditure</u>
Ministry of Health*	11.8	1.30
Total Public Health**	23.0	3.8
Total Health System	42.3	11.7

---

Percent Drugs Expenditure in Total Public Health - 16.3%

Percent Drug Expenditure in Total Health System - 28.5%

\* Source: Table II-3.

\*\* Source: See Appendix II-1.

dentistry and also traditional health care not connected with public health care or hospital private physician practice.) Total drug expenditures in 1979 are given in Table II-1 as JD11.7 million. Approximately 23.5 percent of health expenditures in 1979 were on pharmaceuticals. A similar calculation for Egypt yields a much higher ratio of total drug expenditure to total health expenditure for that country—37 percent.<sup>5</sup> Since public sector ratios are similar for the two countries, it may be the Jordanians are much less prone to privately purchase drugs for their health care than are their Egyptian counterparts.<sup>6</sup>

## 8. INDUSTRY STRUCTURE

### 1. Domestic Manufacturers

There are four domestic pharmaceutical manufacturing firms in Jordan. These firms not only serve as a domestic source of drugs but are also significant exporters. The four firms are:

1. Arab Pharmaceutical Manufacturing Company Ltd. (APM)
2. Jordanian Pharmaceutical Manufacturing Company Ltd. (JPM)
3. Dar al Dawa
4. Dar al Hickma (formerly Life Pharma).

Total sales for the pharmaceutical products of these companies for domestic, private, export, and government sales are given in Table II-6.

---

5. Ibid.

6. This may be attributed in part by the fact that private Egyptian drug costs, relative to physician services, are much lower than in Jordan. The low cost of Egyptian drugs means that in volume terms Egyptians are purchasing a greater level than their value suggests.

Table II-6

SALES BY DOMESTIC MANUFACTURER  
IN JORDANIAN DINAR

<u>Total</u>	<u>APM*</u>	<u>DAD**</u>	<u>DAH***</u>	<u>JPM#</u>	<u>Total**</u>
1975	1,933,812	—	—	—	1,933,812
1978	3,062,721	551,935	—	250,000	3,062,721
1979	3,353,190	—	—	—	3,353,190
1980	4,146,324	551,935	—	250,000	4,948,259
1981	5,439,093	746,750	1,250,000	500,000 <sup>(e)</sup>	7,935,843
<u>Export</u>					
1975	1,312,253	—	—	—	1,412,253
1978	1,906,374	—	—	—	2,078,009
1979	2,078,009	—	—	—	—
1980	2,617,036	101,839	—	—	2,718,875
1981	3,914,669	294,372	900,000 <sup>(e)</sup>	—	5,109,041
<u>Domestic</u>					
1975	621,559	—	—	—	621,559
1978	1,156,347	—	—	—	1,156,342
1979	1,275,181	—	—	—	1,275,181
1980	1,529,288	450,096	—	250,000	2,229,384
1981	1,524,424	452,378	350,000 <sup>(e)</sup>	500,000	2,806,802
<u>Private</u>					
1975	188,042	—	—	—	188,042
1979	486,870	—	—	—	486,320
1979	523,656	—	—	—	5,236
1980	559,383	449,935	31,500	125,000	1,134,318
1981	624,747	452,378	315,000	350,000	1,742,125
<u>Government</u>					
1975	433,517	—	—	—	—
1978	668,477	—	—	—	—
1979	751,495	—	—	—	741,495
1980	969,903	—	—	—	969,903
1981	399,688	—	35,000	150,000	1,084,688

\*Arab Pharmaceutical Manufacturing Co. Ltd. Source: Annual Reports APM.

\*\*Dar Al Dawa Source: Annual Reports of DAD.

\*\*\*Dar Al Hickma Source: Approximation from personal conversations.

#Jordanian Pharmaceutical Manufacturing Co. Ltd. Source: Approximation from personal conversations.

###Totals are inexact due to approximations.

(e) estimated.

Table II-7

MAJOR PHARMACEUTICAL EXPORTS  
IN JORDANIAN DINAR

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
<u>Pharmaceuticals</u>					
Antibiotics			4,544	5,090	
% by Country			SA 100		
Other Medicaments	1,917,288	2,153,295	2,413,169	2,589,609	5,230,546
% by Country	SY 30 SA 23 YE 16 KU 7 LE 5	SY 27 IR 19 YE 17 SA 17 SU 6	SA 24 IR 24 YE 17 SY 13 SY 5 LE 4	IR 37 SA 20	IR 30 SA 30
Other Pharmaceuticals			155,124	320,544	
% by Country			IR 52 SY 33 OM 13	IR SY	
<u>RE-EXPORTS</u>					
Other Medicaments	14,934	35,442	69,725	138,583	565,241
% by Country	FR 35 IT 20 SW 11	LE 36 SA 18 SY 12	WG 21 IR 19 SA 18 KU 16		IR SA
Dressings	3,563			2,840	
% by Country	SA 70 LE 30				

SOURCE: The Hashemite Kingdom of Jordan, Department of Statistics, External Trade Statistics, 1977, 1978, 1979, 1980.

a. Production

Together, these four companies provide for the growing proportion of the domestic drug market in Jordan, up from 16.2 percent of domestic sales in 1975 (JD1.28 million) to 24.1 percent in 1981 (JD1.25 million) (see Table II-1). Of the local manufacturers' 1981 domestic sales, 38 percent went to the government and 62 percent to the private sector. The government's goal is for local drug manufacturers to supply over 40 percent of government and domestic purchases by the early 1980s. This goal is nearly achieved in the government sector where domestic manufacturers provide almost 30 percent of the government's pharmaceutical purchases, up by 16 percent from 1977.

Jordanian manufacturers are also major exporters of pharmaceuticals. In fact, exports constitute over 52 percent of their total business. Exports in 1980 were JD2.72 million, which represents 2.3 percent of all Jordanian domestic exports in that year. Total Jordanian exports statistics for 1981 are not available, but the addition of JD900,000 in re-exports by Life Pharma (now Dar al Hickma) and the growth of AMP and Dar al Dawa nearly doubled the export value to JD5.11 million. No product or pharmaceutical grouping breakdown is given for these exports, but external trade statistics given in Table II-7 indicate the direction of this flow. In most recent years, the major customers for these pharmaceutical exports have been Iraq, Saudi Arabia, Yemen and Syria. Together the four countries purchased over 30 percent of total Jordanian exports, with Saudi Arabia and Iraq accounting for approximately 30 percent of total Jordanian exports.

Until 1979, domestic pharmaceutical production was limited to only one company — the Arab Pharmaceutical Manufacturing Company. The company still maintains 63.5 percent of the total Jordanian domestic production of pharmaceuticals and 54.3 percent of the Jordanian production for their domestic

markets. APM was established in 1964 and by 1982 it was producing 20 classes of drugs. Within these 20 classes are 57 specialty products in addition to the more than 100 generic products. Total sales of APM rose from JD90,000 in 1967 to JD1.93 in 1975 to JD5.44 in 1981, with the average growth better than 15 percent growth per year over the last six years.

The major portion of APM's output is in fact not for the domestic market. Out of APM's production in 1981, 72 percent was expected to be exported to Arab countries and to countries in Northeast and West Africa. This export level has varied from the 1981 high of 72 percent to the 1979 low of 62 percent.

Domestic drug production has been highly encouraged by the Ministry of Health, and by 1980 three new production facilities were open in Jordan. Significantly, APM has the major portion of its domestic sales to the Jordanian public sector (59 percent in 1981, 63 percent in 1980, and 60 percent in 1979), and the other three firms have predominantly private sector sales. Dar al Dawa and Dar al Hickma also have major export operations. It should be noted, however, that Dar al Hickma was in fact a subsidiary of an Italian firm until 1982.

Although the government does desire and promotes growth in domestic pharmaceutical manufacturing, local production has not been provided any major protection by the government. This results in a generally competitive environment for domestic production and imported pharmaceutical preparations. Domestic products do receive a somewhat favored tariff by the Tariffication Committee (see Section II-E), but this is somewhat negated by the higher costs of small-scale production from imported compounds.

Vaccines are produced at the Jordan Vaccine Institute, but a recent CDC laboratory study indicates that production has been recently curtailed. Currently there is a study underway to explore the feasibility of creating joint

venture with selected manufacturers. If this occurs, the Institute may become a public company similar to APM or Dar Al Dawa.

Production of pharmaceuticals by domestic manufacturers includes intravenous fluids, analgesics, antibiotics, cough preparations, diuretics, cardiovasculars, and a range of over-the-counter preparations. Selected therapeutic categories of drugs registered in Jordan and the availability of domestic source are given in Table II-8. Appendices II-2 and II-3 list major pharmaceutical products of APM and JPM.

For almost all categories, domestic pharmaceutical production is limited to pharmaceutical processing. That is to say, all basic compounds used in domestic manufacture are imported.

Domestic manufacturers are unwilling to give a specific breakdown of their sales by product classification either for domestic or export sales. There does seem to be general agreement that antibiotics make up approximately one-third of all sales. A review of imported chemicals given in Table II-9 confirms this. Over JD1.41 million in antibiotic chemical compounds were imported in 1981. Assuming there is a significant value added in the manufacturing process, then the one-third figure for antibiotics could be an underestimate.

#### b. Investment

Each of the domestic manufacturers have expansion plans on their schedules. The privately held companies, JPM and Dar al Hickma, face difficulties with private investment constraining their expansion goals. APM is presently building a new factory at the cost of JD3 million to employ an additional 700 employees. This will permit expansion of their manufacturing to 47 groups of pharmaceutical preparations, and permits them to claim that they will be able to expand their production capabilities tenfold.

Table II-8

SELECTED THERAPEUTIC CATEGORIES  
OF DRUGS REGISTERED IN JORDAN\*

	<u>By Domestic Source</u>
1. Anti-infectives (including antibiotics)	X
2. Cough & cold	X
3. Anti-diarrheal (excluding ORS)	X
4. Oral rehydration salts	—
5. Analgesic/anti-pyretic	X
6. Topical ointments	X
7. Ophthalmic preparations	—
8. Anti-psychotics (including tranquilizers)	X
9. Vitamins and minerals	X
10. Anti-rheumatic	X
11. Anthelmintics	X
12. Narcotics	—
13. Cardiovascular	X
14. Anesthetics	—
15. Laxatives	X
16. Contraceptives	—
17. Vaccines	X
18. Antacids	X

\*May not include the "drug of choice."

Table II-9

MAJOR PHARMACEUTICAL IMPORTS  
IN JORDIAN DINAR

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
<u>Chemicals</u>					
Vitamins	29,608	26,635	20,243	13,738	27,307
% by Country	SW 49 GR 49	SW 76 IT 16	SW 94	UT 90	US
Antibiotics	560,950	428,952	656,705	976,340	1,410,763
% by Country	IT 89 UK 8	IT 95 UK 2	IT 96 WG 1	IT 85	IT
Vaccines & Cultures	151,130	204,422	214,355	279,332	264,601
% by Country	US 32 FR 15 SW 12 BL 11	US 25 SW 20 SP 12 WA 10	US 23 SW 19 WG 11 SP 11	US 61.7JD UK 525 GR 27 SW 36	GR US
<u>Pharmaceuticals</u>					
Antibiotics	1,467,041	1,346,030	1,765,892	1,497,467	
% by Country	IT 32 UK 26 US 9	UK 27 IT 21 WG 09	UK 35 IT 19 BE 19 US 8	UK 35 IT 26 SW 18 US 14	
Medicaments	18,846		55,075	57,484	
% by Country	US 99		UK 70 LE 30	UK LE	
Other Medicaments	4,651,586	3,852,644	4,689,515	4,916,818	
% by Country	SW 22 UK 19 WG 16 LB 9	UK 25 WG 20 SW 16 FR 7	UK 26 WG 19 SW 18 US 9	UK SW WG	
Dressings	145,941	185,939	107,034	330,004	371,149
% by Country	UK 41 GD 14 WG 13 IN 9	UK 32 IN 24 TA 11 EG 9	UK 18 EG 15 JA 13 IN 10		UK TA
Other Pharmaceuticals	31,718	116,438	178,034	214,344	310,658
% by Country	WG 60 US 11 UK 8 FR 7	UK 26 IT 16 US 14	WG 40 UK 30 NE 10 SW 7		UK WG

SOURCE: The Hashemite Kingdom of Jordan, Department of Statues, External Trade Statistics, 1977-1980.

Two of the firms, APM and Dar al Dawa, are publicly held companies. The government holds 8 percent of APM stock and APM now has a paid-up capital of roughly JD4 million (\$11.2 million). The other two companies are privately held. Jordanian law requires that privately held companies have capitalization of no more than JD500,000 and no more than 50 employees. JPM in particular finds this capitalization and employment requirement a serious constraint to its expansion plans.

c. Quality Control

The APM plant in Salt was toured and the manufacturing process observed. Each step in the manufacturing process is appropriately segregated. Tableting is done in enclosed areas separate from liquid, etc. Up-to-date strip packaging and computerized techniques are used. Quality control is primarily production oriented, but there is a quality control department which develops dosage forms and tests products for potency and stability over time. A research and development and quality control department produces new formulations for old-line products or for MOH tender specifications. This facility also houses a conference center complete with audiovisual aids, meeting rooms and a kitchen. It was stated that these facilities are available upon request to professional group meetings.

d. Public Service Information

Dal Al Hickma has produced but not distributed--under its former company name of Life Pharma--a health education brochure on coughs. It includes information on types of cough, the physiology of cough, and the handling of cough in lay terms. A copy of the brochure is in Appendix II-4. Both Dar Al Dawa and JPM were visited but the manufacturing process was not observed.

e. Medical Representatives

The pharmaceutical manufacturing industry both inside and outside of Jordan have medical representatives present in Jordan. Two of the pharmacists interviewed in the study sample were representatives of foreign firms. Representatives report receiving 7-10 days training on the drugs of the firm represented. While a representative may visit pharmacies in his territory to gain information on how his firm's drugs are selling, representatives spend most of their time presenting drug samples and information to physicians. No representative reported getting involved in a formalized "return goods" process.

2. Importers-Wholesalers

By law, foreign drug companies must have a Jordanian representative for their product distribution. Accordingly, imported drugs are distributed through wholesaler networks of "drugstores" who are limited to supplying private sector pharmacies and small purchases (less than JD1,000) to the government. There were 51 drugstores in Jordan in 1982, according to the Registered Drugs Index. Of these 40 deal in medicines; the others restrict themselves to various types of medical equipment. These drugstores act as agents for pharmaceutical imports from approximately 137 foreign companies. Appendix II-5 lists the names of each of these drugstores and the foreign companies they represent. Altogether, 2,537 medicines are registered for sale in Jordan.

Drug stores act as wholesalers to pharmacies. Pharmacists may order from them directly by phone or through one of the drug store's roving salespersons. Requested stock is delivered to the pharmacy in one to three days. It is reported that a drug store may receive six months credit from the manufacturer and may pass on two months to the private pharmacist. When a new store is opening the drug store usually provides a three months supply as opening stock. Firms that are drug stores may also sell other items. For example, the Shocair's drug store sells

medical and surgical equipment. The four pharmaceutical manufacturing firms in Jordan, however, serve as their own drug stores.

The number of foreign companies has gradually reduced, as has the number of basic medicines and the number of pharmaceutical forms on the Jordanian market. The reduction of nonessential pharmaceuticals has been a major effort over the past 20 years by the Ministry of Health (See Table II-10). For example, in 1980 approximately 2,300 pharmaceuticals were on the registered list of drugs for sale in Jordan (with different presentations of the same drug being counted as a separate registration). The number of pharmaceuticals offered for sale in 1980 was less than 20 percent of the 15,000 preparations available on the Jordanian market in 1965. The number of foreign companies represented in the Jordanian market has declined from 302 in 1975 to 137 in 1980. Similarly, the number of basic medicines has declined from 1952 to 1597 over the same period.

The ranking of foreign firms by their drug sales in the Jordanian market is given in Table II-11. The top three firms for the last several years have been Bristol/Mead Johnson (U.S.) with the Adwiat al Sharq drugstore, Merck, Sharp and Dome Frosst (Holland) with the Adwiat Adarco drugstore, and Roche (Switzerland) with the Rusheidat W. Musanat drugstore.

Jordan's open market assists foreign firm competition. Indeed, market concentration is such that the top ten firms differ by only JD120,000 in sales, yet together they control only 31 percent of the imported market and 23.6 percent of total domestic market. It should be noted, however, that a local manufacturer, APM, alone controls 13 percent of the domestic market, primarily by its sales to the government.

In terms of supply to the Jordanian market, foreign imports, through their drugstore representatives, supply nearly 75 percent of the domestic drug market (see Table II-1). For the private pharmacies, these foreign firms and their

Table II-10

NUMBER OF MEDICINES AVAILABLE IN THE JORDAN MARKET  
AND NUMBER OF COMPANIES

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Number of Basic Medicines	1952	1671	1743	1536	1550	1597
Number of Pharmaceutical Forms	3463	2791	2505	2538	2555	2819
Number of Companies	302	201	225	189	177	187

SOURCE: Medical statistics of the Ministry of Health, 1980.

Table II-11

MAJOR FOREIGN DRUG COMPANIES  
IN THE JORDANIAN MARKET, 1980, 1981

<u>Rank</u>		<u>Company</u>	<u>JD. CIF 1981</u>
<u>1980</u>	<u>1981</u>		
2	1	Bristol/Mead Johnson (USA)	391,307
3	2	Merck, Sharpe, Dome Frosst (Lebanon, Holland)	330,044
1	3	Roche (Switzerland)	323,489
14	4	Burroughs Wellcome (United Kingdom)	316,258
10	5	Ciba-Geigy (Switzerland)	305,205
4	6	Squibb (USA)	256,004
7	7	Glaxo (United Kingdom)	227,660
5	8	Beecham (United Kingdom)	215,396
9	9	Schering AG (West Germany)	215,196
11	10	Janssen (Belgium)	172,131
Total			2,750,000

drugstores provide over 92 percent of the market. Imported drugs procured primarily by government tender, also constitute over 65 percent of the government market.

There are no official statistics on the composition by drug type of the imported, drugstore distributed pharmaceuticals. However, surveys of pharmacy stocks (see Section III) and of import composition suggests antibiotics make up 20 percent of the market. It is likely that this percent is larger since non-prescription drugs are included in these observations.

## C. PHARMACISTS

### I. Number and Distribution of Pharmacists

Jordan is in a unique position with respect to developing countries in facing a potential overabundance of pharmacists. The number of pharmacists in Jordan has grown steadily since the first pharmacy laws were incorporated in Jordan in 1927, just six years following the establishment of the Emirate of Trans-Jordan. Table II-12 indicates the more recent numbers of Jordanian pharmacists. The most striking fact in these figures is that in 1980 there were 1,156 authorized pharmacists for Jordan, but only 539 were working in the country. The remaining 567 were working in neighboring Arab countries or other countries abroad because of better earnings and the difficulty of securing a location for their own pharmacy in the country. Overall, there were 2.6 pharmacists in the country for every 10,000 Jordanians, a number that has risen from 1.6 in 1975 (Table II-13). Comparable numbers for Jordan's neighbor, Egypt, were 3.8 pharmacists per 10,000. The growth in pharmacists in Jordan has kept pace with a similar rapid growth in the number of physicians. In 1975 there were 4.1 physicians per capita; in 1980 there were 7.7 physicians per capita (see Table II-13).

Table II-12

## JORDANIAN PHARMACISTS BY SECTOR AND THOSE ABROAD

	Pharm. Licensed Yearly	Public Sector Pharmacist			Private Sector Pharma- cists	Total Authorized Pharma- cists	Authorized Pharm. Working Abroad	Total Pharm. in Jordan
		MOH and & Univ. Hospital	Armed Forces	Total				
1975	69	30	--	30	255	684	396	285
1976	65	41	22	63	308	769	398	321
1977	89	41	22	63	317	862	512	380
1978	76	45	20	65	360	968	543	425
1979	101	38	23	61	454	1069	554	515
1980	87	53	22	75	514	1156	567	589

SOURCE: Statistics of the Ministry of Health, Table 105.

Table II-13  
10,000 MD and Pharmacy Per 10,000 Population and Pharmacist

---

<u>Year</u>	<u>Pharmacist</u>	<u>Physicians</u>
1975	1.6	4.1
1976	1.9	4.7
1977	1.9	5.0
1978	2.1	5.4
1979	2.4	6.9
1980	2.6	7.7

---

Source: Jordanian Statistical Yearbook, 1980, Table 12.

a. Private versus Public Sector Pharmacists

All private sector pharmacies (retail outlets), drugstores (wholesale outlets), and domestic manufacturing plants, as well as government and private hospitals with 20 or more beds must be headed by a pharmacist. Consequently, a pharmacist in Jordan may play any of several roles in the provision of health care. He or she can choose to practice in the Ministry of Health, manufacturing plants, private pharmacies, public, private or military hospitals, or can serve as a medical representative for drugstores or for manufacturing firms.

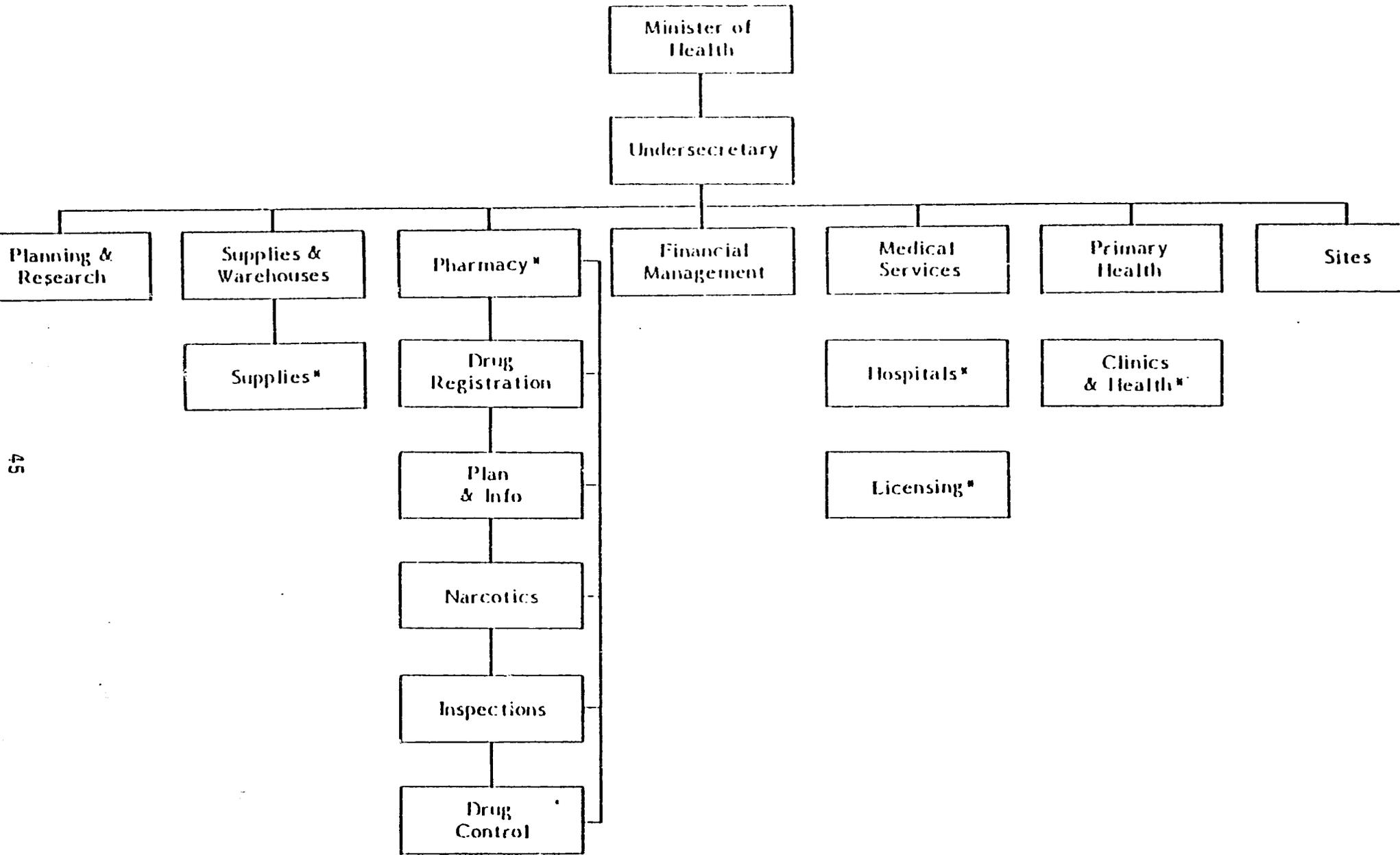
By far the largest number of pharmacists work in the private sector. In 1981, 514 were at work in the private sector with approximately 35 in manufacturing, at least 50 in drugstore distributors and perhaps 430 in private pharmacies (see Tables II-12 and II-14).

In 1981 only 75 pharmacists were employed in the government sector, with 53 in the Ministry of Health and University Hospital and 22 in the armed forces.

Within the Ministry of Health, pharmacists are primarily employed in the Pharmacy Department which has the responsibility for registering drugs for import, assaying the quality of drugs imported, conducting inspections of public and private pharmacies, and setting and implementing policies regarding drugs in the MOH. This department also has the responsibility to monitor regulations derived from Jordan's pharmacy law. Appendix II-9 describes the responsibility of the Pharmacy Department and its role in overseeing and implementing the law. Pharmacists can also work in the Supplies, Medical Services, and Primary Health divisions within the Ministry of Health. The organizational placement of pharmacists is depicted in Figure II-1.

As can be seen in Table II-12, the number of pharmacists in the government sector has remained much the same over the past five years, although

ALLOCATION OF PHARMACISTS



45

FIGURE 11-1: MOH ORGANIZATION AND PHARMACIST PLACEMENT

that sector as a whole is growing by nearly 20 percent per year. This appears to be due to the fact that public sector salaries are too low to attract pharmacists to fill vacant positions. As a result, it is reasonable to anticipate a diminution in the quality, as well as the quantity, of pharmaceutical services provided by the public sector. This fact is reinforced by Table II-15, which can be used to compare the number of pharmacists to the number of other health professionals working in the government sector. Numbers of government physicians, dentists, and nurses have all grown by almost 75 percent since 1976, while pharmacists grew by only 20 percent.

## 2. Education and Training

It is worth noting that despite the abundance of pharmacists, no facilities existed in Jordan for the training and education of pharmacists until recently. In the past most Jordanian pharmacists were trained in other Middle East countries, most notably Egypt, Syria, Lebanon and Iraq, as well as universities in Great Britain, Italy, Spain, Yugoslavia and the United States. In the late 1960s, the largest number of Jordanian pharmacists received their training in other Arab countries, especially at the American University in Beirut, and at Cairo University. More recently, over 50 percent of the pharmacists received their training in Eastern European countries, 40 percent in Arab countries and 10 percent in West Germany, Europe, Great Britain and the United States (Table II-16). This parallels similar support given by Russia and its Eastern European allies for training of Jordanian physicians in their countries (Table II-17).

Now there are two universities in Jordan with curricula in the pharmaceutical sciences. The University of Jordan (UOJ), which has had a faculty of pharmacology since 1973, is entering its third year of classes. UOJ enrolls approximately 50 students per year. The five-year curriculum allows specialization in hospital and community pharmacy along with industrial pharmacy, and is a "one

Table II-14

PHARMACIST EMPLOYED IN THE MANUFACTURING SECTOR 1981

---

<u>Company</u>	<u>Pharmacists</u>
JPM	5
APM	17
DAH	12
DAD	5

---

Source: Conversation with Manufacturing Officials.

Table II-15

PERSONS ENGAGED IN THE MEDICAL AND RELATED PROFESSIONS  
DURING 1974-1980

Professions and Classifications	1975	1976	1977	1978	1979	1980
Physicians	744	390	986	1106	1477	1715
Male	707	338	917	1058	1398	1599
Female	37	52	69	48	82	116
Jordanians	718	377	970	1083	1461	1694
Non-Jordanians	26	13	16	13	16	21
Private Practice	374	418	443	550	800	948
Government	370	427	543	556	677	767
Dentists	145	189	212	241	266	351
Male	119	166	184	212	216	297
Female	26	23	28	29	50	54
Jordanians	143	189	212	241	266	351
Non-Jordanians	2	--	--	--	--	--
Private Practice	108	144	168	137	207	289
Government	37	45	44	54	59	62
Pharmacists	285	301	360	425	515	589
Male	233	286	400	331	405	444
Female	52	59	76	65	37	106
Jordanians	279	345	467	396	492	550
Non-Jordanians	6	--	--	--	--	--
Government	30	63	63	65	61	75
Midwives	167	175	182	182	205	207
Jordanians	157	161	182	182	205	207
Non-Jordanians	10	14	--	--	--	--
Non-Government	42	22	37	42	49	49
Government	125	153	145	140	156	158
Nurses, Professional	331	468	530	484	492	555
Male	76	169	170	75	71	72
Female	255	299	360	408	421	483
Jordanians	287	433	405	378	389	452
Non-Jordanian	44	35	125	105	103	103
Private	114	39	101	95	95	128
Government	217	379	429	388	397	427

Source: Jordanian Statistical Yearbook 1980, Table 12.

Table II-15 (cont'd.)

PERSONS ENGAGED IN THE MEDICAL AND RELATED PROFESSIONS  
DURING 1974-1980

Professions and Classifications	Years						
	1974	1975	1976	1977	1978	1979	1980
Bacteriologists	38	45	80	88	83	92	
Male	32	36	62	66	60	67	
Female	6	9	18	22	23	25	
Jordanians	23	45	80	88	83	92	
Non-Jordanians	-	-	-	-	-	-	
Private	15	18	18	22	22	24	
Government	23	27	62	66	61	68	
Med. Laboratories	*	*	252	254	242	261	
Male	*	*	190	200	130	197	
Female	*	*	62	54	62	64	
Jordanians	*	*	252	254	242	261	
Privates	*	*	35	38	44	47	
Government	*	*	217	216	198	214	

Source: Ministry of Health.

Source: Jordanian Statistical Yearbook 1980, Table 12.

Table II-16  
PHARMACIST TRAINING

---

<u>1970</u>	
30%	Total pharmacists trained in Arab countries  American University in Beirut Cairo University
20%	Europe and United States
 <u>1980</u>	
50%	New pharmacists trained in Eastern Europe  East Germany Yugoslavia Romania Greece Russia
40%	Arab countries  Egypt Pakistan
10%	Western Europe  West Germany Great Britain United States

---

Source: Interviews with Jordanian pharmacists.

Table II-17

## TRAINING OF MINISTRY OF HEALTH PHYSICIANS

---

<u>Location of Medical School</u>	<u>Total</u>	<u>Percent</u>
Jordan	7	3.7
Other Arab Countries	56	29.6
U.S.S.R.	39	20.6
Other Eastern Block Countries	20	10.6
Other European Countries	61	32.3
Other Countries	<u>6</u>	<u>3.2</u>
Total	139	100

---

SOURCE: Westinghouse Health System Report, Health Planning and Service Development Project, July 1982.

plus four" program, meaning one year of pre-pharmacy and four years of professional school. Students study basic science during the first two years and the technical aspects of practice the last three.

Yarmouk University is starting its second year of classes. The five-year curriculum at Yarmouk has a different focus and permits specialization in industrial and clinical pharmacy along with a speciality in medicinal chemistry. The curriculum for each school is included in Appendix II-6 and II-7.

Both programs include 1,440 hours of internship. Students can begin their practice and required internship after the first professional year, which is usually done during the summer months. Practice may occur anywhere a licensed pharmacist works in Jordan, such as community pharmacies, hospitals, manufacturing plants, etc. During this study, students were seen in community pharmacies and manufacturing plants, but not at government sites.

#### D. PHARMACIES

##### I. Number and Distribution

The number of private pharmacies serving the Jordanian population has grown rapidly. In 1975, there were 163 pharmacies in the country; by 1980 there were 266 located predominantly in urban areas. One hundred twenty-nine of these retail outlets are located in Amman, 35 in Zarqa, and 28 in Irbid, with 3 in Mabda and 5 in Salt and Karak. The remainder are located in smaller towns and villages. Table II-13 gives the distribution of pharmacies in cities and towns over 3,000. The disparity of distribution is clear. Results of the 1979 census presented in Table II-19 show that Amman contains 30 percent of Jordanian population; 48 percent of the country's pharmacies are in Amman. Amman, Zarqa and Irbid together contain 45.3 percent of the country's population, and 72 percent of the pharmacies. The

Table ii-18

## GROWTH OF PRIVATE PHARMACIES IN JORDAN 1975-1980

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Amman	84	86	94	107	111	129
Zarqa	29	30	32	32	33	35
Irbid	15	18	19	20	24	28
Madaba	3	4	5	6	6	8
Salt	2	4	4	4	5	5
Karak	2	3	4	5	5	5
Suweilih	2	2	2	2	2	3
Al Ramitha	2	3	3	3	4	5
Ma'raq	2	3	3	3	3	4
Al Rasifa	2	3	3	5	5	5
Wadiseer	1	1	2	2	2	2
Aqaba	2	2	3	2	2	5
Jarash	1	2	2	2	2	3
Ma'am	1	1	1	2	2	2
Sahab	1	1	1	1	1	1
Altafilah	-	-	-	-	-	1
North Al Shuna	1	1	1	1	1	1
Agloun	1	1	1	1	1	1
Muxiam Marka	1	1	2	2	2	1
Muxiam Al Baga'a	3	4	5	5	5	5
Deir' Alla	1	1	1	1	1	1
Al Faniss	1	1	1	-	-	1
Deir Abisaid	1	1	1	1	1	1
Dahyat Al Hussein	1	1	1	1	1	1
Al Tieba	1	1	1	1	1	1
Al Sharifa	1	1	1	1	1	1
Al Gabieha	1	1	1	1	1	1
Al Kariema	-	-	-	1	1	1
Na'ur	-	-	-	1	1	1
South Shuna	-	-	-	1	1	1
Al Hasun	1	1	1	-	-	1
Al Qwaisemah	-	-	-	-	-	1
Abu ' Alanda	-	-	-	-	-	1
Alxalidiah	-	-	-	-	-	1
Marg Alhamam	-	-	-	-	-	1
Gaza Camp	-	-	-	-	-	1
Al Karama	-	-	-	-	-	1
'Afa' Rusiefa	-	-	-	-	-	1
Total	163	178	195	214	226	266

Source: Table 104, Federal Status of the Ministry of Health 1981.

Table II-19

SIZE AND GROWTH RATE OF MAJOR JORDANIAN POPULATION  
CENTERS FROM THE CENSUS OF 1979

---

<u>Type of Settlement Population</u>	<u>of Total</u>	<u>Percentage 1969-1979</u>	<u>Average Growth</u>
Amman	648,587	30.1	5.4
Zarqa	215,687	10.0	4.5
Irbid	112,854	5.2	5.2
Salt	32,866	1.5	3.9
Aqaba	26,986	1.3	6.2
Kerak	11,805	0.5	2.6
Ma'an	<u>11,308</u>	<u>0.5</u>	<u>3.0</u>
Sub-total	1,060,093	49.3	

---

ratio of pharmacies to population in the three largest cities is 1:5,000; less than one-third that amount, 1:16,666, are available for the rest of the country.

The levels of pharmacies in the major cities may be sufficient to meet the pharmaceutical needs of their populations. Indeed, the government seems to view it this way with its licensing procedures that heavily favor opening pharmacies in rural areas and villages. Pharmacists, however, prefer to locate in the major urban areas, both for the profitability and the amenities of urban life. Consequently, each city has a waiting list of pharmacists wishing to establish new pharmacies; (Pharmacists holding out for urban positions have extended the waiting list to over 400 pharmacists.)

Each year, at the request of the Ministry of Health Pharmacy Department, The Syndicate of Pharmacists proposes the number of additional pharmacies needed in various areas of the country. The Ministry of Health design to promote new pharmacy location in rural areas does not appear to have had the desired results. From Table II-13 it can be seen that of the 40 new pharmacies opened in 1980, 24 were in the three major cities and only 16 in those smaller towns and villages.

#### E. PRICING PRACTICES AND COSTS

Prices of all pharmaceutical preparations sold in Jordan, whether ethical drugs or over the counter, have fixed retail prices regulated by the government's Tariffication Committee, which consists of the following:

- 2 Syndicate pharmacists
- 3 Ministry of Health pharmacists
- 1 drugstorist
- 1 university pharmacology expert.

The drug price is set at both the wholesale and retail level and the Committee attempts to set prices according to the lowest similar product on the market, adjusting for quality of the best available. For a product new to Jordan's market, the Committee looks at the originator cost and usually settles on 70 to 80 percent of the originator price.<sup>7</sup> The procedure is the same for a domestically manufactured product, except that the price is 20 to 30 percent lower than that of a similar imported product. Additionally, a profit incentive for local retailers to use lower-priced domestic articles is provided by larger bonuses available from domestic manufacturers. See Table III-1 in Section III for an indication of prices for leading drugs.

1. Price Adjustments

The Tariffication Committee has made across-the-board adjustments for exchange rate changes that have occurred in the Jordanian economy over the past several years. Other price changes are made on a case-by-case basis as they are brought forward to the Committee by the drugstorist's appeal. The procedure can take up to two years. While there is little evidence that low prices are creating shortages at the local pharmacy level foreign producers indicate that they have been withholding drugs from the market due to difficult pricing terms. This apparently occurs only when the Tariffication Committee feels that there is an adequate substitute product. Firms have also indicated that Jordan is too small a market to have many "loss leaders," and they also take the market size and pricing structures into consideration when deciding whether to introduce a new product into the country.

---

7. This pricing procedure was explained informally by industry sources who participate in the Tariffication Committee. No official explanation of the procedure was given.

## 2. Profits and Expense Structure

At the wholesale level the drugstorist is permitted a 19.5 percent gross margin. The drug price is set at both the wholesale and retail level and the Committee to cover import and distribution costs and derives a net profit of approximately 5 percent. Import costs include customs, freight, insurance, banking, university tax, internal travel and distribution. There are no customs fees for antibiotics.

The private pharmacy is allowed a 26 percent margin on the wholesaler's price. In comparison, cosmetics are allowed a 31 percent margin. Expenses for electricity, telephone, and rent run from 12-15 percent of profit, thus permitting a possible net profit of 10 percent.

A pharmacist reported that expenses were 12-15 percent of profit. One pharmacist reported the following normal expenses: light, 1 JD per day; telephone, 30 JD per year base cost plus 300 JD per year usage cost. Rent was reported to be from 250 JD per year for older pharmacies based in downtown Aman to 2000 JD per year for a newly opened neighborhood pharmacy.

## 3. Salaries

Almost all pharmacists report that the average base salary is 200-300 JD per month (\$560-\$840). A pharmacist owner can take home about 300 JD per month.

## F. THE PHARMACY LAW

Jordanian Law 43 of 1972 provides the Law of Practicing the Profession of Pharmacy and includes: definition of professional practice and pharmaceutical institution; requirements for owning a pharmaceutical institution; training requirements for pharmacists; practice rules for the profession; and the definition and regulatory procedures for registration and drug control for toxic and controlled substances. Appendix II-8 presents an unofficial English translation of this law. This law is rather detailed due to the complexity of the pharmaceutical sector, but it is relatively clear and succinct. Several elements of this law have already been discussed. Additional elements are treated here briefly as follows.

### 1. Registration of Drugs

The law requires that all medicines must be registered through the Pharmacy Directorate of the Ministry of Health before they may be sold or distributed. The registration is reviewed by a technical committee comprised of the following:

Deputy Minister of Health

Director of the Minister of Health Pharmacy

Directorate

1 Army pharmacist

1 university pharmacist

1 industry pharmacist

2 private pharmacists—one the President of the

Pharmacy Syndicate and one elected from the

Syndicate.

Registration of a new drug generally takes 1.5 to 2 years unless the medicine is considered a breakthrough drug of importance to Jordanians. Applications must be made by the drugstorist, not the foreign manufacturing

company, and require information on the manufacturer, proposed price, composition, sources of active constituents, quality control data, container/packaging, stability, labeling and inserts, clinical use, experimental and biological studies, and clinical trials and studies. The required information is consonant with World Health Organization (WHO) drug registrations recommendations, including the waiver of experimental, biological and clinical studies and trials for the pharmaceutical under application as a well-established drug. Applications must be accompanied by a certificate of analysis by a governmental or other recognized independent laboratory, a certificate of the Ministry of Health of the country of origin showing the product is licensed for sale and being sold in the country of origin, and ten samples of the product.

Applications are evaluated by three pharmacists in the Pharmacy Department and forwarded to the technical committee for the control of drugs under the Ministry of Health, which makes the final determination regarding the approval and fixes the wholesale and retail price as determined by the Tariffication Committee.

Except for laboratory testing, the evaluation and analysis of proposed pharmaceuticals is the responsibility of the Pharmacy Department. Appendix II-9 describes the role of the Pharmacy Department in overseeing and implementing the law. The Department does not maintain a quality control laboratory, although one is presently in the development stages with collaboration from WHO, and proposed in the five-year plan. It is expected that the laboratory will be part of the government laboratories and the Ministry of Health, rather than directly under the Pharmacy Department.

## 2. Prescription Requirements

The law requires prescriptions for most pharmaceuticals sold in pharmacies. The government list of 25 over-the-counter preparations and other

household medicines that do not require prescriptions includes analgesics, cough syrups, antidiarrheals, as well as products such as penicillin and semisynthetic penicillin, antibiotic ointments and sulphaziadine. The entire procedure of when to require a prescription and what can be considered an over-the-counter preparation is currently under review by the Pharmacy Syndicate and the Ministry of Health.

### 3. Licensing

#### a. Pharmacists

The law requires that pharmacists be licensed by the MOH before they can practice. Individuals who have completed graduate training outside the country are eligible for licensing upon submission of evidence that they have completed studies and passed a two-day examination comprised of written, practical and oral testing.

For individuals trained in Jordan, the exam is presumed to be a part of the training process and a license is granted without examination after satisfactorily completing a degree and 1,440 hours of practical internship. Presently there are no requirements for license renewal or continuing education, but the Pharmacy Syndicate does provide limited continuing education. Only one of the nine community pharmacies visited displayed a license.

#### b. Pharmacy Assistants

There is also a technician level in manpower classification in Jordan: pharmacy assistants. Assistants receive variable training--from three months to two years as well as on-the-job training. Assistants may be licensed by taking an examination in the use of the pharmacopoeia and other drug information sources, pharmacology, pharmacognosy and drug use.

#### c. Pharmacies

The law also requires that pharmacies be licensed and specifies regulation of pharmacy practices including business hours, size, facilities, distance

between shops, and recordkeeping for various types of pharmaceutical products. Pharmacies in Jordan are not restricted to the sale of pharmaceutical or medical products, and, in an effort to increase the income of pharmacists (as both prices and profit margins are set by the government), many pharmacies have introduced a growing variety of merchandise, including toiletries, perfumes, and cosmetics. Pharmacies are required by law to be closed one day per week. Access to pharmaceuticals after normal pharmacy hours is coordinated by a central authority. Specifically, one or more pharmacies will remain open in each district on a rotational basis. Additionally, a pharmacist may be part of an on-call arrangement, whereby he or she will return to the pharmacy to dispense medicines if needed.

d. The Pharmacy Syndicate

The Jordanian Pharmacy Association, the "syndicate of pharmacists", was formally established in 1957 and reconfirmed in the law of 1972. The Syndicate officially represents all 1156 licensed Jordanian pharmacists, whether working in-country or abroad, and membership is required. A pharmacist is subject to a fine if he or she practices without joining the Syndicate. Annual dues are JD 30 for pharmacy owners and JD 10 for employed pharmacists. An additional monthly charge of 5 JD goes into a retirement and insurance fund.

The Syndicate is run by a ten-member Board which is elected to a two-year term. As the trade and professional association for pharmacists, responsibilities of the Syndicate include the promotion and improvement of the pharmacological profession. Members are a part of the licensing and regulatory structure of the Ministry and sit on examination panels to work with the Ministry of Health to derive regulations.

### III. MICRO OBSERVATIONS OF PHARMACIES AND PHARMACISTS IN JORDAN

### III. MICRO OBSERVATIONS OF PHARMACIES AND PHARMACISTS IN JORDAN

#### A. INTRODUCTION

This section presents the micro-data necessary to clarify the role pharmacists play in the provision of primary health care services in their communities. Case study data is used to help assess the sociological role of pharmacists in both the private and public sectors of the Jordanian health care delivery system. This analysis is designed to:

1. Describe the nature of pharmacist/client interactions.
2. Describe the different types of pharmacies in Jordan, e.g., rural versus urban, central location versus neighborhood pharmacies, owner operated versus nonowner operated, etc.
3. Describe the broader role of pharmacists within the context of Jordanian health problems.
4. Analyze the variables that lead to pharmacy clients' patronage.

The sampling and research methodology is presented in Appendix III-1.

#### B. PRIVATE PHARMACIES

##### 1. Technical Observations

##### a. Establishment characteristics

Private pharmacies are community businesses; none are chain stores. Most use a squared U" floor plan with the entrance at the open end of the U and the dispensing desk adjacent to a cash register at the lower end of the U. Older pharmacies visited during the study were approximately 30 to 36 square meters in size; newer stores were often larger. One new pharmacy visited was 67 square meters. Manufacturing and excess storage areas were typically in the rear of the dispensing area. Drugs, cosmetics and sundries were generally stored in

closed wall shelves and cabinets on each side of the U. Every available inch was utilized to store drugs and other retail items.

Counters usually featured cosmetic or drug sundry displays. Small product posters also appeared in the lower half of store windows, along with a mixed display of jewelry and other items. Electricity and telephones were always present. Refrigerators for insulin and other biologicals were generally in the storage area. In general the community pharmacy presents a clean, neat appearance. Most pharmacies were open during normal business hours. The MOH, however, gives 150JD (\$420) extra per month to a pharmacy if it stays open 24 hours a day.

#### b. Products

A wide range of drugs are stocked in private community pharmacies in Jordan. Most pharmacies also stock a variety of cosmetics and other supplies. A list of the top 50 drugs sold in one pharmacy is presented in Table III-1. Manufacturers listed in this table are domestic as well as multinational corporations. For the country as a whole, a total of 139 manufacturers provide 2,537 products for sale in Jordanian pharmacies.

Contraceptives, including pills, condoms, intra-uterine devices (IUD's) and suppositories were seen on the shelves of private pharmacies visited. Table III-2 lists contraceptives seen in private pharmacies by type, unit and cost as of August 1982. Weaning foods and oral rehydration preparations listed in Tables III-3 and III-4 were also present.

Drug products are stored and sold in unit-of-use packaging. In other words, pharmacists do not order or stock large quantity dispensing bottles of 500 or 1,000, and then count and pour into smaller containers labeled for a specific patient. Drugs are stored on the shelf according to the wholesaler that sells them. The sale of surgical and medical supplies in pharmacies is limited to items such as hypodermic syringes, thermometers and hot-water bottles.

Table III-1

TOP DRUGS SOLD IN A PHARMACY  
BY DOSAGE FORM, STRENGTH, MANUFACTURER, UNIT AND PRICE  
AS OF AUGUST, 1982 (\*)

Name of Drug	Manufacturer	Dosage Form/Strength	Unit	Price (JD)	\$**
Ultracillin	A.P.M.	500 mg. Caps.	20	(1.700)	4.76
Pentrexyl	Bristol	500 mg. Caps.	12	(1.190)	3.33
Hiconcil	Mead Johnson	500 mg. Caps.	12	(2.740)	7.67
Penbritin	Beecham	500 mg. Caps.	12	(2.010)	5.63
Amoxil	Bericard	250 mg. Caps.	12	(2.380)	6.66
Ampiclox	Beecham	500 mg. Caps.	12	(2.030)	5.63
Lincocin	Upjohn	500 mg. Caps.	12	(2.180)	6.13
Velosif	Squibb	500 mg. Caps.	12	(3.710)	10.39
Septin	Burroughs-Wellcome	30 mg. Tabs.	20	(1.180)	3.30
Actifed	Burroughs-Wellcome	2.5 mg. Tabs.	25	(.680)	1.90
Erythrocin	Abbott	200 mg. Syrup.	60ml.	(.920)	2.57
Bactrim	Roche	80 mg. Tabs.	20	(1.460)	4.09
Mycostatin	Squibb	100,000 Unit. Veg. Supp.	15	(.840)	2.35
Terramycin	Pfizer	30 mg. Oint.	14ml.	(.310)	0.87
Ospen	Biochemie	500 mg. Tabs.	12	(.660)	1.68
Revacod	A.P.M.	500 mg. Tabs.	20	(.320)	0.90
Reverin	A.P.M.	500 mg. Tabs.	20	(.160)	0.45
Rerrin	A.P.M.	300 mg. Tabs.	30	(.100)	0.28
Panadol	Winthrop	500 mg. Tabs.	100	(.960)	2.69
Bisolvon	Boehringer Ingelheim	4 mg. Syrup	95ml.	(.510)	1.43
Benyllin	Parke-Davis	14 mg. Syrup	125ml.	(.470)	1.32
Allosparmin	A.P.M.	2 mg. Drops	15ml.	(.300)	0.84
Allerfin	A.P.M.	2½ mg. Syrup	120ml.	(.250)	0.70
Treupel	Homburg	125 mg. Syrup	5	(.260)	0.73
Flagyl	Specia	250 mg. Tabs.	20	(1.060)	2.97
Otrivin	Ciba-Geigy	0.5%, Drops		(.580)	1.62
Buscopan	Boehringer Ingelheim	10 mg. Tabs	20	(.580)	1.62
Dulcolax	Boehringer Ingelheim	10 mg. Tabs.	20	(.300)	0.84
Doloxen Compd.	Lilly	50 mg. Caps.	20	(.440)	1.23
Mexafcrm	Ciba-Geigy	200 mg. Tabs.	20	(.800)	2.24

Table III-1 (Cont.)

Name of Drug	Manufacturer	Dosage Form/Strength	Unit	Price (JD)	\$**
Enterosedive	Grunenthal	200 mg. Tabs.	20	(.680)	1.90
Indocid	Merck, Sharpe & Dome	100 mg. Supp.	5	(.740)	2.0
Aldomet	Merck, Sharpe & Dome	250 mg. Tabs.	30	(1.690)	4.0
Equagesic	Wyeth	75 mg. Tabs.	100	(3.370)	9.44
Voltarin	Ciba-Geigy	50 mg. Tabs.	20	(2.440)	6.77
Tandaril	Ciba-Geigy	100 mg. Tabs.	30	(1.320)	3.0
Librax	Roche	5 mg. Tabs.	30	(1.250)	3.0
Brufen	Boots	200 mg. Tabs.	25	(.900)	2.52
Tagamet	S.K.&F.	200 mg. Tabs.	50	(7.420)	20.0
Valium	Roche	5 mg. Tabs.	30	(1.250)	3.0
Periodal	Janssen	200 mg. Tabs.	10	(.410)	1.15
Immodium	Janssen	2 mg. Drops	10 ml.	(.640)	1.70
Daktacort		20 mg. Oint.	15 gm.	(1.140)	3.0
Fefol	S.K.&F.	150 mg. Caps.	30	(.650)	1.82
Cal-c-vita	Roche	1,000 mg. eff. Tabs.	10	(.920)	2.58
Becozyme Forte	Roche	15 mg. Tabs.	20	(.310)	2.0
Kenacomb	Squibb	0.25 mg. Oint.	15 gm.	(1.030)	2.0
Stesolid	Dumey	5 mg. Tabs.	25	(.450)	1.26
Neurobion	E. Merck	100 mg. Tabs.	20	(1.370)	1.00
Cebion	E. Merck	1 g. eff. Tabs.	10	(.610)	1.0

\*Not listed according to volume sold.

\*\*One Jordanian Dinar (JD) = \$2.30.

Table III-2

CONTRACEPTIVES SEEN IN PRIVATE PHARMACIES  
IN JORDAN BY TYPE, UNIT AND COST  
(As of August 1982)

<u>TABLETS</u>	<u>UNIT</u>	<u>COST</u>	
		<u>Fils</u>	<u>Dollars</u>
Ovulen	Cycle	340	0.95
Nordial	"	470	1.32
Nordette	"	460	1.29
Ovral	"	460	1.29
Neo-Gynon ED	"	510	1.43
Eugynon	"	500	1.40
Anovlar 21	"	550	1.54
Ovysmen 21	"	460	1.29
Lyndiol	"	400	1.12
Metrolen	"	460	1.29
<u>SUPPOSITORIES</u>			
Rendells	Bot. of 12	250	0.70
<u>FOAMS</u>			
Delfen	Tube	390	1.09
<u>I.U.D.s</u>			
Multi-Load Cu 250	1	4,000	11.20
Nova - T	1	5,000	14.00
Gravigard	1	3,000	8.40
Safety Coil	1	2,500	7.00
Copper - T - 200	1	3,000	8.40
Lippes Loops	1	2,500	7.00
<u>CONDOMS</u>			
Durex Extra-Safe	Box of 3	450	1.26
Durex Gassamer	Box of 3	400	1.12
Durex Fiesta	Box of 6	900	2.52
Durex Fetherlite	Box of 3	400	1.12
Fulex Grainlet	Box of 3	200	0.56

Table III-3

WEANING FOODS SEEN IN PRIVATE PHARMACIES  
BY BRAND NAME, UNIT SIZE AND COST

<u>NAME</u>		<u>UNIT SIZE</u>	<u>COST</u>	
			<u>Fils</u>	<u>Dollars</u>
Bledine		275 Gms.	850	2.38
Phosphatine	to be	250 "	850	2.38
Aponti	mixed	300 "	900	2.52
Cerelac	with	400 "	770	2.16
Milupa	liquid	300 "	950	2.66
Gerber	ready to use	4.75 oz.	200	.56

Table III-4

ORAL REHYDRATION PRODUCTS SEEN IN PRIVATE PHARMACIES  
BY NAME, SIZE AND COST

<u>NAME</u>		<u>UNIT SIZE</u>	<u>COST</u>	
			<u>Fils</u>	<u>Dollars</u>
Rehidrat		Packet	300	.34
5% Dextrose in water (I.V.)		500 cc.	450	1.26

c. Recordkeeping and inventory control

In Jordan, patients are required by law to present prescription orders for certain medications. When this occurs the pharmacist fills the prescription and gives the document back to the patient. A prescription register rather than the prescription order is the primary dispensing record, but no pharmacist in the sample used it to record routine dispensing. A register is used, however, to track tranquilizer and narcotic inventory and sales. Prescription orders for narcotics are stamped and signed by the pharmacist to prevent multiple filling.

Inventory control appears to be merely an ad hoc, eyeball process. The pharmacist and/or a salesperson from a drugstore notes the drugs stocked on shelves, determines shortages, and either places a request directly with the salesperson or notes it on a list of drugs to be ordered. All pharmacists, however, report very careful tracking of narcotic and tranquilizer inventory as this inventory is quite often subject to inspection by government officials.

d. Client/pharmacy information transfer

Pharmacies report from 70-250 clients seen per day with 20-60 percent of them bringing in prescriptions to be filled (Table III-5).

Although no precise figures are available, it is evident that customers who pass through a pharmacy form a good working nucleus of the population who may benefit from programs in which both the pharmacist and the pharmacy are involved. Additionally, as one pharmacist put it: "I know 50-70 percent of the people who come in here and that's good business." This suggests that the pharmacist/client rapport is significant and could provide a useful medium for transfer of basic health care information.

Since pharmacists are college-trained health professionals in Jordan, it is appropriate to expect them to be an actual or potential drug

Table III-5

PERCENT PRESCRIPTION ORDERS AND AVERAGE DAILY CLIENT LOAD  
IN SELECTED PRIVATE PHARMACIES

<u>PHARMACY</u>	<u>AVERAGE NUMBER CLIENTS PER DAY</u>	<u>PERCENT BRINGING PRESCRIPTION ORDERS</u>
A	100-150	20
B	100-150	35-50
C	70-80	40
D	200-250	60

information source. Few pharmacists, however, maintained general reference texts. One had:

- Remington (16th edition)
- Martindale's Extra Pharmacopoeia
- Physician's Desk Reference No. 31
- Rote Liste
- Merck Manual
- Text on Pharmacology and Pharmacognos

One other pharmacist had, in addition, the British Pharmacopoeia and the United States Pharmacopoeia. All pharmacists report having a copy of the Registered Drugs Index of the MOH.

It is also appropriate to expect a sharing of drug information. With the aid of a translator member of the study team, communications between the pharmacist and the client were monitored for the following: 1) the questions pharmacists asked of patients in cases of self-medication and 2) other information given (including basic directions for use, additional administration aids, drug action/interaction and drug related information). Table III-6 presents a summary of what should be expected from a properly trained pharmacist versus what actually happened in the study sample. As seen from the table, there was an attempt by pharmacists to provide information that would assure appropriate drug use and compliance with a drug regimen. However, the information given was not of the highest quality. Further, written directions are provided by the pharmacist as well the package insert. This creates an opportunity for conflicting information on drug use to be given to the client.

## 2. Categories of Private Pharmacies

While there are various methods of classifying pharmacies, for the purposes of this inquiry we have chosen to classify them as follows:

Table III-6

SUMMARY OF PHARMACIST/CLIENT COMMUNICATION  
IN PRIVATE PHARMACIES\*

Pharmacist Communication/Action	What Should Happen**	What Did Happen
1. Question Patient (to assure correct selection of medication)	Probe for clear descriptions of symptoms (e.g., is cough producing phlegm or is it a dry cough?)	Gross questions asked only (e.g., do you have a cough?)
2. Give Basic Plus Auxiliary Directions for use (to assure correct use)	Give clear, unequivocal directions attached to medicine for patient's reference, including auxiliary labels	Basic directions written on box and repeated to client, package insert given as well, no auxiliary directions provided (e.g., take before meals)
3. Give Drug Action/ Interaction Information (to assure compliance and client protection against abuse/misuse)	Give general description of drug action and/or interaction (e.g., this will stop runny nose but do not drive while taking it)	Package insert given
4. Give Drug-Related Information (to assure compliance and proper storage)	Give storage information as well	Package insert given

\*As derived from the study sample.

\*\*According to strictly followed pharmacists training.

1. Rural versus urban pharmacies
2. Owner-managed pharmacies versus nonowner-managed pharmacies

- a. Urban Pharmacies

Jordan's population of 2.152.000 million is predominantly urban. It is estimated that a little more than 60 percent of the population lives in urban centers.\* People perceive cities, especially the capital, Amman, as sources of job, career and business opportunities. As a result of the urban population concentration, pharmacists tend to cluster in cities and regard rural areas as "places where one goes financially broke," as one pharmacist expressed the idea.

By 1982 Jordan had 305 pharmacies; 144 located in Amman. Zarqa, a town northeast of Amman, had the second largest number of pharmacies with 38 followed by Irbid with 31 pharmacies. Rural areas, especially central villages, tend to have only a single pharmacy.

The general attitude among pharmacists is that there is no money in rural areas, and competition with government-subsidized pharmacies in rural clinics and hospitals could be detrimental to a new pharmacy. Also, pharmacists in rural areas have to extend credit to their needy clients which affects their cash flow situation.

Generally speaking, urban pharmacies are large in size and have more drugs than rural ones. It is possible to distinguish between "central location" pharmacies and "neighborhood pharmacies."

1. Central Location

"Central location" pharmacies are known for their large supply of drugs. Clients who cannot find a drug in their "neighborhood pharmacies" will visit a central pharmacy to purchase the drugs they need.

---

\* Depending upon the definition of "urban", estimates range as high as 85% urban population implying that access to a large portion of Jordan population through any urban based pharmacy program would be quite feasible.

"Central location" pharmacies also carry a wide variety of cosmetics and small electronic equipment. The following items were prominently displayed in most windows of downtown Amman pharmacies.

- Perfumes, colognes, creams, hair dyes, lipsticks, shampoos, etc.
- Women's hair combs, jewelry, gift items.
- Baby powder, food, strollers, hot-plates, Pampers, plastic panties, etc.

In fact, it is sometimes difficult to identify a central pharmacy from the outside because of the variety shop appearance that results from the large displays of jewelry and accessory items. Profit on variety items can be as high as 35 percent; a main reason why pharmacies display and include women's accessories.

Central location pharmacies outside Amman rarely include jewelry because, as one pharmacist explained, "The competition from other stores is too great to justify the trouble and expense to bring these items into the pharmacy. Plus, we are pharmacists and should not be distracted with these little items."

The "central location" pharmacy is frequented by different types of clients. A large percentage of clients are those who have prescriptions for drugs they cannot find in "neighborhood pharmacies". There seems to be an informal network of information about who sells hard-to-locate drugs. Typically, interactions between the client and pharmacists are courteous but short.

Downtown Amman is also crowded with many young people who walk down the streets window shopping and looking for bargains. Young women are attracted to the jewelry displayed in the front windows and they go inside a pharmacy to inquire about prices.

## 2. Neighborhood

Neighborhood pharmacies are typically located in residential areas near doctors' clinics.

Generally speaking, the inventory in these pharmacies is smaller than in the "central pharmacies. They order drugs that are most commonly prescribed by the doctors in the area. Cosmetic items are sold for their profitability and are generally displayed in visible areas of the pharmacy. Particular attention is paid to the display of baby items and women's cosmetics. The volume of sales in these pharmacies is smaller than central location pharmacies and depends on the following variables:

1. The location of the pharmacy and the number of competing pharmacies around.
2. The number of people in the surrounding neighborhoods and their pharmaceutical needs.
3. The availability of needed drugs in the pharmacy.
4. The age of the pharmacy. Established pharmacies have a regular and are generally favored by neighbors on the basis of familiarity and social patronage.

The approximate figure for daily sales is 100 JD (\$325). Sales of baby formula, baby cereals and baby food, along with cosmetics, constitute the majority of sales.

Clients elect to go to neighborhood pharmacies because of their proximity to their houses. Friends, neighbors and also acquaintances frequent a pharmacy. Usually a strong social relationship develops with the pharmacist or the assistant pharmacist. A trusted pharmacist will extend credit—or simply make available hard-to-find drugs. On some occasions, pharmacists give gifts of sample perfumes or colognes to their "special" clients.

One pharmacist characterized his interaction with clients by saying: "Our business is a good one because people come to us when they are happy, and when they are upset or sad. We sell lots of cosmetics when people are relaxed and there are no problems; but we also sell tranquilizers when people are tense like now with the Lebanese crisis."

b. Rural Pharmacies

Muxaim El Bagila is a Palestinian refugee camp that was established in 1967 as a temporary camp. Now it is considered to be one of the largest camps in Jordan with an estimated 60,000 people living in the camp. UNRWA is active in the provision of food supplies and some medical help for the residents of the camp.

The pharmacies visited within the vicinity of the camp are small in size, crowded with drug and cosmetic supplies and are less tidy than those in large cities. Rural pharmacies tend to carry inexpensive brands of cosmetics. One pharmacist described inexpensive as "nothing above 3 JD" — approximately \$10.

Males tend to leave the camp to work in Arab countries or in large urban centers. They periodically visit their families, and their earnings provide a cash flow to the camp. This helps to explain the presence of some luxury items such as color televisions and videos in these camps.

c. Owner-Managed Pharmacies Versus Non-Owner-Managed Pharmacies

In Jordan there is a large number of absentee pharmacy owners. Many pharmacists open their pharmacies and hire junior staff members to manage the pharmacy so they may accept jobs in Arab countries. Salaries and profits from Arab countries like Saudi Arabia and the Gulf states are tempting and, for some Jordanian pharmacists, are more lucrative than pharmacy profits in Jordan. A serious need for cash flow to stock a pharmacy also leads many Jordanian pharmacists to opt for working abroad.

Apart from employment in Arab countries, pharmacists find more profits in engaging in other types of businesses and hiring junior pharmacists to continue work in their own pharmacies. The usual pattern is to hire one full-time pharmacist with an assistant pharmacist and occasionally visit the pharmacy for inspection and general supervision of orders, and collection of money.

Family friends and relatives are preferred as managers because of the trust needed in this situation. No sales records are kept, so honesty is important especially for out-of-country pharmacists. However, absentee owners always ensure strict supervision either by personal periodic visits to the pharmacy or by entrusting this task to a family member like a brother or a sister. Usually salary dispensations, staff problems, hiring, firing, and often tax payments are all made by a family member.

There are no figures available on the number of non-owner-managed pharmacies, but fieldwork for this study reveals more than half Amman's pharmacies fall in this category. It seems that once permission is granted to open a pharmacy and this is accomplished, the common pattern is to then start looking for other ventures. The cost of hiring a full-time junior pharmacist and an assistant pharmacist is usually about 400 to 500 JD or approximately \$1,120 to \$1,400. Other costs like rent, electricity, etc., might range between a 150 to 250 JD (\$420 to \$700) depending on the location of the pharmacy. Any pharmacy in Amman even with modest sales can cover its own costs and have some cash left over. Thus, it is financially more rewarding for an owner to hire outside help than to spend his or her time at the pharmacy, provided other business opportunities or foreign employment are available.

Female pharmacy owners, especially married ones, sometimes prefer to work part-time at their pharmacies and hire a junior pharmacist to work either the morning or afternoon shift.

## C. PUBLIC SECTOR PHARMACIES

### 1. Establishment characteristics

Government pharmacies sell drugs only. They are attached to hospitals, health centers and village clinics. Supplies are procured from the Ministry of Health warehouses and sent to the capitals of the five Jordanian governorates. Each capital has a combined Health Unit with a pharmacist in charge of distribution of drugs to health centers and village clinics of the governorate. Only the capitals' combined health unit's pharmacy is run by a professional pharmacist. Health centers and village clinic pharmacies are operated by a pharmacist assistant or a nurse assistant. A doctor visits on a weekly or less frequent basis.

The pharmacies in public health centers and clinics differ in form and size. A comprehensive or large health center usually features a room for the pharmacy which varies in size. Two-room clinics, in contrast, may have only a cabinet which serves as the pharmacy. At both health centers visited, prescriptions were dispensed through a window to patients who were lined up with prescriptions in hand. Shelving to stock pharmaceuticals was open with few bottom-closed cabinets. Boxes of unused, expired or out-of-date drugs were gathering dust on a shelf in a corner. The clinics visited did not have electricity.

The pharmacy in a comprehensive health center is generally staffed by a pharmacy assistant. Supervision is provided by a pharmacist on a rotational basis. Drugs may be dispensed from the cabinet in a clinic by an assistant nurse on the directions of the visiting physician.

### 2. Products

Public pharmacies stock limited supplies of drugs and a few medical equipment items. Most of the products are manufactured in Jordan; however, labels of multinational firms were seen.

The majority of the drugs available at government pharmacies are for treating colds and seasonal diseases. Interactions with clients tend to be short and center around directions for taking drugs. Prescriptions are collected and kept by the assistant pharmacist. Drugs are dispensed either in their original boxes or put in small envelopes.

According to a Ministry of Health directive, government pharmacies can only dispense medication for 4-6 days maximum at a time. The directive is aimed at curtailing waste in drug use.

Both Rehidrat<sup>R</sup> and UNICEF oral rehydration salt packets were stocked in the two health centers and the one clinic visited. There were indications that these two products were used interchangeably. This poses a potential problem since they have different contents and require different methods of preparation. Four packets of Rehidrat<sup>R</sup> must be used to prepare a litre of oral rehydration fluid as opposed to one UNICEF ORS packet. Also, salt content of Rehidrat differs sharply from the required ORS formula in the UNICEF formulation. See Table III-7.

None of the public pharmacies visited stocked family-planning products. Weaning foods were stocked and dispensed through the National Child Health Program at Mafrak. Vaccines were not generally stocked, but brought in by immunization teams.

### 3. Recordkeeping

In the centers and clinics visited, there are five kinds of records maintained:

1. Order book — to prepare drug requisitions.
2. Order book — to list items received.
3. Daily record — to track the amount of drugs dispensed daily.

Table III-7

ORAL REHYDRATION SALT  
COMPARISON OF FORMULAS: REHIDRAT ,UNICEF

	Rehidrat+(Gm/L)	UNICEF**(Gm/L)
Sodium chloride	1.76	3.5
Potassium chloride	1.52	1.5
Sodium bicarbonate	1.68	2.5
Sugars	48.92	20. (as glucose anhydrous)
Citric Acid	176	---

\*Formula based on required use of 4 packets per 1000 cc water.

\*\*Formula based on required use of 1 packet per 1000 cc water.

4. Monthly record -- to track quantities of drugs dispensed over a month's time and the amount on hand. Information from the daily record is entered into the monthly record.
5. Prescription orders -- all are saved and banded.

These data are not used for planning, management or educational purposes. Records are maintained primarily to track inventory and to serve as the basis for inspections by persons from the Pharmacy Department or other sections of the Ministry of Health. Figure R-1 portrays the source and distribution of drugs in the Ministry of Health's system. As far as can be determined, there is no formal inventory control system. Procurement at health centers and clinics is largely on an ad hoc basis. Drug orders are forwarded from villages to the capital's health center once every two months. About 90 percent of the drugs are locally manufactured in Jordan. Only 10 percent are imported drugs, including antibiotics and antidiarrheal medicants.

A listing of the types of drugs to be stocked at health centers versus those at health clinics could not be determined by the study team although persons in the Supplies Division of the Ministry of Health were aware of this differentiation. Minimal shelf stock is not delineated.

Drug shortages that were reported at the village clinic level occurred after approximately 40 days of the arrival of the order. The limited range and quantity of drugs cause many village inhabitants to visit urban private pharmacies in order to purchase their needs.

The transport of procured items is the responsibility of clinics and centers. The Supplies Division in Amman assures transportation of drugs to regional depots and hospitals. However, clinic and center personnel must drive to the regional depots to make and pickup requested orders. Lack of local transport was mentioned as a possible constraint to the system, although there was no direct evidence that this was a widespread problem.

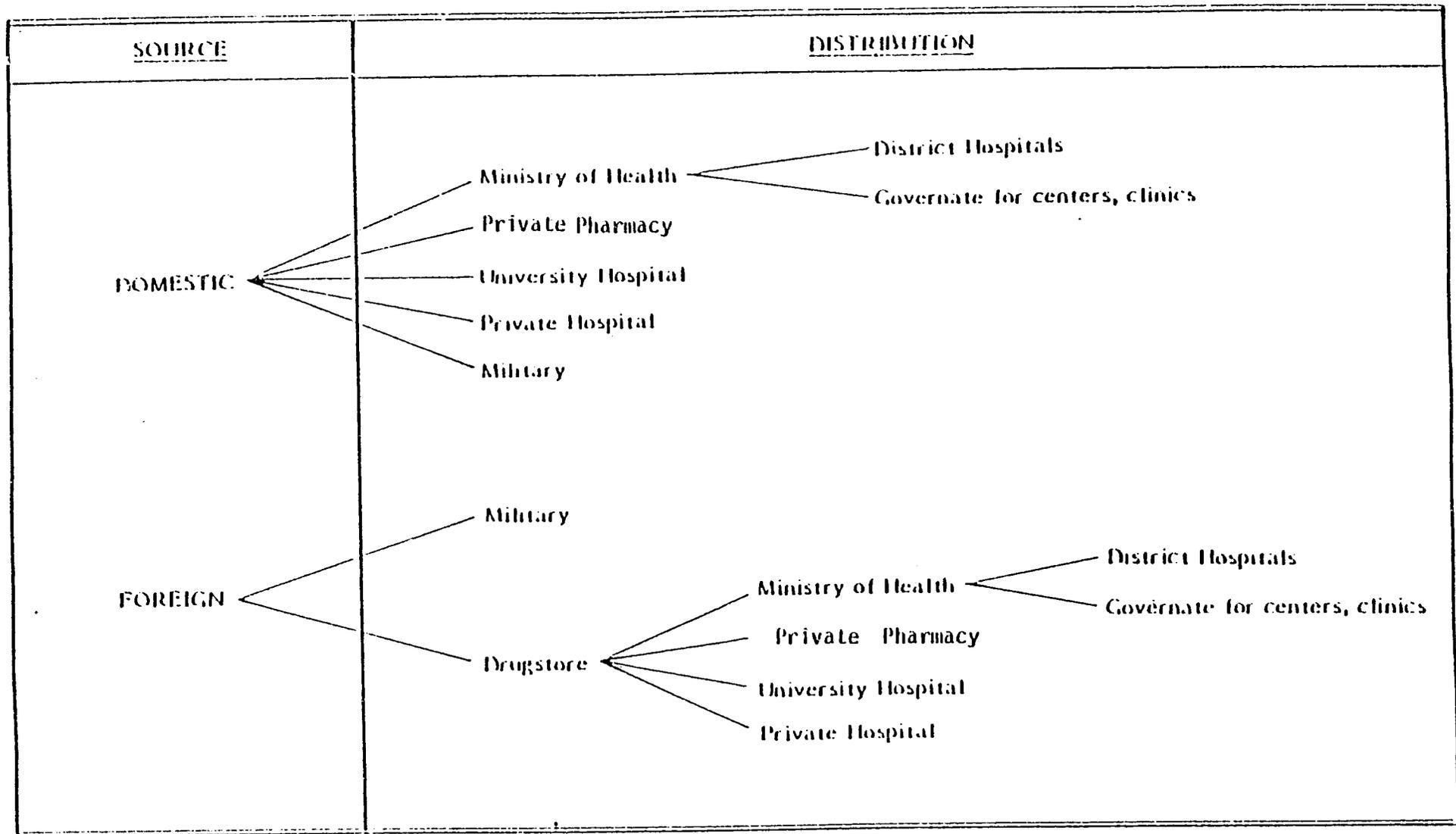


Figure III-1. Source and Distribution of Pharmaceuticals in Jordan: Schematic Overview

#### 4. Client/pharmacist interactions

Some client/pharmacist interaction was observed in centers where there was a pharmacist. Generally, interaction occurred between the pharmacist assistant and the patient. In centers visited, the patient presented a prescription; the pharmacist or assistant wrote the name of the drug, amount and directions for use on a bag in which drugs are placed. The bag was then handed to the patient and a few directions for use were given verbally. Medication is dispensed from large stock bottles according to the amount prescribed. Prescriptions are kept after they are filled.

Visits to five government pharmacies showed that the pharmacy deals with a limited number of heavily subsidized drugs. Government pharmacies dispense medicine free of charge or for a nominal fee for government employees. Table III-8 shows the payment schedule. The price subsidies, prevalent in rural areas, are the primary reason that private pharmacists view government pharmacies as a threat to their sales volume.

Table III-8

#### GOVERNMENT PHARMACIES PAYMENT SCHEDULE

Category	Doctors' Fees	Drug Fees
1. Government employees	free	free
2. Dependents	90 fils	30 fils on every drug
3. Welfare recipients	free	free
4. Financially capable	300 fils	100 fils on every drug

#### D. THE ROLE OF THE PHARMACIST IN JORDAN

Pharmacists are intermediaries between doctors and clients. They perform many tasks; some of them correspond with the perceived "ideal" role of pharmacists, and others deviate from the "ideal" role of not prescribing drugs. The tasks observed during fieldwork for this study are summarized here:

1. Drug Sales. Pharmacists sell drugs that clients ask for or have prescriptions requiring the sale of certain drugs.
2. Drug Dispensing Pursuant to a Prescription. Clients ask pharmacists for drugs and they describe the symptoms of the disease. Pharmacists usually ask the age of the client and to take the sick person to a doctor.
3. First-Aid Application. First-aid services are provided by pharmacists especially in rural areas. Bandaging of cuts and wounds is a typical pharmacist service.
4. Drug Substitutions. Sometimes pharmacists recommend one drug over another on the basis of availability. Customers do not like to change the drugs they have been taking unless a real shortage occurs in the market.
5. Drug Use Directions. Pharmacists provide written and only basic verbal instructions to the clients regarding drug use. Rural pharmacists spent more time to explain appropriate drug administration and costs to illiterate clients.
6. Diet Recommendations. Pharmacists make dietary recommendations to their clients who ask about the types of food to be eaten or avoided during sickness, but do not provide drug/food interaction information.
7. Cosmetic Recommendations. Pharmacists, especially women pharmacists, provide advice in the selection of cosmetic brands and colors.
8. Doctors' Referral. Sometimes pharmacists recommend doctors to their clients.
9. Weaning-Foods Recommendations. Occasionally, women will ask pharmacists to recommend weaning foods; they also ask about amounts to be given to babies and cooking instructions.
10. Family Planning Advice. Pharmacists sell a number of contraceptives that include pills, foams, and IUDs.

They provide advice to their clients on types of pills to be used. Clients often discuss pill side-effects with pharmacists and seek recommendations for substitutions. Clients also purchase IUDs from pharmacies and carry them to doctors' clinics for insertion.

Apart from these specific tasks, pharmacists also play an important psychological role. A pharmacist comforts the client and wishes him or her quick recovery. A pharmacist offers sympathy and discusses ailments with clients who express their symptoms, pain and other disease-related problems.

In addition, pharmacists show their clients that they are special customers by extending credit or simply procuring a hard-to-find drug for them. On one occasion, a pharmacist interrupted his phone call with his brother from London for ten minutes to welcome a special customer.

Discounts and small gifts are frequently given to preferred customers who may also be asked to join the pharmacist for a cup of tea or coffee just to chat. Clients tend to bargain over the prices of cosmetics and items other than drugs. Pharmacists are tolerant of such practices and try to satisfy their clients by offering modest discounts and sample gifts. Rural pharmacists generally know their clients by name, and a strong patronage exists between pharmacists and their clients. Discounts are expected on all sales in rural pharmacies between friends and relatives. The rural pharmacist participates in the community events of marriage and death, resulting in a friendship bond between the pharmacist and his clients. This characteristic is also found in urban areas outside Amman where the pharmacist is usually a native of the area.

#### 1. The Role of the Assistant Pharmacist

In Jordan, there are two ways for a person to be an assistant pharmacist. One is through many years of experience and apprenticeship in a pharmacy, and the other is through graduation from a two-year college for assistant pharmacists. Graduation from a two-year college is a requirement for

registration as an assistant pharmacist. Salaries for registered assistant pharmacists range between 120 to 150 JD monthly.

The position of an assistant pharmacist is complementary to the pharmacist's and functions to free the pharmacist from mundane and time-consuming pharmacy-related work.

An assistant pharmacist sells over-the-counter drugs and interacts with clients on matters of simple drug recommendations for colds, eye infections, nasal congestion, etc. to clients. Prescriptions are usually read by the pharmacist, who may delegate the task of fetching the drugs from the shelves to the assistant pharmacist. The assistant pharmacist helps the pharmacist in keeping drug inventories up to date. It is common for an assistant pharmacist to serve as a stock clerk arranging rugs on shelves and pricing the drugs. He or she might be responsible for picking up small drug orders from the drugstore to deliver them to the pharmacy. An assistant pharmacist also sells cosmetics, operates the cash register, and sometimes will record prescriptions.

Not every pharmacy has an assistant pharmacist. Only those pharmacies that attract a large number of clients can afford to hire a registered assistant pharmacist. In small pharmacies a boy-helper may be employed to perform some of the routine tasks that an assistant pharmacist would otherwise be responsible for.

## 2. The Role of the Drugstore Agents

In Jordan, there are 40 drugstores. These are wholesale agents for multinational drug companies. Agents import drugs and advertise them to doctors and sometimes pharmacists. They handle all the logistics of shipments, customs, and storage.

A drugstore agent orders drugs according to his assessment of the market capacity and facilitates the importation of such drugs. By law, agents are

allowed 19.5 percent on imported drugs. Successful agents make a handsome living and live comfortably in Jordan.

A drug store agent pays for shipping cost, import tax, in-country transportation, storage, and salaries for medical representatives, salespersons, bookkeepers, and several delivery drivers. The profitability of such a business depends on the volume of sales of the drugs, and the demand for the drug. Agents who import antibiotics and tranquilizers do very well financially.

Medical representatives are employed by agents to promote drugs and familiarize doctors and pharmacists with the drugs they sell. They visit doctors in their clinics and sometimes hospitals. They carry free samples, brochures, and pamphlets explaining utilization and side effects of the drug.

A successful agent might employ four or five medical representatives to cover areas outside Amman. The two representatives who were interviewed reported that doctors tend to accept new drugs. However, one commented that, "They (doctors) generally do not like to be the first or last to prescribe the drug. So it takes a little while before total acceptance occurs." Well-known doctors can easily set a trend in the use of a new drug.

Pharmacists vary in their pattern of ordering drugs from drugstores. Some prefer monthly deliveries, others order only when their supplies are short. The majority of pharmacists order their drugs on credit. They pay after two months, and sometimes it takes longer to settle their accounts. In the case of a new pharmacy, agents have to wait for long periods to collect their money in order to give the pharmacist a chance to establish himself.

An agent tries to have a six-month supply available on hand. However, drug shortages occur when difficulties arise in drug importation or when the agent decides that certain drugs are not profitable. Pharmacists complained that drugs

disappear from the market or become in short supply by agents who abandon unprofitable drugs.

Local Jordanian manufacturing companies give pharmacists sales bonuses to encourage sales of local drugs. Free drugs enhance the pharmacists' profits. On rare occasions foreign drug companies authorize bonuses in order to help gain a new market. Some pharmacists prefer the sales of local drugs because of their profitability after taking into account the pharmacists' bonuses.

### 3. A Profile of a Male Pharmacist

Ali is 31 years old.\* He has received his degree from Pakistan. He wanted to study in Europe, but his low grades only qualified him to study in Pakistan. Upon completion of his degree, he returned to Jordan. He has been working as a full-time pharmacist at a neighborhood pharmacy in Jebel Amman. The pharmacy is owned by a female pharmacist who left for Saudi Arabia for a job that earns her \$1,500 per month.

Ali has his name on the waiting list to open a pharmacy, realizing he will have a long wait. He chose Amman as an area for his future pharmacy, a low priority area. Still he insists on Amman because his family lives in the capital, and all his friends live in Amman. However, he is hopeful because of a new law under study now that explores the possibility of automatically granting a permission to open a pharmacy for any pharmacist who practices the profession for six years in Jordan.

Ali does not wish to leave Jordan for any rich Arab country. He values his social contacts and feels that his job at the pharmacy where he is working is gratifying. He works from 3:00 a.m. to 4:30 p.m., when a part-time pharmacist takes over. Ali is assisted by the owner's sister who is an attorney. She oversees

---

\*All names are pseudonyms in order to protect the privacy rights of the people interviewed.

all financial matters. She reviews orders, checks sales, dispenses salaries, and does the hiring and firing.

The pharmacy where Ali works is only three years old. Clients come from neighboring homes, and sales bring in about an average of 46 JD or \$130 a day. Approximately 25 percent is the average profit on all sales. The pharmacy covers its costs and makes some profit that Ali would not discuss. However, he admits that on many occasions money was sent from Arabia to cover overdue bills. The owner realizes that it takes time to build a clientele, and will return after three years to resume working in her pharmacy.

As for the future, Ali would like two things: to be able to get married and to open his own pharmacy. Both require cash; the latter desire is complicated by a long waiting list. Ali will never consider work in a rural area. He believes that no pharmacy could survive in a rural area because people are poor. He perceives his role to be both humanitarian and commercial. He wants to help people and also make a profit in order to live comfortably. He earns 300 JD, about \$850, a month working as a chief pharmacist. He knows that when he opens his pharmacy he might not be able to clear that much money, but he still dreams of his own pharmacy.

He saves most of his salary because he lives with his parents and contributes about 36 JD or \$100 toward the household budget. He spends about 75 JD or \$200 on cigarettes, clothing and other recreational activities and saves the rest for the initial capital needed to open a pharmacy. The family understands his goal and helps him by not putting too many demands on him.

The minimum amount of starting capital for a pharmacy in Amman is about 20,000 JD (\$56,000). Key money for a small neighborhood pharmacy is approximately 10,000 JD (\$28,000). Another 5,000 JD (\$14,000) is needed for

cabinets and counter, cash register machine, chairs, etc. The remaining 5,000 JD (\$14,000) is required for stock.

Ali enjoys pharmacy work and makes many friends through his interactions with clients who trust him with their medical and sometimes social problems. He feels that the neighborhood pharmacist needs to be able to relate to his clients. He offers medical advice only when the symptoms are related to simple problems like colds, flu, upset stomachs, rashes, or backache. He does not prescribe medication to children with a high fever, but recommends they see a doctor. When clients request him to recommend a doctor he directs them to his friends who are doctors.

He learns about the best drug combinations from prescriptions that are brought by clients to his pharmacy. He observes that in the case of flu, doctors prescribe antibiotics and vitamins; he recommends the same drugs to his clients who go to him directly for medical advice rather than to a doctor.

Before he prescribes a drug, Ali always asks a number of clarifying questions related to the age and symptoms of the sick person. He makes a decision whether or not to advise on treatment, based on the clients' descriptions. He deals only with simple problems recognizing the responsibility involved in prescribing the wrong drug.

As a pharmacist, Ali also must assess the clients' financial capabilities and prescribe a drug that the client could afford to buy. He extends credit to some clients and gives discounts to attract clients to the pharmacy. According to Ali, "There is an art involved in selling drugs—it is more than just handling the drugs—patience, politeness, sympathy, cheerfulness, kindness, flexibility are all required qualities."

In selecting a place to open his pharmacy, Ali knows that important points to consider are proximity to doctors' clinics, and closeness to population concentrations.

However, since every pharmacist looks for these same points, pharmacies are found in clusters all close to doctors' clinics. New laws that regulate minimum distance between pharmacies specify 40 meters' distance between pharmacies in downtown areas, and 100 meters in residential areas.

Clustering leads to competition between pharmacies in order to gain clients patronage. As Ali explains, "Clients like to feel they are getting preferential treatment. I give small discounts and order hard-to-get drugs for them, or if they do not have change I ask them to pay me later. These are good business practices."

Ali estimates that only 30 percent of his clients carry prescriptions. The other 70 percent either request his help in drug identification or use self-prescribed drugs. Service from a pharmacist can save a client between 2 and 5 JD -- typical doctors' fees. Jordan has 2,481 doctors working in the country, mostly in Amman and other major urban areas and they do not look favorably upon pharmacists who prescribe drugs. Ali defended the pharmacists' position by saying, "Clients approach us; if we do not help them we will lose them as clients."

Ali's job involves interactions with drugstore agents, medical representatives, and the pharmacy accountant. Not too many records are kept. Narcotic drugs are recorded in a large notebook; copies of orders and payment receipts are all handled by the accountant who directs the pharmacy boy to place drugs on the shelves, according to agent to facilitate the reorder process.

As a chief pharmacist in a neighborhood pharmacy, Ali sees about 100 clients per day. He refers about 10 percent of his clients to downtown pharmacies that carry more diversified stock. He orders only the drugs that he expects to sell.

Cosmetic brands are stocked according to financial capabilities of his clients, who are mostly middle-class Jordanians.

The hours between 6:00 p.m. and 8:00 p.m. are the busiest hours for the pharmacy. Clients tend to see doctors late in the afternoon and proceed to pharmacies with their prescriptions. In addition, men typically go home after work to rest for a while, and then go to the pharmacies after sundown, with or without their families, to avoid the heat in the summer.

### 3. A Profile of a Female Pharmacist

Mrs. Leila\* is one of the first female pharmacist to practice in Jordan. She started her career 30 years ago as a young pharmacist with a Syrian degree. She worked in rural areas and small towns as a government-employed pharmacist. After marriage and the birth of her first child she favored a more relaxed schedule in order to devote her attention to her family; so she opened a private pharmacy in Jebel Amman.

Initially the pharmacy attracted many clients because it was the only pharmacy in that section of Jebel Amman. At least ten pharmacies are now open in the small area between the second and third circles and competition is severe,

Mrs. Leila commented on her profession, "I enjoy my work because I love people. I advise women on cosmetic brands, baby foods and other female-related matters." She considers herself semi-retired now and a full-time pharmacist is in charge of the pharmacy. However, she works part-time and wants to keep the family tradition.

Mrs. Leila grew up in a family where the grandfather, father, and brother were pharmacists, and her husband is a drugstore agent with a pharmacist

---

\*All names are pseudonyms in order to protect the privacy right of the people interviewed.

background. Her son is nine months away from his U.S. pharmacy degree. She explained, "Pharmacy work is a tradition in my family. I cannot give it up."

Her interests in pharmaceutical work extend to laboratory research and compounding which are hard to practice today pharmacy in Jordan. Pharmaceutical companies have no incentive to keep research facilities; compounding is a dying art because doctors prefer to prescribe ready-made drugs.

She prefers to think of her profession as one that involves research and not just selling ready-made drugs. She is hopeful that the increase in the number of local manufacturing drugs will lead to expanded laboratory research and facilities.

Discouraged with the lack of intellectual stimulation, she became more involved with women's professionals clubs. She predicts that females will take over the pharmaceutical profession in the near future. She estimates that currently 40 percent of Jordanian pharmacists are females.

## E. PHARMACIES AND THE SOCIAL CONTEXT

This section of the report deals with the nature of pharmacy work vis-a-vis pharmacy clients. It explains pharmacists' expectations and their perceptions of their role as active participants in the provision of primary health care services; moreover it explores the patterns of clients' utilization and practices.

### 1. The Pharmacy as a Family Business

One interesting feature about Jordanian pharmacies is the fact that most often they are staffed by family members and managed as a family business. Fathers, sons, daughters, and cousins with pharmacy training either staff or supervise the work in the pharmacy. The entrepreneurial aspect of owning a pharmacy and the financial risk elements are softened by the network of social support a pharmacist receives from his or her family.

Parents or other financially capable family members sometimes lend the initial capital for starting a pharmacy. Banks also provide loans for beginning pharmacists to start their own pharmacies, but most pharmacists prefer to borrow from relatives and/or friends because of payment flexibility and the lack of interest.

Family members expect large discounts from pharmacists for their patronage. However, pharmacists do not resent these expectations, and they are appreciative of family moral support. Family support could come in handy in situations when a pharmacist needs cash to pay an agent or to start innovations at his or her pharmacy. Pharmacists who travel abroad and leave behind their pharmacies usually entrust the general supervision and the financial aspects to relatives such as husbands, fathers, sisters, etc.

In rural pharmacies, pharmacists encourage young family members to help in running chores, or organizing drugs on the shelves, etc. A 14-year-old boy who was working for his uncle said, "I love my uncle. He is real nice, so I help him. But I do not want to be a pharmacist—too much work. I want to be a civil engineer and tell others what to do!"

## 2. Profile of Women in a Palestinian Refugee Camp: Al-Wihdat

Fieldwork for this section took place at Al-Wihdat, one of the largest refugee camps in Jordan. Migration to the camp started as early as 1948, and migrant numbers increased in the 1960s. The exact figure of the camp's inhabitants is not available. The figure known to UNRWA is 35,940 individuals; most of the people interviewed think that the actual figure is at least double the official figure.

Most of the men who live in the camp work in trade, crafts, and construction. A large number works abroad in Arab countries. The camp attracts

workers from other Arab countries who seek low-cost housing in Amman. Also, the camp's large fruit and vegetable market draws shoppers from neighboring areas.

UNRWA clinics offer free medical care for individuals who seek such services. Traditional midwives deliver babies, and 13 private clinics offer medical consultancies for 2 JD per visit. One doctor determines his fees on the basis of the patient's financial capabilities. There are five very busy pharmacies in the center of the camp close to the marketplace.

Interviews with women took place in their homes or a neighbor's home where women would be visiting.

a. Family Income and Size

The average income per family is 210 JD per month. Husbands work as craftsmen, construction workers, and wholesale traders. The income of families with husbands working abroad is double that figure. Husbands send monthly checks to their wives, and sometimes extended families. In spite of the large number of children, families manage to make ends meet because of the low cost of housing and free medical and educational services. Private homes are built out of either cement blocks or limestone. Rooms are rented to Egyptian and other foreign workers, which provides extra income to families.

The average family size is 7.8, with most mothers in their early thirties. Most mothers have lost at least one child because of gastrointestinal diseases. Women stated that they married between ages 14 and 17.

b. Medical Care and Pharmacists' Services

Inexpensive medical care is available in the camp so women consult a doctor whenever they suspect fever or a childhood disease like measles, whooping cough, etc. In simple cases of a cold or a stomachache, folk medicines are tried first. When such remedies don't work, a pharmacist is consulted for a cough syrup or decongestant.

Pharmacists' advice is also sought when mothers need to purchase formula weaning foods, and medicines for eye sores, pimples, rashes, and nasal congestion.

Women prefer to see UNRWA's doctors or a private doctor for their children, especially if they have fever. Adults tend to procrastinate and use home remedies if they get sick. A woman said, "A child is tender. They are like flowers. They weaken quickly, but we adults can tolerate pain."

Women compare notes about doctors and they use their experiences with doctors to guide other mothers who need medical help for their children. The drugs most commonly kept at home are aspirin, cough syrups, and laxatives. These drugs are shared with family members.

The women said that mint- and fruity-flavored medicine is preferred by their children, who reject bitter-tasting medicine. Pills, tablets, and syrups are preferred over injections. Injections require a visit to the doctor's clinic and are considered not only painful but inconvenient.

### c. Contraceptive Use

Out of the 11 women interviewed only 6 used contraceptive methods. Five respondents said they did not need contraceptives because they want more children.

The desire to have a large number of children is strong among camp women. Contraceptives are often used to space children, not necessarily to limit their number. Fifteen months is the preferred spacing period.

Women are concerned that with fewer people, the world will forget about the Palestinian issue, and on the subject of contraceptives, a Palestinian woman, embittered with the Lebanese war experience said, "Cluster bombs are our contraceptives. We don't need the pills."

Apart from nationalistic concerns, children provide stability to marriages and a sense of purpose to life. With the Palestinians' passion for education, pride in raising children to be professionals adds to individuals' desire to have large families.

The following table shows contraceptive use/nonuse in the sample:

Table III-9  
CONTRACEPTIVE USE

Type of Contraceptive Method	Number of Women
1. Birth Control Pills	3
2. Withdrawal	1
3. Suppositories	2
4. Nonusers	<u>5</u>
Total	11

a. Pill Users

Three women use Neogynon pills that were prescribed to them by private physicians. They purchase the pills from the pharmacies available at the camp. The women are using the pills after they have reached the number of children they wanted. One woman said, "I have eight children. I am getting weak, and I want to see these children grow. I think it is enough, but everything is in God's hands."

b. Withdrawal

Withdrawal was chosen as a birth control method because of negative side effects of the pill. The lady expressed her experience with the pill by saying, "I had bleeding, my stomach hurt, and constant headaches. I could not do my housework. So I stopped. My husband said we would use the old method of withdrawal. It is hard on him, but my health is important to the family."

### c. Suppositories

Again, suppositories are chosen when side effects from pills occur. One woman said, "These pills work differently on different women. I almost died using the pills, not to mention the problem of having to remember to take them every day. The suppositories are O.K. I only have six children anyway!"

Women identify suppositories according to the box color and not the brand name. Women purchase the contraceptives themselves or send children with an empty box to buy them.

Contraceptives are often used to space children and not necessarily to limit their number. Fifteen months period of rest is the preferred spacing period.

### 3. Breastfeeding in the Camp

All 11 women interviewed stated that they breastfed their infants at least to six months of age. Formula and supplementary foods are given to the babies after the sixth month. One woman started to give her child juices and teas at age 40 days.

Weaning is a gradual process, but it is also uniquely personal. Each woman develops her own style based on advice from relatives, neighbors or previous experience. Women prefer breastfeeding because it ensures some security from pregnancy, and it is good for the babies. Some women prepare baby foods at home by boiling and mashing vegetables. Sugar is added to the vegetables so the baby will accept them. Others prefer to introduce adult foods in small quantities. Rice cooked in tomato sauce and mashed with a spoon is a preferred item.

Seven women mentioned that they purchased Malupa and Bledine for their babies from pharmacies. They prepared them with fruit juices or milk. One woman said, "It takes a long time to prepare a meal for a baby, and the baby might not even eat it, so the packages are easier to prepare."

Teas, biscuits, yogurt, and fruit juices are given to babies between meals. Most of the mothers breastfed whenever the child cried or became irritable.

## F. PHARMACISTS' CLIENTS

### 1. Sex, Age, and Socioeconomic Levels

Pharmacies are frequented by men, women and children. In rural areas women visit UNRWA health clinics, private physicians, and rural health clinics to procure prescriptions.

In urban areas parents send their children to pharmacists to purchase drugs as well as cosmetics. A child would carry an old box, or a piece of paper with the name of the drug written on it.

It is interesting to note that low socioeconomic segments of the population prefer to consult with a doctor rather than ask a pharmacist for a drug without a prescription. The large number of medical options available at reasonable prices makes poor people see doctors prior to their visit to a pharmacy. At Al-Windat, a Palestinian refugee camp, 13 general practitioners offer their medical services for fees as low as 2 JD (\$5.60). Also UNRWA clinics are located in the area and offer free medical examinations. The combination of inexpensive private physicians' fees, and free medical services from UNRWA clinics makes it easy for individuals to procure prescriptions.

In Amman and large towns, private physicians charge about 5 JD per visit, so most middle-income people seek pharmacists' advice for their simple ailments like colds, stomach problems, etc. A visit to the pharmacy could save a client 5 JD, and it is appreciated by people who have large financial responsibilities.

Rural segments of the population visit the closest town to buy the drugs they need except in cases where there are rural pharmacies available. The trip might be as long as 45 kilometers, but patients are most likely to visit a town physician and purchase the drugs from the closest pharmacy to the clinic.

## 2. Clients' Attitudes Toward Drugs and Sickness

There are two ways of identifying drugs in Jordan. Most Jordanians are aware of a natural, traditional system of herbs, and a medical, modern system of manufactured drugs. The natural, traditional system includes a number of herbs and spices that are taken by individuals to treat simple problems. Table III-10 is a list of folk recipes collected from Jordan.

Jordanians, like other Middle Easterners, try to avoid eating or drinking cold drinks or ice cream whenever they suffer from a flu or a cold. Cold foods are culturally perceived as harmful to sick people.

Yogurt is served with many meals and is perceived as "good for the stomach." Sometimes it is given to babies as early as the fourth month of age.

A great deal of attention and sympathy is given to the sick person. Family visits, gifts, and telephone calls are expected from friends and relatives of the sick person. These familial networks of emotional support are appreciated and reciprocity of these acts is important.

Jordanians and Palestinians living in Jordan do not use drugs unless they absolutely have to take them. There is a cultural belief that drugs are "unnatural," and should be purchased and used only to stop pain or cure a sickness. Furthermore, the tendency is to stop taking the drug as soon as one's condition improves. As a result, improper use of antibiotics is common. Individuals tend to stop taking antibiotics at the first sign of improvement.

Drugs are shared with other family members when similar symptoms occur in the same family. Aspirin, cough syrups, nasal decongestants, eye drops,

and antidiarrheals. Among middle- and upper-class families leftover drugs are stored in a small medicine cabinet for future use. Cotton, gauze, band-aids and some first aid drugs are kept for emergency use.

Table III-10  
FOLK RECIPES

Herb, Spice or Vegetable	Preparation	Illness
1. Miramiyya (sage)	Prepared with tea	Stomach aches
2. Cumin	Boiled in water and given as a tea with sugar	Stomach aches, gas, and indigestion
3. Mint	Mint tea, or boil the mint and add sugar	Stomach aches, and upset stomach, indigestion
4. Lemons	Squeezed on tea	Diarrhea
5. Anise	Boil water and anise to make a tea-like drink	Tranquilizer, high blood pressure
6. Caraway	Prepare like tea and add sugar	Stomach aches and gas, given to babies
7. Cardamom	Add to coffee	Settles the stomach after a heavy meal
8. Cloves	Used in natural form	Soothe a toothache
9. Camomile	Prepare like tea	Cough
10. Ginger	Used in raw form	Toothaches
11. Rose Water	Add to water	Unsettled stomach

### 3. Clients and Cosmetics

In Jordan, pharmacies sell various types of cosmetic brands. Profits are generally high on cosmetics, up to 35 percent, and clients tend to bargain over cosmetics prices. Major American, European, and Jordanian brands are displayed and sold in pharmacies. Rural and town pharmacies stock mostly inexpensive

brands which their clients can afford. Expensive brands like Elizabeth Arden and Max Factor are only available in downtown Amman or upper-class neighborhood pharmacies. Local facial creams, nail polish, and perfumes are the best-selling items. Some pharmacies offer skin-care advice, and representatives of the different cosmetic companies give free advice and samples of their products to clients.

During the field-work, pharmacists reported a noticeable decline in their sales of cosmetics. They attributed this to the bad Lebanon war news and concern about inflation.

#### 4. Clients and Baby Foods

Jordan, like other developing nations, has experienced a reduction in breastfeeding and a rise in the number of mothers who bottlefeed their babies. Pharmacists who practice in middle-class areas reported a recent slight decrease in bottlefeeding and a new trend of opting for breastfeeding. The WFS results show that breastfeeding is very common (91.5%) and lost an average about 11 months. In rural areas, pharmacists approximated the percentage of breastfeeding women as about 30 percent of the population. Female employment and decrease in the quality of a mothers' milk are the two reasons most commonly given for choosing bottlefeeding.

Mothers use formula, especially a brand called Nido by Nestle's, and tend to supplement it with cereals starting in the fourth month. Cerelac is mixed with tea, water or milk and spoon fed to the baby. Biscuits dipped in tea or milk are given to babies between bottles. Pharmacists sell prepared baby food in jars, and dry food in boxes. Mothers prefer Miliupa and a West German brand that includes a wide variety of fruity-tasting, and vegetable-like cereals. The two reasons given for the dry food preferences are:

- Maliupa sells for 900 fils--about ten meals can be prepared from one box. Jars of baby food like Gerber sell for 200 fils and are sufficient for one meal, so costwise Maliupa is cheaper.
- There is a concern over the age of the jars. Mothers do not trust information given on expiration dates, so they choose the Maliupa to ensure no food poisoning.

Women at an Al-Wihdat refugee camp stated that by the fourth month rice with tomato paste meal is given in small quantities to a baby. The rice is usually overcooked and is mixed with tomato sauce. By the sixth month, mothers introduce all foods in very small quantities to their infants.

#### 5. Clients and Drug Identification

Educated clients identify drugs by their brand names. The uneducated tend to use drug price, color, and shape of the package to help them to identify drugs. It is common to hear a dialogue like this: "May I have the white long pills that sell for 1.85 JD for my weak legs?" Pharmacists and assistant pharmacists know drugs by color, shape, size, etc. A client can identify the outside package and usually cross-check the pharmacist's choice.

Changes in outer packaging can cause pharmacists a great deal of trouble. Clients will refuse the drug on the basis of their knowledge of the box color and shape. Substitutes are often rejected because clients do not like to change medications, especially the ones that did not cause harmful or annoying side effects. Changes in packaging arouse client's suspicions that changes in chemical ingredients have occurred and they usually seek the old package in a number of pharmacies before accepting assurances that the drug has not changed.

#### 6. Drug Preferences, Tastes and Habits

In Jordan, as in most other countries, people prefer certain types of drugs over others. Tablets, pills, and fruity-tasting syrups are preferred over injections. The color of the drug does not seem to make a difference as much as the taste. Sweet-tasting drugs are preferred; bitter-tasting ones are tolerated only

because of the cultural belief that medical treatment might involve "bitter tastes and pain."

Discontinuation of a drug is common at the slightest sign of improvement and is particularly noticeable in the use of antibiotics. Doctors overprescribe antibiotics because patients expect to be treated with antibiotics. A doctor, expressing his concern over the excessive use of antibiotics said: "Clients expect heavy doses of antibiotics; they want Ampicillin, Tetracycline, etc., just to treat a cold. However, they rarely complete the course."

Concern over side effects of drugs and the contradictory effect of one drug on another is frequently expressed to pharmacists by clients who engage in self-prescribing. However, some individuals choose to use drugs for long periods without consulting with a doctor. For example, one rural woman said she has been using cortisone for her swollen knees on and off for a year. She bought a refill of the initial prescription — more than a year old — whenever she felt the pain.

Clients identified the following categories of drugs and items, as the ones they most commonly bought in pharmacies:

- antibiotics
- antidiarrheal and anticold drugs
- tranquilizers
- antirheumatic drugs
- baby items and baby foods
- cosmetics, e.g., shaving razors, facial creams, lipsticks, hair dyes, and special skin soaps.

Locally manufactured drugs that are dispensed free of charge at government clinics are not in demand in private pharmacies. Clients perceive free drugs to be inferior, and resist paying for the same brands that are dispensed free to government employees in the public system.

Presently, there are over 100,000 Egyptians who work in Jordan. Most of them work in farming, restaurant service and construction. Egyptians' use of

pharmacies appears to be excessive.\* They purchase large quantities of vitamins and digestive drugs and although prices are comparatively more expensive in Jordan, they are attracted to the foreign brands that are hard to find in Egypt. Compared to Jordanians, Egyptians' consumption and expenditures on drugs seem to be high. The Jordanian Ministry of Health statistics 1980 report indicates that individual expenditures on drugs is 5.60 JD per year. Interviews with Egyptians working in Jordan support pharmacists' approximate figures of at least 15 JD annually. Gastrointestinal diseases, liver problems, anemia, and Bilharizia are common health problems for Egyptians. Drugs for these ailments tend to be expensive.

#### 7. Clients' Selection Criteria for Pharmacies

Urban clients can select pharmacies from among a large number of urban pharmacies in Jordan, especially Amman and Zarka. Since rural pharmacies are not as prevalent, many rural clients travel to towns in order to see doctors and purchase drugs. Interviews with clients indicate that the following pharmacy selection criteria are used:

- proximity to doctors' clinics or residence
- good treatment from the pharmacy staff
- availability of drugs required
- availability of credit whenever needed.

In return for patronizing a certain pharmacy over a period of time, the client expects certain privileges such as:

- discount on cosmetic purchases
- small gifts of cosmetic samples
- extension of credit
- procurement of hard-to-find drugs
- purchase of tranquilizers without prescriptions
- free advice and pleasant behavior.

---

\*This is consistent with findings of the earlier study "An Overview of Pharmacies, Pharmacists and Pharmaceutical Distribution System In Egypt," by H. Cole, R. Smith and S. Sukhary, May 1982 (AID DSPE-CA-0087).

### 8. Patient Self-Prescribing and Pharmacist/Client Interaction

In Jordan, clients engage in drug self-prescribing based on either past experience with the illness or through a detailed description of the symptoms to the pharmacist they procure drugs from. Old prescriptions might be reused by a client to treat the same disease. In describing symptoms a client is most likely to elaborate on the following points:

- the part of the body that hurts
- the extent of the pain and discomfort
- the relationship of the diseased person to the purchaser.

Pharmacists ask the following questions:

- How old is the sick person?
- Does he have a fever? How bad is the fever?
- If a female, is she pregnant?

Fieldwork observations indicate that pharmacists are less likely to dispense drugs to people who have a fever unless it is part of an obvious cold. Pharmacists invariably recommend seeing a doctor if the sick person is a child and has a fever. Apart from vitamins, pharmacists do not like to sell patients self-prescribed drugs to pregnant women.

Pharmacists write instructions for use on the box and also might verbally explain the instructions to the client. More time is usually spent with rural clients, especially those who cannot read and write. Foods to avoid while taking the drug are also reviewed with the clients.

### 9. Contraceptives and Client Use

Jordanian pharmacies carry a limited number of contraceptives. Birth control pills are the most commonly sold contraceptive method with prices ranging between 340 fils, (about \$1) and 550 fils.

Clients are likely to consult with a doctor prior to their visit to the pharmacy to purchase birth control pills but frequently ask pharmacists about

substitutes or other methods when side effects occur. Headache, stomach cramps, upset stomach, breakthrough bleeding, and general weakness are the most common complaints associated with birth control pills. Consistent with the cultural attitude of taking fewer drugs, women prefer low-dose pills like Neogynon.

APPENDIX II-1

JORDAN ESTIMATES OF 1979 HEALTH CARE EXPENDITURES

Estimate of Total Current Expenditures on Health Care in Jordan, 1979.

Estimate of total current on health services were derived from the table A-II-1 estimated by the UK Overseas Development Administration team in their report "Health Insurance in Jordan," July 1980. Ministry of Health, UNRWA and Jordan University hospital data were available from Ministry of Health statistics. Royal Medical Service had to be estimated from interviews with Health Ministry staff to ascertain approximate levels of current health expenditures. The health data do not include dental care except that provided by the public institutions. Also drugs are included in the public sector figures and, (presumably) those for private hospital.

Total health expenditures as used in this report include drug expenditures. To calculate these drug expenditures, it is known that JD 11.667 million were expended on drugs at retail prices (see sections II-A). Public sector purchases of drugs can be estimated from the Ministry of Health interviews that indicate approximately 20 percent of purchases came from domestic manufacturers during 1979 (16 percent in 1977, 35 percent in 1981). The Arab Pharmaceutical Manufacturing Company was the only domestic producer or manufacturer in 1979. Their 1979 sales were 751,000 JD giving an estimate of total public sector purchases of JD 3.755. It is assumed that 30 percent of private hospital expenditures are in drugs or JD 1.08 million. Taken together, additional private purchases of drugs can be calculated as: JD 11.667 million total retail drug expenditures less 3.755 public sector drug purchases, less 1.08 private hospital drug purchases. Summation 6.832 additional private purchases.

Total current expenditure on health care including drugs are thus JD 35.45 million plus JD 6.832 million equal JD 42.28 million. Jordanian drug expenditures

as a percent of total health expenditure then equals JD 11.667 divided by JD 41.28 equal 27.5 percent.

As a cross check, if it were assumed that no drugs were included in the health service expenditures in Table II-A-1, then total health services plus drugs would be JD 35.5 million plus JD 11.67 million in drugs equal JD 47.5 million. With this, drugs as a percent of total health expenditures would be JD 24.3 percent.

TABLE II-A-1

Current Expenditure on Health Services  
Main Provider<sup>1</sup> (JD Million)

	<u>1979</u>
Ministry of Health	11.800
Royal Medical Service <sup>2</sup>	8.4
Jordanian University Hospital	2.8
United Nations Refugee Relief	0.85
Private Hospitals <sup>2</sup>	3.600
Private Doctors <sup>3</sup>	8.000
Total	35.45

Source: Health Insurance in Jordan, U.K. Overseas Development Administration July 1980, Table 3 corrected to reflect MOH Current Expenditures.

1. Excludes Capital Expenditures but includes health insurance budget.
2. Estimates from personal conversations.
3. Estimates from return to doctors services.

APPENDIX II-2

MAJOR PHARMACEUTICAL PRODUCTS OF THE  
ARAB PHARMACEUTICAL MANUFACTURING CO.

----- A.P.M. -----

The Arab Pharmaceutical Manufacturing  
Co. Ltd.

LIST OF PRODUCTS\*

\* As listed in the A.P.M. List of Products. "Therapeutic Index" pp. 7-10.

The Arab Pharmaceutical Manufacturing Co. Ltd.

HEAD OFFICE and WORKS:

SULT (near AMMAN)

P.O.B. 42

Phone: 034 - 4961, 4962, 4963

Direct Channel From Amman: 345116

---

LOCAL SALES OFFICE:

AMMAN, Prince Mohammad Street

P.O.B. 1695

Phone: 42113, 42114

---

TELEX: 21315 APMC-JO

43403 APMC-JO

CABLE: ALADWIYEH

## THERAPEUTIC INDEX

	Page
<b>ANTIBIOTICS</b>	
<b>AMPICILLIN:</b>	25
Ultracillin Capsuels	
Ultracillin (Forte) Capsuels	
Ultracillin Suspension	
Ultracillin (Forte) Suspension	
<b>CEPHALEXIN:</b>	26
Ultrasporin Capsuels	
Ultrasporin (Forte) Capsuels	
Ultrasporin Suspension	
Ultrasporin (Forte) Suspension	
<b>CHLORAMPHENICOL:</b>	14
Balkamycin Capsuels	
Balkamycin Suspension	
Balkamycin Otic Drops	
Balkamycin Suppositories	
<b>EBYTHROMYCIN:</b>	17
Erythrolate Capsuels	
Erythrolate Suspension	
Erythrolate Pediatric Drops	
<b>NEOMYCIN:</b>	20
Neo-Diarrhin Suspension	
<b>TETRACYCLINE:</b>	14
Balkacycline Capsuels	
Balkacycline Suspension	
<b>ANALGESICS ANTIPYRETICS</b>	
Primalgin Tablets	20
Primalgin Suppositories	20
Remin Tablets	21
Remin "B" Tablets	21
Revacod Tablets	21
Revanin Tablets	22
Revanin Ped. Elixir	22

	Page
Revanin "P" Suppositories (Inf.)	22
Revanin "P" Suppositories (Ch.)	22
<b>ANTACID</b>	
Alkagel Suspension	12
<b>ANTIASTHMATIC</b>	
Sedasma Tablets	23
<b>ANTIANAEMIC</b>	
Fer glucone Tablets	18
Vifolin Tablets	27
<b>ANTIDIARRHEAL</b>	
Diarrhex Suspension	16
(Diarrhin in some markets)	
Neo Diarrhin Suspension	20
<b>ANTIFUNGAL</b>	
Finifulvin (Forte) Tablets	
<b>ANTIHISTAMINIC</b>	
Allerfin Tablets	12
Allerfin Syrup	12
<b>ANTIRHEUMATIC</b>	
Balkapofen Capsuels	15
<b>ANTISPASMODIC</b>	
Allospasmin Tablets	13
Allospasmin Tablets (New Formula)	13
Allospasmin Ped. Drops	13
<b>ANTITUSSIVES and EXPECTORANTS</b>	
Tussifin Syrup	24
Tussifin Codeine Syrup	24
Tuscapin Tablets	23
Tuscapin Syrup	23
<b>BACTERICIDAL CHEMOTHERAPEUTIC</b>	
Balkatrin Tablets	15
Balkatrin Suspension	15

	Page
<b>BETA BLOCKER</b>	
Indicardin Tablets	18
<b>CARDIOVASCULAR DRUGS</b>	
Indicardin Tablets	18
Prenicor Tablets	20
<b>CALCIUM SUPPL.</b>	
Devical Tablets	16
<b>DIURETIC</b>	
Diusemide Tablets	16
<b>URINARY ANTISPETIC</b>	
Pyricarmin Tablets	21
<b>VASOCILATOR</b>	
Prenicor Tablets	20
<b>VITAMINS</b>	
Devical Tablets	16
Megavit Tablets	19
Megavit Ped. Drops	19
Vifolin Tablets	27
Vitonex Tablets	27
Vitonex Syrup	27
<b>INTRAVENOUS FLUIDS</b>	

APPENDIX II-3

MAJOR PHARMACEUTICAL PRODUCTS OF THE  
JORDANIAN PHARMACEUTICAL AND MEDICAL EQUIPMENT CO., LTD.

JPM  
THE JORDANIAN PHARMACEUTICAL  
AND  
MEDICAL EQUIPMENT CO., LTD.

Factory:  
Naur - Tel. 39112 Ext. 207

Offices:  
Amman - Tel. 61911  
Telex 21290 JPM JO.  
P.O. Box 11395

Index of Quality Pharmaceuticals  
1981

\* From JPM Index of Quality Pharmaceuticals, table of contents, pp. 3 and 5.

## CONTENTS

Product	Action	Page
Acinil	Antiacid, Antiflatulent	6
Amoxipen	Antibiotic, Amoxycillin	8
Asmanore	Antiasthmatic	10
Cloxipen	Antibiotic, Ampicillin/Cloxacillin	12
Dopanore	Hypotensive, Methyl Dopa	14
Giadinore	Analgesic	16
Jopadol	Analgesic/Antipyretic	18
Methacin	Antirheumatic/Anti-inflammatory	20
Metrozole	Antiprotozoal, antianaerobic bacteria	22
Neurogin	Neurotrophic agent	24
Noractone	Diuretic, Spironolactone	26
Norcipen	Antibiotic, Ampicillin	28
Nortime	Bactericidal Chemotherapeutic, Co-trimoxazole	30
Pyloimid	Digestive promoter, Antiemetic	32
Rheumanil	Antirheumatic/anti-inflammatory	34
Rhinostop	Decongestant and Analgesic	36
Spasmonore	Antispasmodic	38
Spasmonore Co.	Antispasmodic and analgesic	40
Tussinore	Antitussive	42
Vominore	Antiemetic	44

For further information, please contact our scientific  
Dept. P.O. Box 11395

APPENDIX II-4

DAR AL HICKMA (FORMERLY LIFE PHARMA)  
BROCHURE ON COUGHS  
(UNTRANSLATED)

## ٤. خلاصة

# السعال

## ماهية وأنواعه

السعال المزمن ليس مرضا بحد ذاته ، ولكنه أحد أعراض أمراض عدة ؛ كالسل ، والتهاب القصبات المزمن ، وتعدد القصبات ، وسرطان الرئة وغيرها ، وبما أن جميع هذه الأمراض ممكنة معالجتها ؛ فمن الضروري زيارة الطبيب حالما تدرك أن سعالك أصبح مزمنًا ( أي أنه استمر أكثر من أسبوع قلائل ) والطبيب يوسع إجراء فحوص تبين سبب السعال وتسمح بمعالجته دون إبطاء .

## تقدمة من :-

١. ماهو السعال ؟

٢. متى يكون السعال مزمنًا ؟

٣. ماذا عن التدخين ؟

٤. الخلاصة

شركة  
لايف فارما  
(الاردن)

تلفون ٨١١٦٩٢

ص.ب. ١٨٢٤٠٠

عمان - الاردن

## ١. ماهو السعال ؟

السعال هو اي اخراج اليواء بقوة من الرئتين ، هو رد فعل طبيعي لدخول جسم او غاز غريب الى القصبات الهوائية ، ووظيفته الرئيسية هي الدفاع عن هذه القصبات ، فالانسان يسعل اذا دخل ماء او طعام خطأ في مجاري التنفس ، او اذا تنشق غازا كريها او ساما ، وعلى هذا فان اغلب الناس يسعلون من وقت الى آخر . فالاصابة بالرشح العادي قد يتبعها سعال يستمر اسبوعين او اكثر ، ولكن اذا استمر السعال بعد الرشح لفترة اطول من المعتاد فتجب استشارة الطبيب ، واستشارة الطبيب ضرورية ايضا حينما كانت فترة السعال اذا صحبه ضيق في التنفس ، او انهم في الصدر ، او دم في البصاق .

## ٢. متى يكون السعال مزمنًا ؟

اذا استمر السعال مدة شير او اكثر فييو مزمنا ، حتى لو كان فقط في الصباح او عند الرقاد ، او في فصل الشتاء فقط ، فالازمان هو طول المدة . وقد تعتاد على سعالك المزمنا لدرجة انك لا تلاحظ تغييرا في نوعه او كثرته ، مع ان اي تغيير في كثرة السعال او نوعه او في كمية او نوع البلغم ( كوجود دم ) دليل على حالة يمكن ان تكون خطيرة .

## ٣. ماذا عن التدخين ؟

اذا كنت تدخن اكثر من عشر سكاير يوميا فانك مدخن كثير وقد يؤدي بك هذا التدخين الى السعال المزمنا وهو العرض الرئيسي لالتهاب القصبات المزمنا ، ويجدر بك ألا تعتبر ( سعال السيكارة ) امرا بسيطا لأن المصابين بالسعال المزمنا هم اكثر الناس عرضة لسرطان الرئة .

APPENDIX II-5

REGISTERED DRUG STORES IN JORDAN  
AND COMPANIES REPRESENTED

LIST OF REGISTERED DRUGSTORES AND COMPANIES REPRESENTED

<u>NAME OF REGISTERED DRUGSTORE</u>	<u>COMPANY REPRESENTED</u>
1. Adwiat Altaziz Emile Charpentier/France	Abbot/U.S.A., Greece, U.K.  Sandoz/Switzerland Searle/U.K.
2. Adwiat Ninouis	ABC SPA/Italy Apolab/Norway Cilag - Chemie/Switzerland Cimex-/Switzerland Ropharma/Belgium Taechner/West Germany
3. Adwiat Al Yarmouk	Abello/Spain Istituto Medicamenta/Italy Scierlabs/London
4. Adwiat Mansour	ADCO/Egypt MISR/Egypt
5. Adwiat Al Nasir	Adelco/Greece R&N/Greece
6. Adwiat Tanous	Allenburys/U.K. B.D.H./U.K. Glaxo/U.K. Squibo/U.K., Greece
7. Al Shirka Al Arabia Lil Mustahdarat AL Tibia Wa Ilzira'la	Allergan/U.S.A. Aterst/Canada Delanlande/France Homburg/West Germany I.C.N. Arco/Switzerland Leo/Denmark Nordisk/Denmark Wyeth/Switzerland U.S.A., West Germany University
8. Arab Pharmaceutical Manufacturing Company	Same
9. Adwiat Al Kurdy	Archifar/Italy Byk Guiden/West Germany Farmilia/Italy Grossman/Switzerland Hausmann/Switzerland Kremers Urban/U.S.A. Latema/France

9. Cont. Pharmaceutical Manufacturing Company/U.K.  
P.O.S./France  
Siegfried/Switzerland  
S.P.A./Italy  
Vister/Italy
10. Adwiat Adatco Armour/U.K.  
Merck, Sharpe & Dome (MSD)  
Holland, Lebanon
11. Adwiat Nabieth Alnabulsy Aron/France  
Biochemie/Austria  
Biotest/West Germany  
Boehringer Mannheim/West Germany  
Grünenthal/West Germany  
Linz/Austria  
Marcopharma/Denmark  
Medial/Switzerland  
Natterman/West Germany  
Protochemie/Switzerland  
Zyma/Switzerland
12. Adwiat George Khury Asta/West Germany  
Asta/Sweden  
Bayer/West Germany  
GEA Gadex/Denmark  
Kabi/Sweden  
May & Baker (M&B)/U  
Med Hel Heilas/Greece  
Optrex/U.K.  
Pharmacia/Sweden  
Stafford Miller/U.S.A.
13. Adwiat Halaby Wa Talil Bailly/U.K.  
Beecham/U.K.  
Bencard/U.K.  
Bottu/France  
Johnson & Johnson/U.K., U.S.A.  
Mentholatum/U.K.  
Nativelle/France  
Parke-Davis (P&D)/U.S.A.,  
U.K.  
Specia/France
14. Al Adwia Al Markazy Benson/Denmark  
Berna/Switzerland  
Labaz/France

15. Adwiat Shocair  
Boehringer/Ingelheim/West Germany  
Ciba-Geigy/Switzerland  
Pierrei S.P.A./Italy  
Roussel/France, U.K.  
Zambon/Italy
16. Adwiat Mina  
Bonomelli/Italy  
Doider/Switzerland  
Hisamitsu/Japan  
Janssen/Belgium
17. Adwiat Al Sixitian  
Boots/U.K.  
Dermik/U.S.A.  
Diedenhoven/Wes Germany  
Dyspne/France  
F. Trenka/Austria  
Lederle/U.K., U.S.A.  
Luitpold/West Germany/Memphis  
Egypt/Rorer/U.S.A.  
Septodont/France  
Smith, Kline & French (SK&F)/  
Greece, U.K.
18. Adwiat Al Sharb  
Bristol/U.S.A.  
Hornag/West Germany  
Mead Johnson/U.S.A.  
Menarini/Italy  
Paul Elder/U.S.A.  
Roter/Holland  
Sanol/Switzerland  
U.C.B./Belgium
19. Adwiat Jordana  
Burroughs Wellcome (B&W)/U.K.  
Knoll/West Germany
20. Al Umma  
Carlo Erba/Italy  
Cusi/Spain
21. Adwiat Mafo W. Mikali  
Chatelain/France  
Reckitt & Colman/U.K.  
Sopar/Belgium
22. Adwiat Palestine  
Chemofux/Austria  
Consolidated Chemicals/U.K.  
LaRoche Navarron/France
23. Adwiat Al Mawad Il Tibia  
Chropi/Greece  
Dr. Gernard Mann/West Germany  
Joullie/France  
Vifor/Switzerland

24. Adwiat Al Salfity  
Continental Pharma/Belgium  
Cussons/U.K.  
Leung Kai Fook/Singapore  
Richards Appelby/U.K.  
Richter (Gruppa Lepetit)/Italy
25. Adwiat Ibn Sina  
Cophar/Switzerland  
Lundbeck/Denmark  
Pliva/Yugoslavia  
Towa Wagner/West Germany  
Takeda/Japan
26. Adwiat Amman  
Cupal/U.K.  
Ferca/Switzerland  
Labatec/Switzerland  
Samarra/Italy
27. Shirkat Dar Al Dawa  
Dar Al Dawa/Jordan
28. Adwiat Dajeni  
D.D.D. Products/U.K.  
Geistlich/Switzerland  
International Chemical  
Company/U.K.  
Nicolas/U.K.  
Richardson-Merrell/U.K.  
Warner/U.K.
29. Adwiat Tanas Atta Alla  
Delagrangue/France  
Hartman/W. Germany  
Hepatrol/France  
Seven Seas Cod Liver Oils Co./U.K.
30. Adwiat Harmon  
Dentinox/West Germany
31. Adwiat Ittihad Al Sayadila  
Dr. Debat/France  
Dr. Madaus/West Germany
32. Adwiat Amur  
Dumex/Denmark  
Madensa/Ireland  
Pharmaton/Switzerland
33. Adwiat Al Darholy  
Eaton/U.S.A., Greece  
Ortho/U.K.
34. Adwiat Barqan  
Elpen/Greece  
Solco/Switzerland  
Ribopharm/Switzerland
35. Al Adwia  
Al Urdini  
Farmitalia/Italy  
Rendells/U.K.  
Sandoz/Switzerland  
Schering A.G./West Germany  
Servier/France  
Wander/Switzerland

APPENDIX II-6  
PHARMACY CURRICULUM  
UNIVERSITY OF JORDAN

## PHARMACY CURRICULUM

(University of Jordan)

1. Minimum # of Cr. hrs for graduation: 160 (5 years).
  2. Distribution of Cr. hrs.
    - A. University Requirements 18 hrs
    - B. Faculty Requirements 85 hrs
      1. Compulsory 67 hrs
      2. Electives 18 hrs
    - C. Science Courses 26 hrs
    - D. Medical Courses 27 hrs
    - E. Commerce 4 hrs
- Total 160 hrs

FIRST YEAR

<u>First</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr.hrs</u>
101 General Chemistry	3	102 General Chemistry	3
101 General Phys.	3	106 Chem. Lab.	2
111 Physics Lab.	1	102 General Phys.	3
101 Math	3	112 Physics Lab.	1
Univ. Requirements	6	102 General Math	3
		101 General Biol.	3
		103 Biology Lab.	1
Total	<u>16</u>	Total	<u>16</u>

SECOND YEAR

First Semester

Second Semester

<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Pharmaceutics I	2	Pharmaceutics II	2
Pharmaceutics Lab. I	1	Pharmaceutics Lab. II	1
Pharm. Chem. I	2	Pharm. Chem. II	2
Pharm. Chem. Lab. I	1	Pharm. Chem. Lab. II	1
Pharmacy Orientation	2	Pharmacognosy	2
Anatomy-Histology	2	Pharmacognosy Lab.	1
Anatomy-Histology Lab.	1	Microbiology & Parasitology	2
Physiology	2	Microbiology & Parastiology Lab.	1
	<hr/>		<hr/>
Total	16	Total	16

THIRD YEAR

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Pharmaceutics III	2	Pharmaceutics IV	2
Pharmaceutics Lab. III	1	Pharmaceutics Lab. IV	1
Pharm. Chem.	2	Pharm. Chem. IV	2
Pharm. Chem. Lab.	3	Pharm. Chem. Lab. IV	1
Pharmacology	3	Chemistry of Natural Products 3	
Pharmacology Lab.	1	Natural Products Lab.	1
Pathology	2	Biochemistry	3
		Biochem. Lab.	1
University Requirements	3	University Requirements	3
	<hr/>		<hr/>
Total	17	Total	17

COURSE PLAN

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Pharmaceutics V	2	Pharmaceutics VI	2
Pharmaceutics Lab. V	1	Pharmaceutics Lab. VI	1
Medicinal Chem. I	2	Medicinal Chem. II	2
Medicinal Chem. Lab. I	1	Medicinal Chem. Lab. II	1
Biostatistics	2	Chemistry of Natural Products II	3
First Aid	2	Pharmaceutical Calcula- tions 2	2
Economics & Marketing	2	Accounting & Business Administration	2
Specialization Course	3	Specialization Course*	3
	<hr/>		<hr/>
Total	15	Total	16

\*See attached list.

FIFTH YEAR

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Pharmaceutical Industry	2	Pharmaceutical Industry	2
Pharmaceutical Industry Lab. I	1	Pharmaceutical Industry Lab. II	1
Medicinal Chem. III	2	Medicinal Chem. IV	2
Medicinal Chem. III	2	Medicinal Chem. Lab. IV	1
Toxicology	2	Instrumental Analysis	2
Public Health	2	Instrumental Analysis Lab.	2
Specialization Course*	6	Specialization Courses*	6
	<hr/>		<hr/>
	16		16

\*See attached list.

## SPECIALIZATION COURSES

Students can elect one of the following areas.

### 1. First Group:

#### Industrial Pharmacy Courses

1. Manufacturing and industrial pharmacy.
2. Product formulation.
3. Unit operations in pharmacy.
4. Sterile products technology.
5. Pharmaceutical analysis.
6. Pharmacokinetics and bioavailability.

### 2. Second Group:

#### Clinical & Hospital Pharmacy Courses

1. Hospital pharmacy management and institutional pharmacy practice.
2. Sterile products technology and parenteral and enteral nutrition.
3. Radiopharmaceuticals.
4. Therapeutics, and adverse reactions and drug interactions.
5. Drug information and scientific literature evaluation.
6. Nonprescription drugs (OTC).

### 3. Third Group:

#### Community Pharmacy Courses

1. Community pharmacy management.
2. Therapeutics.
3. Drug information.
4. Nonprescription drugs (OTC).

5. Cosmetics and dermatological science, non-drug products and devices.
6. Pharmacognosy (medicinal plants).

APPENDIX II-7  
PHARMACY CURRICULUM  
YARMOUCK UNIVERSITY

## FIRST YEAR

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Chem. 101, 105 Gen. Chem.	3 - 1*	Chem. 101, 105 Gen. Chem.	3 + 1
Eng. 101 English Language	3	Arab. Arabic Language	3
Math. 101 Calculus	3	Math. 102 Calculus	3
Phys. 101, 105 Physics	3 + 1	Phys. 102, 106 Physics	3 + 1
Military	3	Humanities	3
Pharm. 101 Pharm. Orientation	1	Pharm. 102 Pharm. Orientation	1
Total		Total	
18		18	

\*Three hours of lectures and one lab. session.

## SECOND YEAR

### First Semester

### Second Semester

<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Chem. 211 Organic Chem.	3	Chem. 212 Organic Chem.	3
Chem. 231 Analytical Chem.	3	Chem. 213 Org. Chem. Lab.	3
Biol. 101, 105 Gen. Biol.	3 + 1	Biol. 102, 106 Gen. Biol.	3 + 1
Pharm. 111 Pharmaceutics	3	Pharm. 112 Pharmaceutics	3
P.H. 200 First Aid	2	Med. 142 Med. Microbiology & Lab. 3 - 1	
	<hr/>		<hr/>
Total	15	Total	17

THIRD YEAR

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Pharm. 211 Pharmaceutics & Lab	2 - 1	Pharm. 212 Pharmaceutics & Lab	1 + 1
Pharm. 231 Anal. Pharm.	1 - 1	Pharm. 232 Anal. Pharm. Chem.	1 - 1
Pharm 233 Introduction to Med. Chem.	2	Pharm. 234 Introduction to Med. Chem.	2
Pharm. 235 Chem. of Natural Products & Lab	2 - 1	Med. 210 Anat. Hist. & Lab.	2 + 2
Med. 331 Human Physiol. & Lab	2 - 1	Med. 332 Human Physiol. & Lab	2 + 1
P.H. 10 Biostatistics	3	Med. 222 Biochemistry	4
Total	16	Total	17

## FOURTH YEAR

<u>First Semester</u>		<u>Second Semester</u>	
<u>Course</u>	<u>Cr. hrs.</u>	<u>Course</u>	<u>Cr. hrs.</u>
Med. 321 Biochemistry	2	Pharm. 322 Biopharmaceu.	3 - 1
Med. 451 Pharmacology & Lab	3 - 1	Pharm. 452 Pharmacology & Lab	3 + 1
Pharm. 331 Medicinal Chem. & Lab	3 - 1	Pharm. 332 Medicinal Chem.	2
Pharm. 311 Pharmaceutical Technology & Lab	2 = 1	Pharm. 312 Industrial Pharm. & Lab	2 - 1
Med. 342 Pathology	3	Pharm. 314 Pharmaceutical Microbiology & Lab	3 - 1
Total		Total	
	16		17

PHARM. & MED. CHEM.

Major

Pharm. 431 Advanced Med. Chem. & Lab	2 + 1
Pharm. 433 Anal. Pharm. Chem. & Lab	1 + 1
Pharm. 491 Project	2
Pharm. 492 Seminar	1
Pharm. 43 Advanced Anal. Pharm. Chem. & Lab.	2 + 2
Pharm. 432 Advanced Chem. of Natural Products	2

---

14

## INDUSTRIAL PHARMACY

### Major

Pharm. 411 Cosmetology	2
Pharm. 415 Pharm. Tech. & Lab	2 - 2
Pharm. 491 Project	2
Pharm. 492 Seminar	1
Pharm. 412 Pharmacokinetics	3
Pharm. 416 Pharm. Tech. & Lab	3 - 1
	<hr/>
	16

## CLINICAL PHARMACY

### Major

Pharm. 451 Biology of Disease	3
Pharm. 452 Biology of Disease	3
Pharm. 453 Clinical Pharm.	3
Pharm. 454 Clinical Pharm.	3
Pharm. 455 Monitoring	1
Pharm. 491 Project	2
Pharm. 492 Seminar	1

---

16

APPENDIX II-8

LAW OF PRACTICING THE PROFESSION OF PHARMACY  
JORDAN: LAW 43, 1972  
(UNOFFICIAL TRANSLATION)

Appendix II-8

A partial and unofficial translation of the Law of Practicing the Profession of Pharmacy Law 43 of 1972.

Headings:

Articles 3-11	Professional practice
Articles 12-17	Pharmaceutical institutions
Article 18	Requirements for owning a pharmaceutical institution
Articles 18-25	Community pharmacies
Articles 26-30	Terms and technical description of community pharmacies
Articles 31-44	Private pharmacies
Articles 45-65	Drugstores
Articles 66-90	Drug factories
Articles 91-99	Pharmacy technicians and externs
Articles 100-137	The rules to practice the profession
Articles 138-153	The technical committee for drug control
Articles 154-161	Toxins
Articles 162-168 (not translated)	Dangerous drugs and importation of dangerous drugs
Articles 169-173	Dispensing of prescription calling for dangerous drugs
Articles 174-180	The registers of dangerous drugs—pharmacies and drugstores
Articles 181-205	Were not translated

# LAW OF PRACTICING THE PROFESSION OF PHARMACY\*

## LAW NUMBER (43) FOR THE YEAR 1972

### Definitions and Terms

Article 1: This law is called (Law of Practicing the Profession of Pharmacy for the Year 1972) and it is in effect on the date that will appear in the official newspaper.

Article 2: The specific meanings for the words and expressions found in this law, or any regulations issued with reference to it are listed below (unless otherwise stated):

The Kingdom:	The Hashemite Kingdom of Jordan
The Minister:	The Minister of Health
The Ministry:	The Ministry of Health
The Ministry of National Economy:	The Ministry or Ministries that are specialized with industrial affairs
Department:	Department of Pharmacy and Supplies in the Ministry
The Director:	Director of Pharmacy and Supplies Department
The Health Director:	Director of the Health Department in the Region
The Syndicate:	The Pharmacy Syndicate
The Profession:	The profession of pharmacy
The Pharmacist:	Every person who owns a pharmacy degree from a college which is recognized by the Kingdom
The Licensed Pharmacist:	Every pharmacist registered in the pharmacists' register at the Ministry and the Syndicate and licensed to practice the profession
The Physician:	The human doctor, dentist, or veterinarian as stated

\*A partial and unofficial translation, performed for this study.

## THE PROFESSIONAL PRACTICE

- Article 3: Preparing, compounding, equipping, manufacturing, filling, splitting, impairing, storing, selling or creating new material is considered practicing of the profession.
- Article 4: No one is permitted to practice the profession in the Kingdom in any way before obtaining a license from the Ministry and registry at Syndicate.
- Article 5: Registered pharmacist is not allowed to practice his work in any pharmaceutical foundation unless he obtains a license from the Minister and after the approval of the Syndicate.
- Article 6: Applicants for license should meet the following requirements:
- (a) Jordanian, or from an Arab or foreign country, which laws allow the Jordanians to practice the profession there.
  - (b) Passed General Secondary Education Certificate examination or its equivalent.
  - (c) Holds a degree in pharmacy from an accredited college.
  - (d) Has completed no less than 1,440 hours of training during his university education or after graduation in a pharmacy under the supervision of a licensed pharmacist or in a pharmaceutical manufacturer accepted by the college.
  - (e) Must pass the required examination by the regulations under this law.
- Article 7: The applicant for licensure should accompany his application with the following documents:
- (a) The original copy of the pharmacy certificate that he obtained or a properly verified document issued by the college or university that he graduated from.
  - (b) The passport or nationality certificate with the permit to stay for the non-Jordanian.
  - (c) Paper from the court of the country where he worked or lived after graduation, which declares that he has not been sentenced for committing a dishonorable misdemeanor or a felony.
  - (d) Verified official document proving that the pharmacy certificate he got allows him to practice the profession in the country where he graduated if he was a citizen of that country.
- Article 8: After completion of the requirements of licensure the Minister decides to offer the license applicant a license to practice the profession and the fees will be collected from him.

The Drugs Constitution (Pharmacopoeia):	Official collections containing the chemical, biological, physiological, and pharmaceutical description for the drugs mentioned in it
The Drug:	(a) The substances mentioned in the latest edition of the drugs constitution used by the Minister;
	or
	(b) Any substance or group of agents used in diagnosis, cure, or treatment, which the Minister uses
The Poison:	Every substance that results in an organic damage, functional disorder or death if used in a dose that is larger than the required dose
The Lot of Control:	Certain number of production units of a drug, started, prepared, examined and controlled at the same time, and carrying a specific number
The Pharmaceutical Foundation:	Public or private pharmacy, drugstore, or factory
Pharmacy Colleges:	The scientific foundations that their country's laws allow them to offer a diploma that allow its carrier to practice the pharmacy profession in that country and enable him to hold a pharmacist's title
Accredited Colleges:	Colleges of Pharmacy that the Kingdom's law allows the holder of its degree to practice the profession in the Kingdom and includes: Pharmacy Colleges in the Arab countries, or any college that the Ministry or the Syndicate decide to recognize after approval of the Ministry of Education
Inspector:	The Pharmacist or physician appointed by the Minister for the inspection
Committee:	The technical committee which is found to control the drugs according to this law

- Article 9: Anyone who presents false documents will lose the right of getting a license definitely.
- Article 10: Licensed pharmacist is not allowed to possess any pharmaceutical institution, public or private, supervise it or work in it or get employed as a pharmacist in the official or private institutions until
- (a) He registers in the Syndicate after he pays the legal fee to its cashier;
  - (b) The Minister accepts the place and conditions of his work after the approval of the Syndicate.
- Article 11: With the acceptance of Cabinet, the Minister can license the pharmacist, that his government does not trust the Jordanian pharmacist the same, renewable for two years, if he is an expert in any field of the profession's fields and that his services are important and his specialization is not available.

#### THE PHARMACEUTICAL INSTITUTIONS

- Article 12: After taking into consideration the special rules for the drug factories, the creation of a pharmaceutical institution should not be done until the license from the Minister is obtained and the license is given only to a licensed unemployed pharmacist.
- Article 13: The application for licensure to start a pharmaceutical institution should be submitted to the Ministry for the following:
- (a) Permission to practice the profession.
  - (b) Certificate of registration at the Syndicate.
  - (c) Indicate the name of the town where the institution is to be opened.
  - (d) Confirmation signed by the applicant that states he is the real owner of the pharmaceutical institution.
- Article 14: (a) If the Minister finds that the requirements were completed, the permission will be granted.
- (b) Work in the institution is not started until it is inspected to make sure that all the required conditions are met and to present the trade register of the institution.
- Article 15: There is a right for every licensed pharmacist who does not own a pharmaceutical institution to buy one, but the knowledge of the Minister and the Syndicate is required, and he must submit all the documents that prove the sale with the confirmation listed in Article 14, paragraph (a), verified by the notary public.

Article 16: The license given by the Ministry to create a pharmaceutical institution is cancelled under these conditions:

(a) If the licensed pharmacist does not start work in six months the Minister is able to provide an additional six months if the pharmacist proves that the delay is due to unforeseeable circumstances that are accepted by the Minister, and if he submits an application for the additional period 15 days before the first license expires,

or

(b) If the pharmacy closed after it started business for a period of one year in the cities that have more than one pharmacy,

or

(c) If the closing of a pharmacy after starting the work for a period of six months in cities that have only that pharmacy,

or

(d) If the pharmaceutical institution was moved from its place to any other place whether it was in the same city or another city, without the knowledge of the health director and acceptance of the Minister,

or

(e) If the pharmaceutical institution was used for a business other than the purpose of licensure,

or

(f) If it was proved that the pharmacist responsible for the pharmaceutical institution or one of his employees has malpracticed the use of the profession and dealt with the prescription substances and agents that are mentioned in Table R-6c,

or

(g) If the drugstore or the factory has closed for a period of a year after it started business,

or

(h) If the pharmaceutical institution was sold without the acceptance of the Minister; in other words, if the owner brought an unlicensed partner,

or

(i) If the owner of the pharmaceutical institution was sentenced for a felony or misdemeanor,

or

- (j) If no licensed pharmacist was appointed at the pharmaceutical institution in three months from the date of which the responsible pharmacist quit working.

Article 17: The Minister has the right to reconsider the cancellation of licensure after the causes were eliminated in three months of the cancellation date.

## REQUIREMENTS FOR OWNING A PHARMACEUTICAL INSTITUTION

### 1. Community Pharmacies

Article 18: (a) The community pharmacy is the institution which is equipped to prepare the medical prescription and dispense drugs to the public for a certain price.

- (b) The owner of the pharmacy can trade with therapeutic drugs, dentistry supplies, surgical threads (ligatures), sterile gauzes, bandages, sterile cotton, chemical substances that are prepared for industrial, agricultural, and laboratory purposes, medical, surgical, visual, and laboratory apparatus, perfumes, cosmetics, cameras and photo supplies, radiological, mineral water, children's milk and food, and insecticides.

Article 19: The owner of the community pharmacy must be licensed and it is not allowed for the pharmacist to own more than one pharmaceutical institution in the Kingdom.

Article 20: After enforcing this law, the pharmacy is owned fully or partially by nonlicensed pharmacists in business for a period of (3) years after that the license will be cancelled and the Minister decides to close it.

Article 21: More than one pharmacist is allowed to create a pharmaceutical institution under the condition that one of them is able to work full time and has a license according to this law.

Article 22: The number of the community pharmacies and drugstores in every city is limited by the decision of the Minister, after he takes the opinion of the Syndicate and considers the public interest.

Article 23: Considering what was mentioned in Article 13, 14 of this law:

- (a) Licensing is granted after the Minister consults the Syndicate Council opinion.
- (b) If the Syndicate's council doesn't give the opinion (30) days after being informed, then the Minister has the right to consider the licensure application.

Article 24: If a licensed pharmacist dies, then his non-pharmacist inheritants have the right to keep the pharmaceutical institution; however, they have to appoint an available licensed pharmacist and to inform the Minister and the Syndicate under his name and it must be taken in consideration:

- (a) If there was an underage inheritant, they they have the right to keep the institution for a maximum period of seven years after the death has occurred.
- (b) If one of the inheritants was studying pharmacy or finished the high school and planned in doing so (study pharmacy) then the law allows them to keep the institution until the mentioned inheritant finishes his studies provided that the period doesn't exceed (4) years and the ownership should be transferred in full for that inheritant.
- (c) If no inheritant is studying pharmacy or finished high school and planning to study pharmacy, then the inheritants have the right to keep the institution for ten years under this law.

Article 25: If the owner wished to transfer the institution to an area, locating it within and it was in the same town or another, he can do so after the acceptance of the Minister, under this law, and the Syndicate should be informed.

## 2. Terms and Technical Description of the Community Pharmacies

Article 26: Pharmacies must occupy the ground floor and the door connected directly under the main street and that it doesn't have any other door that has access to any building or small street, clinic, drugstore or house.

Article 27: The pharmacist has to keep all chemical and galvanic substances in the proper containers as stated in the pharmacopoeia and to be arranged in a way that eliminates the errors and to write their names clearly on labels.

Article 28: All drugs and packaged drugs ready for use in the pharmacy or to be sold must be of good quality, and free of impurities and cheating and kept in a way that protects from spoilage.

Article 29: The pharmacist should stop selling all spoiled drugs or suspected activity, or expired.

Article 30: Every pharmacist must keep in his pharmacy a copy of this law to refer to when needed.

## 3. The Private Pharmacies

Article 31: The private pharmacy is the pharmaceutical institution that belongs to medical, social or economical institutions to satisfy the purposes

of that institution and which is equipped to prepare the prescriptions (R<sub>x</sub>) and dispense drugs to a group of people chosen by the Minister, each case separately after consulting the Syndicate.

Article 32: It is not allowed to give a permit to start a private pharmacy unless it is for hospitals, government clinics, public clinics, cities clinics, registered nonprofit organizations, public companies, public institutions or doctors according to Article (36) of this law.

Article 33: Terms to license the private pharmacies:

(a) Not connected under the main street directly but to be within the institution that it belongs to.

(b) Drugs should not be dispensed for other than the patient admitted to the attached hospital or the exception that those drugs are not found in the other pharmacies in that town.

(c) Not to dispense drugs to outpatient clinic patients of that hospital or clinic unless they were for free or subsidized price.

Article 34: If the private pharmacy is in a town where there is no community pharmacy, then it can exceptionally dispense drugs to the institution patients and for the public with a regular price and this right is lost when a community pharmacy opens there.

Article 35: All private pharmacies (except clinics that are permitted to sell drugs) must be managed and taken its responsibility an available full-time licensed pharmacist and this pharmacy should follow all rules that apply in the community pharmacies in respect to description, technical terms, management and responsibility.

Article 36: (a) Under the permit of the Minister, the physician can dispense some drugs to his private patients if he lives (practices) in a town where there is no community or private pharmacies and the closest town with a pharmacy is at least 10 km away.

(b) The physician that was permitted to sell drugs must be restricted to the prices of the drugs as in the community pharmacy and the price should not exceed or be less than the price in other pharmacies and the Minister will limit those drugs for the physician.

Article 37: The permit to the physician will become invalid when a community pharmacy opens in that area or if the physician transfers his working area.

Article 38: If the director asked for approval, the Minister after consulting the Syndicate can permit to any registered and available pharmacy technician to be responsible of a private pharmacy that belongs to a hospital or to a nonprofit organization and this requires:

(a) The pharmacist technician should work under the supervision of the hospital or institution.

(b) The pharmacy should not carry any high or mild toxic materials or controlled agents that are mentioned in Tables A, B, C that attached this law.

Article 39: If the service in the hospital or nonprofit organization was expanded or if the number of beds exceeded the number of beds then the hospital or the nonprofit should appoint an available licensed pharmacist.

Article 40: The health director can license the commercial stores in the small villages lacking any physician or private, charitable or government clinic to sell the following drugs:

1. Aspirin in any brand
2. Castor oil
3. Epsom salt
4. Sodium bicarbonate
5. Sulfur powder
6. Boric acid
7. Glycerin
8. Vaseline
9. Bandages, gauzes and plasters
10. Hydrogen peroxide
11. Mercurochrome

or any other substitute that the Minister accepts to add under the recommendation of the director.

Article 41: The substances mentioned in this previous article must be sold in pharmacy containers already prepared and they should be sold in full and not to be splitted.

Article 42: The license mentioned in Article 40 is renewed annually by the health director who can withdraw it for any reason, and any tradesman that possesses any pharmaceutical substance or other drugs without a license is considered as practicing pharmacy without a license and the drugs and substances will be confiscated.

Article 43: Those commercial stores licensed to sell the mentioned drugs should keep the label of the pharmacy on the bottles of those drugs.

Article 44: The private and community pharmacies are prohibited from selling any unlicensed merchant any drug.

#### 4. Drugstores

Article 45: (a) Drugstore is the pharmaceutical institution able to import, distribute and sell drugs as wholesale.

(b) The owner of the drugstore can trade with the substances listed in paragraph (b) of article 13 of this law.

- Article 46: (a) After enforcing this law, no one is allowed to open a drugstore unless he or she is an available licensed pharmacist and doesn't own any other pharmaceutical institution.
- (b) Non-pharmacist drugstore owners, who established these businesses at least five years before the enforcement of this law, have the right to keep their drugstores and continue their business and are considered to be legal if an available licensed pharmacist works there and is responsible.
- Article 47: It is prohibited for any licensed drugstore to have a branch in the same or different city in the Kingdom unless they get a license from the Minister and then every branch considered an independent drugstore and license is completed after the approval of the Syndicate Council which has the right to give its opinion for up to a month after receiving the application.
- Article 48: The owners of the branches of the drugstores to adjust their situation according to this law when it is enforced.
- Article 49: The Minister of the Syndicate should know about any change in name of a drugstore or address, its place or the name of the responsible pharmacist.
- Article 50: The ownership of a licensed drugstore can be transferred only to an available licensed pharmacist with the exception of the inheritants of the owner who can own it according to the rules of this law.
- Article 51: (a) The owners of the drugstore and drug factories are prohibited from selling the drugs unless they're for pharmaceutical institutions, hospitals and medical institutions.
- (b) Drugstores can sell their goods to physicians licensed to possess the drugs according to the rules of this law.
- Article 52: Drugstore owners can sell the chemical substances that are used in the industry and agriculture to those who carry a license from the Minister to deal with these materials.
- Article 53: The owner of the drugstore is prohibited from selling any drug or pharmaceutical preparation to any individual, grocery or plant seller.
- Article 54: (a) Drugstores cannot sell any kind of goods and deliver to a pharmacist or ship it to him unless it carries the price properly labeled on the outside package and the pharmacist should not accept it without price label.
- (b) The price label should not mask the name of drug, expiration date and the term sample, otherwise the inspector will suspect the drug or the preparation and will confiscate it plus the legal follow-up.
- Article 55: The drugstore owner should keep and store the drugs and pharmaceutical preparations in their original containers and they cannot be

opened or split unless he gets the permission of the Committee and any change, in writing or typing on the drug is considered illegal and the drug should be confiscated under the penalty of this law.

- Article 56: The Minister, after consulting the Syndicate Council, decides the maximum mark-up for the drugstores provided that it doesn't exceed 15 percent on cost and for pharmacies not to exceed 20 percent; the Minister can price every drug separately no matter what the percentage mark-up is.
- Article 57: The drugstore cannot import drugs and chemical substances that he is the agent of, unless they were bought from their original manufacturer and without an intermediate seller.
- Article 58: The owner of a drugstore is prohibited from selling or giving any pharmacy any free sample, and the distribution of samples should be limited to physicians and charity organizations.
- Article 59: (a) Drug samples should carry the expression (free medical sample) in Arabic, English or French on the inner container and should have it on two faces of the outer package that have the name of the product. The above expression on the inner container is not required on the ampules or vials that their name is printed on the glass or metal directly, the suppositories that are packaged by metall foil or plastic, and the ointment tubes that have their names printed directly on the tube.
- (b) The expiration date should be printed by the company and not by using an ink seal.
- (c) The price of prescription labels should not cover the expiration date otherwise the drug will be confiscated.
- (d) The Minister with the recommendation of the Committee can specify the kind of drugs that have an expiration date.
- Article 60: The owner of the drugstore and the responsible pharmacist are prohibited from acting in concert with the physicians and pharmacists to achieve personal benefit other than what is stated in the law.
- Article 61: The drugstore owner should keep the records of imported, sold drugs and the distribution of the medical samples. Indicating the amount sold and samples distributed and names of all buyers and the amount for each sold or distributed monthly and those records should be kept for two years after the date of last transaction in the records, and records should not be damaged after that until after the knowledge of the specialized employee in the income tax department, and the pharmacist should keep all the receipts of the drugs and pharmaceutical preparations that he buys from the drugstore for a period of at least two years, to submit it to the inspector and that's to control the sales just for the pharmacies and not other institutions.
- Article 62: The owner of the drugstore must keep in his store a record of the dangerous drugs (controlled), kept by the responsible pharmacist according to the rules.

- Article 63: The owner of the drugstore is prohibited from selling the dangerous agents to the pharmacies, hospitals or any other organization unless they have a special permit from the Minister.
- Article 64: The inspector has the right to enter the drugstore at any time to check the compliance of the owner of the drugstore to the laws, rules and instructions related to the profession practice, and both the owner and the responsible pharmacist should facilitate the inspection procedure.
- Article 65: The owner or the responsible pharmacist of the drugstore has no right to limit the volume of drugs and ready pharmaceutical preparations that are sold to the pharmacist, and the owner of the drugstore must keep a copy of this law to refer to when needed.

### 5. Drug Factories

- Article 66: The factory is the pharmaceutical institution where preparation, compounding, synthesis or splitting drugs occur in order to sell them for wholesale distribution.
- Article 67: Anyone or any incorporated company can open a drug factory under this law.
- Article 68: Only after the Minister gives the license, can one open a factory under these conditions:
- (a) The factory should be in an uninhabited area.
  - (b) The applicant must get the permission of the municipality in which the factory is to be located.
  - (c) Must obtain a recommendation for the Ministry of National Economy that confirms the economic terms of its operation.
- Article 69: The factory must have the following sections:
- (a) Production section, which should be equipped with the machines, equipments, measuring apparatuses, as mentioned in the tables accompanied with this law.
  - (b) Laboratories to include three sections:
    1. Chemistry laboratories, equipped with the chemical substances and technical instruments that enable the factory to analyze all the raw materials and the already prepared preparations coming to the factory and produced by the factory.
    2. Sterility laboratories, equipped with the proper instruments that enable them to measure the sterility of drugs.
    3. Microbiology laboratories, equipped enough to measure the pyrogens, bacteria and similar materials.

Article 70: A licensed pharmacist or specialist in the field should supervise in every laboratory of the factory, and every laboratory should have the equipment listed in the accompanying tables with this law and what is added or removed by the Minister.

Article 71: (a) A general technical director for the factory must be appointed who will supervise all the sections of the factory, and he must be an available, licensed pharmacist, and during his absence another pharmacist must take his place and both Syndicate and Minister should know about it.

(b) Factory management should tell the name of the technical director to the Minister, and if the technical director quits the job another one should be appointed by the management in 15 days.

(c) The technical director is responsible for controlling dangerous drugs, and he should keep records according to the laws and rules applying.

Article 72: The technical director is equally responsible with the pharmacist or the specialist in the laboratories, as mentioned in Article 64, paragraph 6.

Article 73: The factory management must inform the Minister about the names of all pharmacists who work in the factory and about any change when it occurs.

Article 74: The factory must meet the following requirements:

(a) To be completely equipped with tools, machines, instruments, and measuring apparatus necessary to produce the pharmaceutical dosage forms that are allowed to be produced in the factory, and the quality of this equipment should not be below the descriptions that are listed in the accompanying table, or that have been added or removed by the Minister.

(b) To meet the terms of public health that are described in the labor law, in addition to any term or terms that the Minister deems important to protect the workers and their health.

(c) Water must be pure, free of particulates and chemicals.

(d) The sewage system in the factory must be connected to the main sewage system if found in that municipal area.

(e) The factory should be surrounded by emergency exits and a road allowing easy movement.

Article 75: The registers kept in the factories must carry the seal of the Ministry, pages must be numbered, and the register should be kept by the technical director to be used by the inspectors.

- Article 76: Records of the following must be kept in the factory: raw materials records, lot records, manufactured goods in the store, records in the main factory and the branch and records of toxic and dangerous agents.
- Article 77: The raw materials records should include the quantity of raw materials in the factory storage, their origin, the container's capacity, the drugs' constitution used to prepare them, quantity used, the number of receipts for use, and the number of lot or experiment for which they were used.
- Article 78: The lot records include the name of the product and number of registration in the department if required, or its name, the pharmacopoeia used to produce it, the lot number starting date, number of units prepared, packs, concentration, potency and the date that it was sent to storage.
- Article 79: The records for manufactured products include the quantity sent to main storage from the different production lines and the quantity distributed to other storage areas (if any), under the condition that the lot numbers of the stored goods are included to track the quantity of every lot stored in the district.
- Article 80: The records of manufactured goods for every branch storage, the quantity received in that store from the main storage, other quantities from that branch, names of agents, number of receipts and the receipts for toxic and dangerous materials signed by the agents in case the goods sold contained them.
- Article 81: The toxic material records include all toxic material that laws and rules require recording and should also include quantity of each material received at the factory, number of receipt, signature of the person responsible for each delivery, number distributed, and the lot number of the material used to produce it.
- Article 82: The records of dangerous materials are kept by the technical director personally. Those records include quantity of each material received by the factory, the quantity dispensed, number of the receipt, signature of the responsible pharmacist who received the material, lot number for which the material was used, and the quantity should be in numbers and in writing.
- Article 83: The technical director, the responsible analyst and the director of laboratories should all sign in the lot register for every lot and for every lot delivery, which will confirm the responsibility of each of them in his field that the lot is satisfactory and the description of the produced material.
- Article 84: The factory should have the following storage places:
- (a) Storage for raw material: including places or an area for materials that get spoiled by heat, humidity and the external environment.

(b) Storage for hazardous materials: including inflammable materials or those that result in injuries or damage, and these should be kept in an area isolated from the main building of the factory.

(c) Storage for manufactured and already prepared goods: This is divided into two sections, the first is to receive goods from production, and the second is branches for delivery and selling and taking in consideration (a) and (b).

Article 35: The buildings of the factory must be built away from each other so that the vehicles of the fire department are able to move between, and there should be emergency exits in all sections.

Article 36: The waste products of the factory are to be discarded properly in healthy and good technique, and the factory must be equipped with a proper sewage system which must be covered.

Article 37: All conditions that ensure the safety of the workers must be taken into consideration.

Article 38: The Ministry charges a fee of 50 JD upon licensing any factory.

Article 39: The following information should be recorded on the inner and outer card for every medicine:

(a) Name of product.

(b) The registration number of the department and the constitution that was used to prepare the drug (if found).

(c) The active ingredients and their quantity.

(d) The directions for use of the drug and all warnings.

(e) The lot number.

(f) Expiration date if needed.

(g) Name of the producing factory and the name of the country.

Article 40: The drugstores that belong to the factory are under the terms mentioned in this law and an available licensed pharmacist will be responsible for each of them.

#### PHARMACY TECHNICIANS AND EXTERNS

Article 41: A Jordanian student enrolled in an accredited pharmacy college must spend the training hours assigned by the college in one of the Kingdom's pharmacies with acceptance of the Minister.

- Article 92: The responsible pharmacist with which the student is training must give the student a certificate mentioning the number of hours worked, the areas practiced, and send a copy to the Minister and to the Syndicate.
- Article 93: The pharmacist can employ a pharmacy technician to help him. The technician should keep his license in the place of work.
- Article 94: The pharmacy technician should obtain a license to practice from the Minister.
- Article 95: The pharmacy technician license is given after one passes the examination which is set by the Ministry and the Syndicate. The examination is offered annually. The date is announced a month before it is given.
- Article 96: Terms to license the pharmacy technician are as follows:
- (a) Must be a Jordanian citizen.
  - (b) Has the General Secondary Education certificate and is good in one foreign language.
  - (c) Practiced in a community pharmacy for a period of at least one year.
  - (d) Paid a fee of 1 JD to the Ministry.
  - (e) Submitted a recommendation letter written by the pharmacist with whom he practiced and a certificate that he has not been sentenced for a crime.
- Article 97: After passing the test the license will be given for a fee of 2 JD, and the applicant will be registered in the pharmacy technicians' register at the Ministry, and the Syndicate will be informed.
- Article 98: The pharmacy owner must register all his employees at the Ministry. He has to inform the Minister and the Syndicate if a pharmacy technician, employee or an extern quit working or transferred to work at another place.
- Article 99: In the absence of a pharmacist and if there is no pharmacy technician, the employee cannot dispense drugs.

#### THE RULES TO PRACTICE THE PROFESSION

- Article 100: (a) If the responsible pharmacist is sick or is absent for any reason, then he has to ask a pharmacist from the same city to sponsor his institution for a maximum period of one month with the permission of the Minister and the knowledge of the Syndicate.

- (b) If the pharmacist does not come back to work after the month and does not employ a licensed pharmacist, the Minister will order the pharmacy closed.
- (c) The pharmacist should inform the Minister about his intended absence after considering the terms of this article.

Article 101: (a) The name of the pharmaceutical institution should be written in Arabic and Latin alphabets in a sign where everybody can see.

- (b) A small sign should be hung in the pharmacy's door where the name of responsible pharmacist, working hours and phone and address of the responsible resident pharmacist are written.

Article 102: Every pharmaceutical institution should have a rubber stamp with the name and address of the institution listed. A copy of this stamp with the pharmacist's signature is to be sent to the Ministry to be kept in the files.

Article 103: The pharmacist is prohibited from dispensing or preparing a medical prescription unless it is inside the pharmacy. It is not allowed for him to prepare or imitate a brand prescription and sell it as if it was the brand.

Article 104: The pharmacist is prohibited from preparing or dispensing a medical prescription unless it was issued by a registered physician or if he was listed in the tables of the official newspaper.

Article 105: When a pharmacist prepares a medication ordered by a prescription he should use materials as in the pharmacopoeia unless otherwise stated in the prescription.

Article 106: The pharmacist is prohibited from changing any of the materials in the prescription whether it was the quantity or quality, without the written approval of the physician, and he is not allowed to change certain manufactured products to others without the approval of the physician.

Article 107: The dispensing of a medical prescription is prohibited unless the prescription is written clearly and contains the full name of the drug in a way that prevents any confusion or error in the drug's name or patient name, age and address.

Article 108: Every agreement between the pharmacist and the physician, or drugstore and physician, to use symbols or special terms is against this law.

Article 109: The pharmacist is prohibited from dispensing any prescription that does not include the name, address and signature of the physician who wrote it.

Article 110: It is prohibited to dispense or prepare any drug containing a toxic material unless it was done by the pharmacist or his licensed technician under his supervision.

- Article 111: It is prohibited to dispense or prepare any drug containing one or more substance from Table C (Dangerous Drugs) that accompanies this law unless it was done by the pharmacist himself.
- Article 112: The pharmacist is prohibited from refilling any prescription more than the number of times specified by the physician and cannot refill any prescription that contains a toxic or dangerous drug without a new prescription.
- Article 113: The pharmacist must sell the medical preparations in their original, sealed containers and put the prescription label over that unless the prescription calls for an amount less than that in the container. In that case, he can put the drug in a small sack after putting on the prescription label.
- Article 114: Every prescription must be registered in the prescription register immediately after dispensing it and must be stamped with the pharmacy stamp that shows the serial number of the prescription, the date and price.
- Article 115: (a) The prescription register should have numbered pages and carry the Ministry seal on each page.
- (b) Register recordings should include the names of the prescription items, doses, quantity, directions for use, the serial number, the name of the patient, his age, name of physician, date of dispensing and the price.
- Article 116: The rules mentioned in the dangerous drugs section are applied to prescriptions that contain one of the materials listed in Table C. In addition to recording it as stated in the previous articles, underline the name of the drug in red ink on the prescription and in the register.
- Article 117: (a) Every drug that is dispensed or prepared in the pharmacy should be placed in a suitable container and labelled as follows:
1. Name and address of the pharmacy.
  2. Number of the item in the register and its date.
  3. Direction for use.
- (b) The description and colors of the label are determined by the Minister.
- Article 118: (a) The prescription is to be returned to the patient if he asks for it and if it does not call for any dangerous drug.
- (b) If the prescription calls for a dangerous drug, the patient will receive an exact copy with the pharmacy seal, pharmacist's signature, prescription number, name of physician and price of drug (if the patient asks for it), and an N.B. must show that this is a copy of the original.

- Article 119: The pharmacist should keep the secrets of the profession and must not tell anybody about the prepared prescriptions unless it is for a physician or the inspector. The prescription will be returned to the patient or the person he assigns.
- Article 120: The pharmacist is prohibited from exceeding the fixed price or to withhold any drug in order to create shortage.
- Article 121: The pharmacist is prohibited from selling prescription drugs without prescription with the exception of first aid items and drugs that the Minister issues a decision to exempt from prescriptive restrictions, after the approval of the Syndicate Council.
- Article 122: The pharmacy cannot be used as a clinic, and giving of injections is not allowed by the pharmacist or any other individual.
- Article 123: The owner of the pharmacy or the legal pharmacist must facilitate the job of the inspector.
- Article 124: The pharmacist is considered responsible for the professional work done by the pharmacy technicians and his employees. The pharmacist must live in the city in which the institution is located, except in special areas that are indicated by the Minister after consulting the Syndicate.
- Article 125: The owner of the community pharmacy who wishes to close on a specific day each week must receive permission from the health director, with the exception of the only pharmacy in a town.
- Article 126: The health director will ask one or more pharmacy in each city to open a night shift until a certain time decided by the director. These pharmacies should be able to answer the telephone calls of physicians and patients for the balance of the night.
- Article 127: The health director, after the legal pharmacists agree, will set a schedule of night shifts for every pharmacy in each city and will inform the Ministry and the Syndicate before the beginning of every month. The Ministry will announce the schedule on a daily basis.
- Article 128: The pharmacist must charge the fixed price for drugs and not raise prices.
- Article 129: The pharmacist is not allowed to advertise for customers, either directly or through an intermediate.
- Article 130: It is not allowed to advertise to increase the sale of any drug, pharmaceutical preparation, substance described to have medical use by children, powdered milk or food in any way whether by radio, TV, movie theater or distribution of bulletins, or in any other way, to the public unless permitted by the Minister.
- Article 131: (a) The pharmacist cannot practice pharmacy and other professions such as medicine, dentistry, veterinary medicine, even if he is qualified to do so.

- (b) The legal pharmacist is not allowed to practice other jobs unless permitted by the Minister.
  - (c) The pharmacist cannot be responsible for more than one pharmacy.
- Article 132: (a) No one other than owners of pharmaceutical institutions can trade with drugs and pharmaceutical preparations of any kind.
- (b) No one but drugstore owners can import drugs, pharmaceutical preparations or any medical substance.
- Article 133: (a) It is not allowed under penalty of this law to sell or trade the drug samples, by the drugstore owner, the pharmacist, physician or any other individual.
- (b) The pharmacy must not process any sample. Any found will be confiscated.
  - (c) It is not allowed to store samples except in drugstores.
- Article 134: The owners of drugstores or factories or the responsible pharmacists to sell any drug or pharmaceutical preparations to the public.
- Article 135: Customs officials are not allowed to pass any shipment of drugs imported or exported when no license to import or export drugs is given unless permitted by the Minister or the person in charge.
- Article 136: The Minister has the right to issue decisions that he sees are needed to organize the preparation of drugs and substances that have relation to human treatment or are used to prevent epidemics.
- Article 137: Drugs that are received by charity organizations should be stamped with the name of that organization.

#### THE TECHNICAL COMMITTEE FOR DRUG CONTROL

- Article 138: (a) The Ministry will form a committee called the Technical Committee for Drug Control. The Committee's purpose is to license the drugs, the pharmaceutical preparations, and children's food that are in the Kingdom or going to be imported or manufactured.
- (b) The Committee will submit its recommendations to the Minister to specify the price of each drug or children's food.
- Article 139: The Minister can, for technical reasons, reconsider the drug manufacturers that are represented in the Kingdom or stop the importation and cross their products from the Ministry register with a justified decision.

Article 140: (a) The Committee consists of:

The Deputy	President
The Director	Vice President
The head of pharmacy dept.	Member
The chief of physicians	Member
The chief of pharmacists	Member
A pharmacist and a drugstore owner (appointed by the Syndicate Council)	Two Members
Physician and pharmacist (appointed by the Minister)	Two Members

(b) The period for the appointed members is two years from the date of appointment.

(c) Meetings of the Committee will be considered legal in the presence of a majority of the members. Decisions are taken by voting (majority), and the president's vote is used to break a tie.

Article 141: The Committee will meet at least once every two months. Its president shall call for the meeting whenever needed.

Article 142: (a) The Minister, with the recommendation of the Committee, may prohibit the importation of any drug with justified reason.

(b) The Minister may reconsider the recommendations of the Committee for prices of drugs whenever needed.

Article 143: The trading of drugs, pharmaceutical preparations and infant's food imported or manufactured locally is prohibited until they are registered in the Ministry, and any quantity which is imported before registration will be confiscated.

Article 144: Application to register new drugs from the responsible pharmacist in the drugstore or the director of the local factory must be accompanied by:

(a) Ten original samples of drugs which meet the requirement of this law.

(b) Certificate from a government analytical laboratory from the country of origin or recognized laboratory process that the results of analysis are as indicated.

(c) The drug is currently used in the country of origin.

(d) Three copies of the drugs bulletin written in one or more languages (Arabic, English or French) and which will be distributed with the preparation, in addition to a document from the factory indicating the date the drug was first used and the statistics obtained after it was used, as well as the results.

(e) A certificate from the specialized authority in the country of origin, verified, indicating the price for the public in that country.

(f) An original bill from the producing factory, verified by the Chamber of Commerce, showing the price to the importer.

Article 145: The Committee can order any quantity of drugs for trial in the Kingdom before registration.

Article 146: The application to register infant food should meet Article 144 above.

Article 147: The application and accompanying material will be submitted to the Committee, which will, after study, accept or refuse it and submit its price recommendation to the Minister.

Article 148: The basis used to price, accept or refuse registration, and registration fees are found in a regulation made for the purpose.

Article 149: The Committee must justify the reasons for denying application for registration of a drug. The applicant can object within two months from the date of Committee acknowledgment of refusal, or the Committee's decision will be final.

Article 150: Drugs that the Committee recommends for registration are registered in the Ministry register under a serial number. The applicant will receive a photocopy of the register or a notice of acceptance.

Article 151: Change, alteration or addition to contents, package insert, pack, cover or container are prohibited unless agreed to by the Committee.

Article 152: If the importer raises the price of a drug or infant's food, or if he imported unallowed packages without prior consent of the Committee, the Minister may confiscate the drug or food wherever found, plus the legal follow-up.

Article 153: The Ministry will inform the Syndicate about every drug or food registered by the Committee and about the producing factory and name and address of the importer agent.

## TOXINS

Article 154: Toxins are three types:

- (a) Toxics (Schedule A)
- (b) Senarande (Schedule B)
- (c) Agricultural toxins.

Article 155: The pharmacist is prohibited from giving, dispensing or selling toxins in amounts larger than the doses found in the pharmacopoeia.

- Article 156: The pharmacist may dispense toxins in the therapeutic doses found in the pharmacopoeia.
- Article 157: Owners of drugstores may sell toxins in amounts exceeding the therapeutic dose to:
- (a) Licensed pharmacists responsible for a pharmacy.
  - (b) Licensed physicians.
  - (c) Those who work in a profession that requires use of the toxin.
- Article 158: Written endorsement to buy toxins must kept for at least three years.
- Article 159: Toxins must be kept in pharmacies and drugstores according to the regulations under this law.
- Article 160: (a) Toxins are listed in Schedule A annexed to this law and any addition or elimination must be made by the Minister.
- (b) Separanda are listed in Table B annexed to this law and adjustment must made by the Minister.
- Article 161: Agricultural toxins are the substances used as insecticides and have toxic effects. Their uses are ruled by the use of chemical toxins used in industry.

ARTICLES 162 TO 168  
DANGEROUS DRUGS AND IMPORTATION  
OF DANGEROUS DRUGS

DISPENSING OF PRESCRIPTIONS CALLING FOR DANGEROUS DRUGS

- Article 169: (a) It is prohibited to dispense any prescription calling for dangerous drugs unless it is written on a special form and signed by a physician.
- (b) The physician is allowed to prescribe some of the dangerous drugs which are included in pharmaceutical compounds on an ordinary prescription. These compounds are specified by a decision from the Minister (it should be published in the official newspaper), and it should be publicized to physicians and pharmacies.
- Article 170: Prescriptions for dangerous drugs must be written with a resistant substance that cannot be erased or changed. The prescription must show the physician's name and address, the quantity of the drug (in numbers and letters), method for using the drug, patient's name and address and the date.

Article 171: The responsible pharmacist must not dispense prescriptions calling for dangerous drugs unless:

- (a) It is numbered and stamped by the Ministry's stamp.
- (b) He is sure of the physician's signature.
- (c) The prescription is not written for more than two days.
- (d) The dosage does not exceed that written in the drug's law. The treatment must not cover more than three days.
- (e) He is sure that the prescribed dangerous drug will be used only for treatment.

Article 172: If the prescription does not include all the requirements, the pharmacist must not dispense it, and he should notify the Ministry of any violations.

Article 173: The Minister must publicize to all pharmacies an order that prohibits the dispensation of dangerous drugs prescribed by any physician if he was provided with facts that he had misused the dispensation of the prescription, whether he was using it himself or passing it to any other person who used it for purposes other than treatment.

#### THE REGISTERS OF DANGEROUS DRUGS IN PHARMACIES AND DRUGSTORES

Article 174: (a) Every pharmacist responsible for a drugstore must have a special register whose pages are numbered and stamped by the Ministry's stamp as in Form D attached with this law.

- (b) At the right of the page, the purchased quantities must be registered (name of drug, name of exporter or seller, date of arrival and number and date of sending). On the opposite page the quantities sold must be registered in full detail (name of drug, address of purchaser, number of purchase order, number of receipt and its date).

Article 175: Every responsible pharmacist must have a register in which he must record the purchase of dangerous drugs. It must hold the name of "Register of the Purchase of Dangerous Drugs."

Article 176: If any pharmacist wishes to buy a material from Table C, which is attached with this law, he must register in the purchasing book the name of this material and its quantity, its pharmaceutical form and the name of the drugstore that sells it. He must have the signature of the responsible pharmacist of the drugstore in the space provided for his signature to indicate that he got the material in his drugstore and also to indicate his ability to sell it. The final approval should be taken from the department. The pharmacist must keep this book for

five years starting with the date of the last purchase order written in it.

Article 177: Every pharmacy owner must keep a register of dangerous drugs, as in Form E, which is attached to this law. The right page must show the quantities purchased from the drugstores, the date of each purchase, and the monthly account. The left page must include the total monthly quantities that were dispensed according to dangerous drugs prescriptions.

Article 178: Every responsible pharmacist must keep dangerous drugs prescriptions, receipts, and any other related documents if the drugs were not completely dispensed. The documents related to the sold quantities of drugs must be kept at least five years.

Article 179: At the end of every month, the pharmacist must do the inventory and compare the actual dangerous drugs present with the balance shown in his records. If any difference is shown, he must inform the Ministry or the health manager immediately, who will inform the Ministry to take the necessary procedures.

Article 180: (a) Registration in the dangerous drugs register must be written with a resistant ink that cannot be erased. No cancellation or crossout or change must be done.

(b) If correction is necessary, it must be done with red ink, and it should be signed after entering the date.

APPENDIX II-9

LAW OF PRACTICING THE PROFESSION OF  
PHARMACY IN JORDAN:  
RESPONSIBILITIES OF THE PHARMACY DEPARTMENT

DEPARTMENT OF PHARMACY AND DRUG CONTROL\*  
MINISTRY OF HEALTH

A. Drug Registration Section and its responsibilities:

The responsibilities of this section are:

1. Prepare the studies and agenda for the technical committee for the control of drugs after taking the following steps:
  - Receiving and checking applications of drug registration to make sure that it meets the same specifications, and that it is complete and to check the attached documents and finally signing the application to show that it is complete.
  - Receiving drug samples which is given with the application of registration. These samples must be kept.
  - Filling the study forms that are specially made for drug registration. These forms must be filled with information which should be taken out of the application of registration and the attached documents.
  - The study of documents and scientific information which are given with the application of registration and preparing a resume of it.
  - Sending scientific information to specialized physicians for studying and to give their point of view if that is necessary.
  - Preparing the agenda of the technical committee and sending it to members before the session.
  - Writing down all the decisions and actions which are taken by the committee.
2. The follow up of the implementation of decisions and actions taken by the committee and the following steps are required:
  - Printing of forms of the acceptance or refusal of drug registration.
  - To inform the specialized authorities of these decisions.

---

\*Unofficial translation prepared for this study.

- The receiving of objections that are given against these decisions and to list these decisions in the committee's agenda to reconsider it.
3. To gather and classify information about toxic effects and drugs interactions and these steps should be followed for achieving the above:
- The study of bulletins and periodic issues which are sent from organizations and international and world institutions, e.g., World Health Organization; Food and Drug Administration; The British Society for Drug Safety; and many others.
  - The study of some of the scientific medical magazines and other books or references.
  - Some of the decisions must be set before the technical committee for taking the appropriate decision to prohibit the use of some drugs or modify the drug insert.
  - To send bulletins and periodic issues to physicians and pharmacists to notify them of certain side effects or drugs interactions.
  - To prepare a form which includes information about the serious side effects of certain drugs, and then to send this form to physicians for their observations.
  - To receive the forms sent by physicians and include and classify these in the specialized drug files.
4. The control of the prices of drugs:
- To make sure that drugs in the bill are registered.
  - To check drug bills and to find out the price to the public in Jordan according to the export price in the country which produced this drug.
  - To reduce the drug's price according to the factors mentioned and make the appropriate decisions.
5. To classify drugs and treatment directory to achieve this; the following steps should be taken:
- To type a special card for every treatment which includes the main information about the treatment.
  - To classify drugs according to the treatment effects.
  - To make drug index in a special leaflet once every year.
  - To type and prepare a directory of the drugs available in the Jordan market.

B. Pharmacy Section and its responsibilities:

1. To make pharmaceutical inspections; this requires the following:
  - To inspect every pharmaceutical institution periodically to make sure of proper professional practice, and to make sure of cleanliness and discipline, and proper storing of drugs, and the presence of the responsible pharmacist and adherence to the shift rules.
  - To present the necessary reports of the inspection rounds and taking the necessary procedures.
  - To inspect newly licensed pharmaceutical institutions to make sure that they have the required specifications that are mentioned in the (rule) list.
  - To collect drug samples to analyze in the analysis drug lab and to organize this with workers in the lab.
  - To review claims from or about pharmacists.
2. To specify certain bond for drugs and pharmaceuticals and chemicals and to list equipment and machines and medical equipment; this requires the following:
  - To study the bill which includes the imported materials and to specify the nature of each material and to put the proper tariff for it.
  - The tariff must be put down and the bill should be stamped and signed.
  - To keep a copy of each drug bill in the company's file.
3. To collect pharmaceutical information and statistics and to classify and organize these; then these should be analyzed and studied for future policy of pharmacy. This requires the following:
  - To find out the value of imported drugs from different countries and transfer this value to IDs.
  - To find out the value of imports for each drug group.
  - To find out the annual consumption value for the government sector.
  - To find out the general annual consumption value.
  - To find out the average consumption of drugs per person to compare this with countries all over the world.

- To make tables or graphs for the different statistical information, e.g., number of licensed pharmacists who work in the government sector and who work abroad, and the number of the pharmaceutical institutions and the other schools.
- To issue the annual report about the activities at the Department. This includes the tables and graphs mentioned and suggestions for mobilization or progress in the future.

C. Controlled Agents Section and its responsibilities:

1. The issuance of licensed and controlled agents.
2. To inspect (dangerous drugs) in stores, pharmacies, or hospitals and to make sure there is adherence to regulations.
3. To issue quarterly reports about imported drugs and which are required by the Dangerous Drugs World Bureau in Geneva.
4. Preparing annual report about (dangerous drugs) in Jordan and the illegal flow of these drugs and send these reports to World Bureau in Geneva.
5. To make tables for the annual report and find the approximate values of the Kingdom the next year so it will be accepted by the international committee.
  - To inspect newly licensed pharmaceutical institutions to make sure that they meet the required specifications that are mentioned in the (rule).
  - To collect drug samples to analyze in the drug lab and to organize this with workers in the lab.
  - To review claims from or about the pharmacists.
6. To give technical consultation for the dangerous drugs and the psychological methods for fighting narcotics, and to cooperate with the public security authorities in this field.

D. Scientific Research and Drug Control Section:

1. The responsibilities of this section are:
  - To analyze the drugs that are purchased for registration before presenting them to the technical committee, to control the drugs and give reports to the mentioned committee.
  - To analyze the domestic drugs from time to time, to make sure that the domestic industries adhere to the proper production of drugs.

- To analyze the imported drug by taking samples from pharmacies and drugstores to make sure that they are effective, and that they meet the international specifications.
- To give reports of the drug analysis and to take necessary procedures.

## 2. Scientific Research

This aims at:

- Making field studies about the stability of the drugs and the effect of climate; and study methods of assuring that these practices are followed in pharmacies and drugstores.

## E. The Information Section for toxic effects of drugs, insecticides, and chemical substances. The responsibilities and activities of this department are:

- To gather and classify information about drug intoxication and other chemical intoxication and the ideal methods of treatment. This must be done in a way that facilitates the intake of this information in a rapid way. This section is ready to give consultation to any physician or hospital. This section has a phone number that is known to all who are concerned. Also it issues periodicals and publications on toxic substances and their proper use and treatment in the related subject.

## REFERENCE DOCUMENTS

1. Country Development Strategy Statement, Annex Health Sector Strategy, FY84, January 1982.
2. Jordan MOH Laboratory Study, by W. D. Adams and J. M. Miller, CDC, June 1981.
3. List of Products, ARAP Pharmaceutical Manufacturing, Co. Ltd, 1982.
4. Product Catalog, Jordanian Pharmaceutical Manufacturing Co., Ltd, 1981.
5. Product List, Dar Al Hickma, 1981.
6. Health Insurance in Jordan, by M. Longford, A. Mills, G. Walker, 1980.
7. Jordan Health Education Project Paper (273-0245), FY 1980.
8. Health Planning and Services Development Project Paper (273-0208), FY 1980.
9. Hashemite Kingdom of Jordan, Ministry of Health Yearbook, 1981.
10. Hashemite Kingdom of Jordan, Pharmacy Law.
11. Hashemite Kingdom of Jordan, Ministry of Health, Registered Drugs Index.

APPENDIX III-I  
RESEARCH METHODOLOGY

## RESEARCH METHODS

Data for this section was collected by two social scientists, a medical anthropologist and a pharmacist/analyst. Fieldwork included interviews with pharmacists; university, business and government officials; observations of pharmacists and their clients; and questionnaires. The following summarizes the research methods utilized in this study.

### I. MEDICAL ANTHROPOLOGIST

#### A. Interviews with Health Officials, Pharmacists, and Clients

Numerous health officials were interviewed by the anthropologist. Interviews with Mr. Khalil Katourah, Chief Pharmacist for the Jordanian Ministry of Health, provided valuable information and suggestions for this study. Ms. Nadia Saigh, Assistant to the Minister of Health for Foreign Relations, arranged visits to rural pharmacies.

Dr. Sami Khouri, Dean of the School of Community Medicine, was kind enough to meet with the anthropologist and discuss his views on the ideal versus the actual role of pharmacists in Jordan. Dr. Shamy and Dr. Kradishy participated in the discussion and shed light on the various definitions of primary health care systems.

An interview with Ms. Salwa Masri was especially useful in providing data on family planning programs in Jordan and elaborated on the educational component of family planning programs in Jordan.

Thirty-three pharmacists were interviewed in Amman, Irbid, Aquaba, Swieiah, Salt, Maxaim, Baq'a, Al Windat, Kafur Abeel, and Al-Ashraffiad. Figure III-A-1 indicates the locations of these pharmacies. The sample included 17 male and 16 female pharmacists. Ten university students, working toward completing their 1,440 hours of practical training, were interviewed and 11 assistant pharmacists

were asked about their role in pharmacies. Interviews were also held with druggists, medical representatives and nurse assistants.

A special interview was conducted with one of the first female pharmacists in Jordan (see Section III-E-3). Two doctors were interviewed to obtain their views on the topic of the relationship between pharmacists and doctors.

Fifteen mothers were questioned about lactation, diseases and local perceptions of their causes, weaning foods, relationship with local pharmacists, and general hygiene questions. Various socioeconomic groups were represented in the sample. The following table lists the number of professionals interviewed for this study:

Table A-III-1  
PROFESSIONAL CATEGORIES INCLUDED IN SAMPLE

Professional Categories	Number
1. Pharmacists	35
2. Doctors	2
3. Social Worker	1
4. Pharmacy Supervisor	1
5. Assistant Pharmacists	11
Registered Asst. Pharmacists	5
Nonregistered Asst. Pharmacists	6
6. Medical Representatives	2
7. Drugstore Owner	1
8. Assistant Nurses	4
9. Clients	15
10. University Students	10
Total	80

Thirty pharmacies were visited, a figure which represents 10 percent of all pharmacies in Jordan. Thus, while the sample is not necessarily random, the



fact that such a large number were contacted renders the finding of particular importance.

#### B. Observation Method

Seventy-five hours of observations were spent in pharmacies all over Jordan. These long hours provided further insights into the nature of the pharmacist/client relation. It is important to verify the information given by pharmacists especially on volume of sales and income data. In Jordan, as in many other Arab countries, quantitative data is not readily available and sometimes is withheld for fear of taxation, evil eye, jinx, etc.

On two occasions, the researcher spent six hours of continuous observation at an urban pharmacy. The pharmacy opened at 3:00 a.m. and closed at 3:00 p.m., with two hours' afternoon rest. This extended observation technique was useful in providing data on the following topics:

- Sex, age, class of clients
- daily routine of a pharmacist
- pharmacist/client interactions
- types of services offered
- role of assistant pharmacists, helpers
- types of drugs sold versus types of cosmetics
- most common diseases in the summer season
- credit practices and bargaining practices
- filling prescriptions, refills, self-prescribed medicine, and pharmacist-recommended medicine
- record-keeping practices, ordering, and interactions with drugstore (wholesale) agents.

#### C. Questionnaire Method

Eleven women were asked by a research assistant to provide information on breastfeeding, weaning, family planning, folk medicine, pharmacy utilization practices, etc. (see Figure III-A-2 for questionnaire form).

## II. PHARMACIST/ANALYST

A total of 18 practice sites were visited by the team's pharmacist expert. This included 9 community pharmacies, 5 government facilities and 3 private manufacturing companies and the School of Pharmacy. Interviews were conducted with: 19 pharmacists, 4 drugstore owners (3 of whom were pharmacists), 3 students, 2 manufacturer representatives, 5 pharmacy assistants and 2 assistant nurses. In addition, 2 physician trainers in the Westinghouse planning and training project, the chief officer at the Jordan Vaccine Institute and AID Washington and field staff were interviewed. Table A-III-2 lists type of practice site visited by type of person interviewed.

Table A-III-2

TYPE OF PRACTICE SITES VISITED  
BY TYPE OF PERSONS INTERVIEWED

Type of Practice Interviewed	Persons (Number)
<u>A. Community Pharmacy</u>	
1. Neighborhood Central Amman	Pharmacists (2) Drugstore Owner (1) Student (1)
2. Neighborhood/Central	Pharmacists (2)
3. Neighborhood	Pharmacist (1) Manufacturer's Representative (1)
4. Neighborhood	Pharmacist (1) Student (2)
5. Central Downtown	Pharmacist (1)
6. Neighborhood	Pharmacist (1) Medical Representative (1)
7. Neighborhood/Central	Pharmacist (1)
8. Neighborhood/Refugee Camp	Pharmacy Assistant (1)
9. Neighborhood/Central	Pharmacist (1)
<u>B. Government Facility</u>	
1. Health Center (large)	Pharmacist (1) Pharmacy Assistant (2)
2. Health Clinic (large)	Pharmacy Assistant (1)
3. Health Clinic (small)	Assistant Nurse (1)
4. Health Center (large)	Pharmacy Assistant (1)
5. Ministry of Health	Pharmacist (3)
<u>C. Manufacturers</u>	
1. Private/Public Firm*	Pharmacist (1) Drugstore Owner (1)
2. Private Firm**	Pharmacist (1) Drugstore (N/A)
3. Private Firm**	Pharmacist (1) Drugstore (N/A)
<u>D. School of Pharmacy</u> <u>University of Jordan</u>	
	Pharmacist (1)

\*Conducted plant tours and interviews.

\*\*Conducted only interviews on site.



APPENDIX III-2  
STATEMENT OF WORK

HEALTH SECTOR ASSESSMENT - THE PHARMACIST ROLE  
AND THE PHARMACY DISTRIBUTION SYSTEM IN THE  
PROVISION OF HEALTH CARE SERVICES

STATEMENT OF WORK

Task 1

Phase One: Review of documentary sources

Review written documents (books, articles, reports, annual reports, theses, etc.) related to role of pharmacies, pharmacists, and other commercial drug sources. The report should include the following topics:

1. The marketing and distribution of drugs
2. Nature and cost of pharmacy products and services
3. Recruitment, training, licensing, supervision, and associations of pharmacists
4. Pharmacies and pharmacists as deliverers of health care

The report should give a comprehensive overview based on the available literature on Egypt and Jordan. The report should be supported by an annotated bibliography listing pertinent sources and should also include a review of available literature for Lebanon, Morocco, Oman, and Yemen.

Phase Two: Field assessment of pharmacies and other commercial drug outlets: Egypt and Jordan

For the national level, describe and assess:

- A. The organization and structure of the sector
  1. Types, numbers, and distribution of outlets (rural, town, urban)
  2. Applicable laws, charters, policies, and regulations
  3. Associations and groups

B. Pharmacists and drug providers

1. Training
2. Licensing and supervision

C. Nature and cost of services provided (including pricing policies and mark-ups, etc.)

This national assessment will be based upon interviews with government officials, officials of pharmaceutical companies and associations, pharmacy schools, detail persons, and other informed observers as well as documentary material.

Task II

Outlet Study

A. Collect descriptive material on the following:

1. Characteristics of establishments: location; town population, approximate size; hours; use of displays or advertising; presence of water, electricity, telephone.
2. Ownership and operation: number and type of staff; levels of training, residence; origin; religion, type of ownership, management, capital investment, overhead, size of stock, credit, financial management.
3. Products and services: estimate size and range of stock; availability of oral rehydration salts and contraceptives; medical services; referrals; advice, temperature control, practices relating to shelf life.
4. Logistics: record keeping, ordering and resupply, time requirements, temperature control in transit.
5. Client/pharmacist interactions: number of clients; client characteristics (sex, socioeconomic level, etc.); terms of address used; types of verbal interaction: advice, directions, referrals, instructions, etc.; credit availability (terms); status in community.

- B. Based on the results of Phases I & II, prepare two written reports (one for Egypt and one for Jordan) with action recommendations for utilizing pharmacists and the pharmacy distributor system for specific AID-supported health care projects.

It should be noted that the questions which were used in interviewing pharmacists were taken directly from the scope of work.