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**AN OVERVIEW OF PHARMACIES, PHARMACISTS AND THE PHARMACEUTICAL
DISTRIBUTION SYSTEM IN EGYPT**

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Prepared for:

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Submitted by:

**Héñry E. Cole
Robert H. Smith
Sohair Sukkary**

**The Futures Group
1029 Vermont Avenue, N.W.
Washington, D.C. 20005
(202) 347-8165**

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A. BACKGROUND AND PURPOSE

The actual role of pharmacists and pharmaceutical distribution in the health delivery system in Egypt has received little attention in the professional literature. Those few studies which have been done have focused on the pharmacists' role as a provider of family planning information and contraceptive products, rather than on the broader role of active participant in the delivery of primary health care. Yet all indications are that the pharmacist is often the first and major contact point with the modern health care sector for a large portion of the Egyptian population.

The purpose of this project was to: (1) document the actual role of commercial drug suppliers, pharmacies and pharmacists; (2) determine bottlenecks or constraints in pharmaceutical distribution at both the macro and micro levels; and (3) make recommendations on how to more effectively utilize this distribution system in the delivery of primary health care services and products.

B. METHODOLOGY

This study was conducted in two phases. Phase One involved interviews by The Futures Group senior staff with representatives of the Egyptian Government involved in the regulation of pharmacy practices and pharmaceutical distribution; representatives of pharmacy schools; representatives of pharmaceutical importers, manufacturers, and distributors, and the administration of a structured questionnaire to pharmacists attending a conference in Alexandria. Phase Two involved 10 days of in-depth observations and discussions with pharmacists and clients in both urban and rural settings, and was conducted by a medical anthropologist who is a consultant to The Futures Group.

C. SUMMARY AND RECOMMENDATIONS

INTRODUCTION

The primary objective of the Egyptian Government's regulation of the pharmaceutical industry is to provide medically important and widely used drugs at prices which make them available to the large majority of citizenry. This objective has been clearly met by the current set of regulations and practices. However, in meeting this objective the government has constructed a set of disincentives for the broader role that the pharmaceutical distribution system could play in meeting the primary health care needs of the Egyptian population.

This summary is divided into three sections: Section one summarizes the findings concerning the major impediments to expansion of the pharmaceutical distribution system; section two summarizes the role of the pharmacists as a provider of products and health care services; section three discusses the broad recommendations which resulted from this study.

1. THE PHARMACEUTICAL PRODUCTION AND DISTRIBUTION SYSTEM

a. Manufacturing

The pharmaceutical industry in Egypt has developed primarily as a public sector industry and is currently valued at about 330 million Egyptian pounds annually. There is only one purely private sector manufacturer; this one firm is juxtaposed to 11 public sector companies which import materials or finished products, produce intermediate chemicals for drug manufacture, package pharmaceutical products and/or locally manufacture pharmaceuticals. The government also participates with three foreign firms in joint venture arrangements. Although over 80 percent of drugs consumed in Egypt are produced locally, there are a large number of private drug importers. On balance the government's strategy for mixed public/private sector production has provided a large manufacturing and importation capacity in the country, although its capital stock is becoming antiquated and will require major new investments in the near term.

b. Distribution

The public sector distribution company, Egyptian Company for Trade and Distribution of Pharmaceuticals (EGYDRUG) is the primary distributor of pharmaceutical products in Egypt. This one company currently distributes over one-half of all drugs produced by local companies, imported as finished products or produced by the one private sector firm. In addition, all pharmaceutical

companies, regardless of ownership, maintain their own distribution capability, with varying degrees of product and geographic coverage. However, since EGYDRUG dominates both product and geographic distribution, and in some cases may be the only distributor in rural areas of Egypt, the distribution practices of this one company are critical in making drug products available. Unfortunately, the distribution system of EGYDRUG does not always work efficiently and in some cases is a prime contributor to product shortages.

In particular, product shortages of "popular" low priced drugs are a problem at both the individual pharmacy and potentially in government health clinics. Pharmacists are often put in the position of having to order and stock "winter drugs" during the summer and "summer drugs" during the winter. This practice places a significant burden on the already strained cash flow of most pharmacies and results in the lack of availability of important drugs when they are needed. Additionally, many pharmacists must actually go to the distribution center to physically pick up products since the distributor has little incentive to deliver ordered goods except to very large central urban pharmacies.

c. Pricing

The retail price for pharmaceutical products manufactured in Egypt is established by the Egyptian Government at the time the product is approved for sale. This fixed price is not changed over time, even though similar or generic equivalent drugs may be introduced at a later date and may be priced significantly higher. Additionally, since some drugs are priced according to "social need," many products are actually sold at below the current

manufacturing cost. The price of imported drugs is allowed to change over time, but there are delays associated with the approval process. The result of this pricing policy is as follows: (1) there is little incentive for manufacturers to produce low priced drugs even though they may be badly needed, (2) domestic manufacturers are at a competitive disadvantages in relation to importers, (3) shortages of low priced drugs occurs with some frequency, stimulating the entry of higher priced imported products, (4) lower priced drugs are "overconsumed" by the Egyptian public, and (5) there is an incentive for pharmacists to substitute higher priced drugs because the actual dollar amount earned is higher, although the percentage profit may be lower (e.g. the profit margin on publically produced drugs is 17 percent while it is only 8 percent on imported drugs).

d. Quality Control

While quality control during the actual production process was not determined during the course of this study, it is apparent that significant improvements are needed, particularly in the area of packaging. For example, it was determined that instructions for use of some products preprinted on the outside package do not agree with the instructional leaflet contained inside the package. A corollary to this problem is that pharmacists often are not clear in their instructions to their clients on the correct dosage or in some cases even the correct use of particular products. There is little evidence of the availability of instructional material for patients who cannot read.

2. THE PHARMACY AND THE PHARMACIST

a. The Pharmacy

There are approximately 5,400 private pharmacies operating in Egypt as of January 1982. As is the case in many developing countries, pharmacies are distributed disproportionally in the major two cities of Cairo and Alexandria. The rural distribution of pharmacies appears to be inadequate for complete health care coverage, but data are not sufficiently complete to state this with an absolute degree of certainty.

Generally speaking, Egyptian pharmacies, outside of those in central urban locations, look crowded, dusty, and have little waiting/sitting space. Most of them have similar drugs, and lack aesthetic appeal. Most pharmacies have substandard bathroom facilities and only very small refrigerators. Modern business amenities, such as simple calculators, are found infrequently.

b. Training of Pharmacists

There are over 16,000 pharmacists working in Egypt today, and indigenous pharmacy schools are now graduating over 1,300 pharmacists annually. Pharmacy students spend five years studying plants and their medicinal values, anatomy, pharmaceutical law, generic names of drugs, chemicals, pharmacology, etc. During their school years, primary emphasis is placed on drug preparations - a skill that is rarely used in the age of modern pharmaceutical products. Skills related to management, accounting and human relations, all of which are important to a successful pharmacy operation, are rarely given to pharmacy students. In addition, only recently have pharmacy schools started to include

training in family planning and teach some courses in clinical medicine - an area of critically needed information by most practicing pharmacists.

c. The Pharmacists Role

The general role of the pharmacist in Egypt necessitates an active participation in both the delivery of health care services and in the dissemination of health knowledge. The pharmacist acts as an interpreter to clients seeking information about their maladies and unable to read or understand a doctor's prescription. The pharmacist also comforts patients, offers medical advice, passes opinions on doctors' skills from looking at a prescription, and provides referral services to clients. Additionally, a pharmacist offers first-aid and injection services and counsels his clients.

The "neighborhood pharmacist" and the "rural pharmacist" form strong social bonds with their communities. They know their clients by name, their ailments and their drug needs. They participate in all community events, such as weddings, funerals, etc. People stop to chat, joke, share a problem with their preferred pharmacist. As a result, a strong patron-client relationship exists between pharmacists and their clients and clients become protective of their pharmacy. Because of the strength of the social relationship, the act of buying drugs from another pharmacy is often seen as a betrayal of friendship. A pharmacist's opinion is respected, and medical instructions are followed by the client.

As a result of this active role of the pharmacist as a friend, counselor and healer, the diagnosis and treatment of illnesses becomes an often provided and important service. As a result, further use of pharmacists as providers of primary health care is both feasible and practicable.

d. Information and Communications

Many pharmacists, and particularly rural pharmacists, feel cut off from sources of information about new drugs, their indications, contraindications, dosages and side effects. Part of the problem is the lack of adequate reference books on drug composition and symptoms, and also infrequent visits to pharmacies by pharmaceutical company representatives. The lack of professional journals, brochures, fliers, etc. specifically aimed at pharmacists and pharmacy practice adds to the isolation of all pharmacists, especially in rural areas.

e. Relations with Physicians

Generally speaking, the relationship between Egyptian doctors and pharmacists is a cool one. Doctors accuse pharmacists of diagnosing diseases and prescribing medicine without a license. Pharmacists insist that they offer this service to clients that would not go to see a doctor because they lack the money and/or distrust the medical system. Pharmacists accuse new doctors of being ignorant of drug preparations and of over prescribing antibiotics when they are not needed. However, in spite of the differences of opinion, networks of friendships do form and become the basis for pharmacist/doctor referrals.

3. RECOMMENDATIONS

The following recommendations are made in light of our conclusion that the pharmacist and the pharmaceutical distribution system in Egypt represents an "untapped" resource which could make a major contribution to the delivery of primary health care if properly channeled and reinforced.

a. Reinforce and Increase the Role of the Pharmacist in the Delivery of Primary Health Care

Many people in Egypt, and in particular those living in rural areas, see the pharmacist as an important person to consult about their health problems. Part of this attitude results from the pharmacist as both a professional member of the health community and also as a local resident concerned about the welfare of his/her friends and neighbors. Additionally, a pharmacist's advice is free while a physician's advice could be costly. A pharmacist is readily available to see a client while seeing a physician may require a long waiting time at the clinic.

Since the pharmacist is often the initial contact point for people who are sick or who need medical/health advice, it would appear desirable to work toward a policy which would support and reinforce the pharmacist's unique position.

While it would be desirable to actually "select" areas where the pharmacists would be encouraged to provide primary health care services (such as many of the childhood diseases), this study did not produce information necessary to determine priority areas of activity. Nevertheless, regardless of the health areas selected, it will still be important to develop a system which will better inform pharmacists and keep them up to date on areas of treatment and new drug information. Also, in equipping pharmacists for a more active role, it would be helpful to provide them with information which would lead to more efficient business practices and pharmacy operations.

b. Provide Incentives for New Pharmacists to Work in Rural Areas

As stated previously, this study did not produce findings to prove the hypothesis that there is a drug availability problem in rural areas. However,

given the significant cost of opening a pharmacy and the pharmacy/population ratios that are needed for a pharmacy to be successful, it appears likely that rural pharmacy coverage may be inadequate. Given the large numbers of pharmacists who are being graduated each year from Egyptian pharmacy schools, it is our contention that incentives, could be provided to interest these new young pharmacists in opening up a rural practice.

c. Provide Better Information to Pharmacists to Transmit Drug Information to Their Clients

During the course of this study it was observed that clients are not provided with adequate information on drug use regimen or in some cases even on the correct use of a product. This problem is further compounded when dealing with an illiterate population. Information needs to be developed which can accompany drugs which clearly show, in a culturally relevant manner, how a drug is to be used, how much of the drug is to be taken and at what times the drug is to be administered.

d. Improve the Distribution of Drugs to Pharmacies

This is clearly one of the more important needs of Egyptian pharmacists, yet it is one of the most complex areas in which to take corrective action. The distribution system responds to many forces, such as the pricing structure of different drugs, the physical delivery system used, credit policies and production schedules. Besides providing EGYDRUG with incentives to extend their distribution system into the rural pharmacy, we also feel that a simpler pricing structure would go a long way toward improving drug distribution and availability. Because of the desire of the Egyptian government to provide low cost drugs, it

might be possible to adopt a policy which allow prices to actually reflect current production costs and appropriate mark-ups, but also subsidizes socially priced products. Such a policy would provide incentives both to the distributor and to the pharmacists but would not place a financial burden on the ultimate consumer.

Increase the Availability of New Drugs by Shortening the Time Required for Registration

The registration time required to market a new drug in Egypt ranges from three to seven years. Thus, drug registration becomes an expensive problem for many importers and discourages new and potentially unique products from entering the market. On the other side of the coin, it would be desirable to work with the government on better labeling, drug packaging information and quality control procedures.

f. Determine the Competition/Complementarity among Pharmacists, Traditional Medical Practitioners and Physicians

Before major changes are made in the role of the pharmacist as a provider of primary health care, it will be important to determine among a broader based sample the degree to which our findings are representative of a broader cross section of pharmacists, their clients, physicians and traditional medical practitioners. In addition, as policy options are formulated it will be important to determine their acceptability to those groups which play a major role in the delivery of primary health care in Egypt.

g. Review Pharmacist Training Versus Pharmacist Practice to Make Positive Revisions in Each to Enhance Basic Health Care.

The curriculum for pharmacists' education is focused primarily toward chemistry and preparation of drugs, while pharmacist practice is dominated by packaged drugs. Further, given the close pharmacist/client relationship and the respect with which the pharmacist is held, the pharmacist's role contains inevitable diagnostic aspects of referral and recommendation, for which there is little training.

On one hand, pharmacist's formal training should be re-examined to better equip them for actual pharmacist activities and to better acquaint them with their limitations. On the other hand, strengths of existing training should receive careful consideration in planning to meet basic health needs - for example, there may be cases where the pharmacist's compounding of oral rehydration salts might relieve manufacture, packaging, and distribution constraints and provide stronger pharmacist incentives to deliver the product.

**II. MAJOR AGGREGATE FACTORS IN THE
PHARMACEUTICAL AND PHARMACY SECTOR AFFECTING DELIVERY
OF HEALTH CARE IN EGYPT**

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A. STRUCTURE OF THE PHARMACEUTICAL INDUSTRY

1. Industry Structure

The Egyptian government's policy since the nationalization period of the Nasser era has been to encourage the development of a self-sufficient pharmaceutical industry. Now over 80 percent of the drugs consumed in Egypt are either manufactured in the country from imported chemicals or packaged from imported bulk drugs. As a result, the pharmaceutical industry in Egypt has developed primarily as public sector companies. These include one importer of raw materials, one importer of finished products which also distributes locally produced pharmaceuticals to Egyptian pharmacies, one manufacturer of chemicals for use in the production of drugs, one packaging firm, and seven major public sector manufacturing companies. The government also participates in joint ventures with three foreign firms -- Pfizer, Swisspharma, and Hoechst. There is one private sector manufacturer, the American firm, Squibb, which is established as a wholly-owned subsidiary under the Egyptian investment statute, Public Law 43. Additionally, there are over 50 firms which import finished drugs and over 127 firms with registered scientific offices to market imports or manufacture drugs under license.

Table A lists both the private and public sector manufacturers, distributors and importers that operate in the pharmaceutical industry in Egypt. For the public sector companies, the table also indicates the major international firms through which the public sector companies manufacture pharmaceuticals under license. Table B lists the 127 firms which have registered medical representatives in Egypt. Appendix I provides a list of the addresses for the major producers, importers and distributors.

TABLE A

A. Local Pharmaceutical Manufacturing Companies

1. El Nile Pharmaceuticals and Chemical Industries Co.: the manufacturer (under license) of the products of: E. M. Merck (Br), Upjohn (USA), Wyeth (USA), Parke Davis (UK), Clin Comar (Sweden), Alcon, Biochemie (Australia), Baxter (USA), Evans, Delalande, Lepetit, Abbott (USA), Wyeth (USA), Clan Midy (Fr), Braun (W.Ger.), Richter (Italy).
2. Chemical Industries Development Co. (CID): the manufacturer (under license) of: Choay (France), Laroche Navarron (Fr), Aron (Fr), Archifar (Italy), Astra (Sweden), Rosa (France), Bellon (Fr), Vister, G. Schering (W. Ger.), Berna (Switzerland), Boehringer (W.Ger.), B.D.H. (G.B.), Bristol Myers (USA), Takeda (Japan).
3. Al Kahira Company for Pharmaceuticals and Chemicals Industries: the manufacturer of the products for: Searle (GB), Bootes (GB), Smith, Kline, & French (GB), I.C.J. (GB), Merk Sharpe & Dome (USA).
4. Memphis: the manufacturer of: Roussel (Fr), Fisson (Fr), A. Schering (USA), Aojm, Delalande.
5. Misir Pharmaceuticals Co.: the manufacturer for: Delft (Netherlands), Solco (Switzerland), Schering (WG), Lupini (Italy), Ling (Austria), Mucofarm (Netherlands).
6. Alexandria Company for Pharmaceutical and Chemical Industries: the manufacturer for: Specia (Fr), Bayer (WGer), Therablin (Fr), Medimpex (Hungary).
7. The Arab Company for Pharmaceutical and Chemical Industries (Arabia): the manufacturer for: Beaufour (France), Siegfried (Switzerland), Ling (Austria), Veramex (Fr), Rivizza (Italy), Knoll (WGer).

B. Joint Venture Companies for Manufacture of Pharmaceuticals

1. Swiss Pharma: Ciba-Geigy - Sandoz - Wander
Capital 47% Ciba - Geigy - Suirre
13% Wander & Sandoz - Suirre
40% Egypt
2. Pfizer Egypt:
50% Pfizer Company Egypt
50% Egypt
3. Hoechst:
60% Hoechst op Orient
40% Egypt

C. Private Drug Companies

Squibb

Appendix 1 provides a partial list of the location and telephone or telex contact for many of these firms.

D. Private Companies for Import and Distribution of Drugs (not manufacturers)

1. Chemipharm
2. Sofico Pharm
3. Egyptian Promoters Center
4. 4.M.
5. Middle East
6. Amoun
7. Matager El Nile
8. El Kamal
9. Sinoe
10. Alkan
11. International Trade Corporation Limited
12. Samy & Company for Export & Import
13. Family of the Future

E. Governmental company for Purchase and Distribution

The Egyptian Company for Trade and Distribution of Pharmaceuticals (EGY-DRUG)

1. Import: import the finished products
2. Distribution: Local and foreign drugs

F. Importer of Raw Materials for Pharmacies

Al Gomhouria Company for Trading Chemicals and Medical Appliances

TABLE B

Pharmaceutical Companies with Registered Scientific Offices in Egypt

(Medical Representatives)

Upjohn Intern, U.S.A.	Lijemph, Holland	Boots, England
Abbott Intern, U.S.A.	Biochemie, Austria	Boehringer
Asta, W.G.	W. Warner, England	Ing., W.G.
I.C.N., Switzerland	Dr. Thib, W.G.	Heechst, Orient
Sobio, France	Glaxo Group L.E., England	OHM, Switzerland
Arcana, Austria	Innothera, France	Dumex, Denmark
Riyopharm, Switzerland	Laroche Navaron, France	Wander, Switzerland
Cerm, France	Laterma, France	Wyeth Inten
Alcon, U.S.A.	Promedica, France	N., U.S.A.
E. Merck, W.G.	Roger Bellon, France	Welling Intern,
Organon, Holland	Rosa, France	W.G.
Stiefl, U.K.	Hepatrol, France	I.B.I., Italy
Aesculaap, Holland	Biotherax, France	Sinaring, Italy
Egic, France	Merz, France	Rowa - Wagner,
Fisons, England	Novo, Denmark	Scherer, W.G.
Arop, France	Beecham, England	Fisons, England
Delagrang, France	Park-Davis, U.S.A.	Larche-Navarone,
Berna, Switzerland	Bauer, W.G.	France
R. Merrell, ENgland	B.W., England	Ginseng, LEK
Ayerest, Canada	Bristol-Myers, Italy	Beecham
Eli-Lilly, U.S.A.	Nutricia Export, Holland	Medinova, Switzerland
Eaton, U.S.A.	Kabi, Sweden	Mycofarm Delft,
Allergan, U.S.A.	Krka, Yugoslavia	Holland
Servier, France	Carlo Erba, Italy	I.C.J., England
Boehringer Man., W.G.	Frmitalia, Italy	Lidano, Denmark
Memley & James, England	Clim-Mioly, France	Archifar, Italy
Silbe, England	Winthrop, U.S.A.	Astra, Sweden
Lepetit, Italy	Alpha, Italy	Riker, England
Richter, Italy	Schiaparalli, Italy	Lakeside, U.S.A.
Luitpold Werk, W.G.	Cusi, Spain	Giorgio, Italy
Linz, Austria	Janssen, Belgium	Raviza, Italy
Leo, Denmark	Simenz, W.G.	Atral, Portugal
Nordisk, Denmark	Schering Co., U.S.A.	S.K.F., England
May & Baker, England	Schering, W.G.	Pharmacia,
Eck Gulden, W.G.	Adrosanol, Switzerland	Aspro Nicholas,
Heinrich Mack, W.G.	Mucus, W.G.	Roussel, France
Medlizen, Establishment	Pfizer, Egypt	Delalande, France
Midy, Greece	Vister, Italy	Milupa, W.G.
Medexport, U.S.S.R.	Medhel Hellas, Greece	Sarep, France
Medimpex, Hungary	Braglia, Switzerland	Roche, Switzerland
M.S.D., U.S.A.	Squibb, U.S.A.	Specia, France
Nestle, Switzerland	Leerle, U.S.A.	Searle, England
Theraplix & Merieux, France	Davis & Geck (Sutures), U.S.A.	
Sandoz, Switzerland	Ciba-Geigy, Switzerland	

Table C lists the value of pharmaceutical production and importation by Egyptian public, joint venture, and private manufacturing companies and by importers. Three private companies, CID, Kahira and Misr each control over 10 percent of the market. The only private producer, Squibb, has approximately 2.1 percent of the market.

2. Regulatory Structure¹

The pharmaceutical industry in Egypt is regulated by the "Council for Pharmaceuticals, Chemicals, and Medical Equipment." This is comprised of officials from the Ministry of Health, the boards of the public sector pharmaceutical firms and representatives of the Egyptian medical schools. Major responsibilities for the regulatory administration lie with the Pharmacy Administration and with the Committees of the Technical Secretariat of the Drug Sector at the Ministry of Health. Together these regulate almost all aspects of the industry, including determination of which products will be produced or imported, their distribution and the appropriate prices. The goal is to "provide drugs to the public at the lowest feasible price and avoid wasting limited health care resources through duplication of medicines produced locally."

Three committees serve the Council to regulate various aspects of the industry: Committee for Importation of Finished Products, Committee for Registration, and Tariffication Committee. The Committee for Importation of Finished Products decides which foreign-produced drugs will be imported, their quantities, and the amount needed to supplement the drugs produced by Egyptian firms. Drugs for which there are adequate substitutes from local production are generally not permitted to be imported, although competition among importers where there is no local manufacturer is encouraged in order to keep the prices low.

TABLE C

Egyptian Pharmaceutical Market 1980/81 by Firm

Value by Public Price in Million LE

<u>Firm</u>	<u>Market Value*</u>	<u>Percent of Market</u>
Adco	18.6	5.4
Alex	17.8	5.2
CID	38.4	11.2
Nasr	12.9	3.8
Nile	32.3	9.4
Kahla	34.28	10.1
Memphis	21.97	6.4
Misr	34.12	10.0
Hoechst	19.34	5.7
Pfizer	12.19	3.6
Swisspharma	28.4	8.3
Squibb	7.37	2.1
Importation "Misria" (by Public Sector "EGYDRUG")	48.4	14.1
Importation "Private"	16.1	4.7
TOTAL*	342.8	

Source: Secretariat of the Planning Sector

*Includes baby milk

The Committee for Registration, through the Registration Department and the Technical Secretariat of the Drug Sector, determines the safety and the appropriateness for local consumption of all manufactured drugs. All local and imported pharmaceuticals, including free samples, must be tested by the Egyptian government's Central Laboratory and registered before their sale and distribution to the public. Registration is granted for 10 years. The registration and testing procedure, according to government representatives, takes from 6 to 12 months for locally manufactured drugs, but for some types of drugs the period may be much longer, with importers suggesting periods of up to five years. Appendix II provides the Ministry of Health's "Guidelines for Registration" and "Documents Required for Registration."

Overseas studies, documentation and regulation are accepted. However, additional analytical work and toxicology studies are often required. Full product documentation must be supplied, but this requirement is less stringent for products which do not contain new chemical entities or whose equivalents are already registered.

Approval of registration is based on the quality, safety and therapeutic value of the product, but also rests on the price/therapeutic comparisons with other similar products and the possibility of competition with local firms.

The Tariffication Committee determines the appropriate price for imported and locally produced drugs. Price control is imposed at registration, and the Pricing Committee of the Technical Secretariat sets the final retail price based on their evaluation of the "social" value of the drug. The price structure and tariff practices are discussed in a later section of this report.

The Ministry of Health's Pharmacy Administration and the Central Laboratory periodically analyze batch samples of products before distribution, as well as

inspect the manufacturing premises. An adaptation of the WHO "Good Manufacturing Practice" has been adopted for regular plant inspections by the Ministry of Health. The English translation of the "Requirements for Good Practices in the Manufacturing and Quality Control of Drugs in Egypt" is included as Appendix III, together with the "Sanitary and Technical Requirements in Pharmaceutical Manufacturing Premises."

The drug registration process requires the approval of package labeling and compulsory package leaflets which must contain full product information. Table D gives the labeling requirements. Drug promotion is permitted only via medical journals, mail and medical representatives. No public advertising is permitted except for non prescriptions products.

3. Production, Imports, and Exports of Pharmaceuticals in Egypt

Pharmaceutical products manufactured or packaged in Egypt account for approximately 82-86 percent of the drugs (in terms of value) consumed in the country. Of the over 5000 registered drugs there are approximately 3200 pharmaceutical products on the market, with approximately 2500 manufactured or packaged in Egypt and over 700 imported. Tables E through H indicate the scope of the Egyptian pharmaceutical supply from 1973 to 1980/81. The value of drugs produced in Egypt has increased over this period by approximately 15 to 20 percent per year, except for 1977, when there was an aberration due to changes in public law for imports and the dumping of large quantities of antibiotics on the market by foreign exporters.

TABLE D

Labeling and Packaging

Requirements of the Pharmacy Law of 1955.

Labels on containers and the outer wrapping must show the following:

1. Name of the product, its registration number, and the quantities and names of substances used
2. Name of the country of origin, name and address of the manufacturers, packager, etc.
3. Method of use, sample dose, and claimed medical effect
4. Quantity in the container
5. Storage life
6. Coloring, preservatives, etc.

TABLE E

Pharmaceutical Supply
by foreign and local drugs
(million LE at retail price)

Year	52/53	60/61	70/71	78*	79/80	80/81
Local drugs	0.5	4.3	44.5	124.1	188.7	267.8
Imported drugs	4.3	10.6	7.2	17.4	31.6	62.3
Total	4.8	14.9	51.7	141.5	220.3	330.1
Percentage of local drugs to the total	10%	28%	86.3%	87 %	85.7%	81.1%

Source for 52-71, 79-81 Technical Secretariat of the Drug Sector, Ministry of Health

* Source for 1978 "Study of Health Financing and Expenditures "Egypt" Publication No 1G, ARE Ministry of Health, Health Profile of Egypt, April 1980.

TABLE F

Egyptian Drug Production
Million LE in Producer Prices

Year	52/53	60/61	70/71	79/80	80/81
Public Sector Product by Millions	—	4.3	31.9	100.1	137.9
Private Sector Product	0.5	—	7	41.6	52
Total	0.5	4.3	38.9	141.7	189.9
Percentage of Private to the Total	100	0	21.9	29.4	27.3

Source: Unofficial statistics from the Technical Secretariat of the Drug Sector,
Ministry of Health.

TABLE G
 Output of Pharmaceutical Chemicals from 1974 through 1976
 (Quantity in Tons - Value in Thousands of Egyptian Pounds)

Article	1974		1975		1976	
	Quantity	Value	Quantity	Value	Quantity	Value
Sulfanilamide	9.6	35	14.3	58	11.9	53
Sulfaguanidine	47.9	185	33.5	156	105	607
Sulfadimidine	60.0	398	-	-	35	283
Tulbonamide	40.5	95	26.1	120	28	133
Aspirin	29.0	480	373.5	556	256	457
Salicelamide	19.0	77	38.4	108	52	179
Sodium Salicylate	19.0	29	15.1	34	6	13
Chloromphenicol	10.6	449	18.5	825	20	900
Chlorpalminiade	12.0	566	13.6	656	3	143
Penicillin procaen	25.3	853	21.8	737	29	177
Tetracycline hydrochloric	9.5	182	14.0	422	19	597
Others	-	1718	-	2391	-	3295
TOTAL	-	5067	-	5763	-	6609

Source: "Industrial Outlook Report: Pharmaceuticals - Egypt," U.S. Embassy Egypt April 1979, as drawn from Federation of Egyptian Industries.

TABLE H
 Egyptian Drug Production
 (By form of finished product)

Pharmaceutical Form	Unit	QUANTITY			
		1974	1975	1976	1977
Ampules	million units	139.5	187.6	206.5	185.8
Vials	million units	45.6	71.7	74.0	75.2
Tablets	million units	3,902.4	3,952.0	4,597.0	4,899.3
Syrups and solutions	million bottles	50.1	62.5	50.3	55.6
Powders and granules	million bottles	14.0	15.6	15.0	15.0
Ointments and pastes	million tubes	23.3	33.8	29.0	27.0
Suppositories	million units	17.9	19.5	31.0	29.6

Source: Industrial Outlook Report: Pharmaceuticals - Egypt, U.S. Embassy Egypt April 1979. Drawn from data from the Federation of Egyptian Industries.

In 1980/1981, the pharmaceutical industry in Egypt was valued at LE 330 million at retail prices. Approximately 18.9 percent of this was from imported drugs (Table E). This imported level has been rising in the last few years. Of the LE 268 million manufactured or packaged locally, slightly more than 70 percent was produced by the public sector manufacturers (Table F). Although the registration is somewhat biased toward public sector companies, the entrance of private and joint venture firms through the "Open Door" policy may eventually reduce this public sector percentage.

Egyptian production includes a broad base of product forms including basic chemicals (approximately 7 percent of the production value) and manufacturing capability to produce capsules, vials, tablets, syrups, powders, ointments and suppositories. The physical volume of capsules, vials, tablets and suppositories were all growing at over 8-10 percent per year.

Imports, both as intermediate chemical input to Egyptian drug production and packaging and as finished drugs, are very important to Egyptian pharmaceutical development. Although the value of imported finished drugs remains less than 20 percent of retail expenditures, the Egyptian pricing structure magnifies the importance of imports for both the finished product and the imported content of Egyptian manufactured products. (See Tables E and I). The relative importance of imported drugs and components stems from the fact that the prices of these products are allowed to increase over time. However, for domestic production, retail prices are essentially fixed the year the drug enters the market.

TABLE I
Imports 1973 - 1977
(Millions of Egyptian Pounds)

Year	Drugs	Chemicals & Other Supplies	Total
1973	5.2	14.0	19.2
1974	8.3	19.9	28.2
1975	14.1	29.9	44.0
1976	18.0	36.7	54.7
1977*	25.9	27.1	53.0

Source: Industrial Outlook Report: Pharmaceuticals - Egypt, U.S. Embassy Egypt April 1979. Drawn from data from the Federation of Egyptian Industries.

* 1977 figures were preliminary. Official statistics were not available.

The distribution of Egyptian pharmaceutical supply by pharmaceutical grouping shown in Table J indicates the predominance of local manufacture or packaging. Of the 42 classes of drugs, in only 13 does the imported value exceed 20 percent of the total market: cardiacs and vascularetics, endocrine system drugs, cytotoxins, diagnostics, oxytocics, coagulants, hemostatics, ophthalmics, skeletal/muscular relaxants and tranquilizers, pulmonics, cathartics, anesthetics, and analeptics, and dermatologics and gastrointestinals. The imported market in 1980/81, excluding milks, was approximately 62 million Pounds, or about 18.9 percent of the total pharmaceuticals market in Egypt. Of the total 14.1 percent is imported by the Egyptian government and 4.8 percent by private importers. Imported drugs are generally advanced formulas or vital drugs such as cardiac medicines for which no adequate substitutes are manufactured locally. However, the Ministry of Health predicts that imports of drugs, chemicals and raw materials for the production of pharmaceuticals will continue to increase to above 20 percent per year due to increased awareness by the public and continued expansion of health services provided by the government of Egypt.

Table J also indicates that, of the total market (local production plus imports), the antibiotics group makes up by far the largest total portion, approximately 22.5 percent. This is followed by analgesics and antirheumatics, 9.5 percent, crude and complex vitamins, 5.7 percent, gastrointestinals and anorexogenics, 4.5 percent, vitamin and mineral complexes, 4.3 percent, and skeletal/muscle relaxants, 4.2 percent. It should be remembered that non prescription as well as prescription drugs may be sold only in pharmacies and medical institutions and that both must be registered and have their prices

TABLE J
 Egyptian Pharmaceutical Market 1980/81 by Pharmaceutical Group
 (Millions of Egyptian Pounds at Retail Price)

Pharmaceutical Grouping	Local Production	Imported	Total Market	% Total Drug as Market ¹	
				% Imported	
Anaesthetics	1.33	0.92	2.25	41	0.7
Analgesics & Antirheumatics	28.21	3.14	31.35	10	9.5
Anaseptics	0.85	0.36	1.21	30	0.4
Anthelmintics	3.07	0.5	3.57	14	1.1
Antiamoebics & Enterostatics	7.56	0.2	7.76	3	2.4
Antibiotics	67.22	7.08	74.3	10	22.5
Antimalarials	0.11	-	0.11	-	
Anticoagulants	0.34	0.32	0.66	48	0.2
Antihistaminics	4.5	0.36	4.51	8	1.4
Cardiacs & Vascularetics	9.55	8.82	18.37	48	5.6
Cathartics	1.78	0.6	2.38	25	0.7
Chemobiotics	2.23	0.35	2.58	14	0.8
Antituberculins & Antileprotics	1.29	0.17	1.46	12	0.4
Spirocheticidals	0.009	-	0.009	0	-
Sulphonamides	1.29	-	1.29	0	0.4
Dermatologics	12.39	3.6	12.99	28	3.9
Ano-rectals	1.31	0.02	1.33	2	0.4
Diagnostics	0.003	1.21	1.213	99	0.4

Endocrine System Drugs	15.87	9.29	25.16	37	7.6
Gastrointestinals & Anorexogenics	10.48	4.29	14.77	29	4.5
Hepatobilinogenics	0.45	0.44	0.89	49	0.3
Heamostatics & Coagulants	0.47	0.98	1.45	68	0.4
Immunologicals	1.6	0.24	1.84	13	0.6
Miscellaneous	3.34	2.04	5.38	38	1.6
Ophthalmics	5.86	2.36	8.22	29	2.5
Oro-dentals	1.01	0.15	1.16	13	0.4
Oto-Rhino- Larynetics	2.13		2.13	0	0.7
Oxytocics	0.03	0.36	0.39	92	0.1
Pulmonics	10.32	2.37	12.69	18	3.8
Single Vitamins	2.49	-	2.49	0	0.8
Crude & Complex Vitamins	18.63	1.31	18.94	7	5.7
Minerals	1.8	0.5	2.3	22	0.7
Vitamin-Mineral (Complex Preparations)	13.98	0.3	14.28	2	4.3
Lipotropics & Geriatrics	4.4	-	4.4	0	1.3
Proteins	-	0.04	0.04	100	-
Blood Substitutes & Restoratives	4.5	0.22	4.72	5	1.4
Neuro-Sedatives & Hypnotics	1.01	0.04	1.05	4	0.3
Skeletal Muscle Relaxants & Tranquillizers	7.86	6.11	13.97	44	4.2
Spasmalytics	9.32	0.67	9.99	7	3.0
Urologics	7.7	1.44	9.14	5	2.8

Vaginetics	1.8	0.57	2.37	24	0.7
Cytotoxins	-	0.79	0.79	100	0.2
Milks	-	12.73	12.73	100	-
TOTALS	267.8	75.00	342.8	21.9	
TOTALS LESS MILK	267.8	62.27	330.07	18.9	

Source: Technical Secretariat of the Drug Sector, Egyptian Ministry of Health.

* Excluding milk

regulated. Thus, an undetermined but probably large percentage of the drug sector deals with products such as aspirin and digestive powders.

The Egyptian pharmaceutical industry operates primarily to fill Egyptian demand. However, Egyptian firms do export drugs to Sudan and several African countries, as well as several Arab countries. Table K shows Egyptian drug exports, officially, through 1981, with a total value was about 4 million LE. However, industry experts suggest that as much as 2 to 3 times this amount actually find their way into neighboring countries.²

4. Distribution and Marketing

The Egyptian Company for Trade and Distribution of Pharmaceuticals ("EGYDRUG") is the public company charged with general importation of finished products and wholesale distribution of both local and foreign drugs. EGYDRUG distributes to all governmental pharmacies and to the over 5,600 private pharmacies. Over 50 percent of the drugs produced by local companies are distributed through EGYDRUG which has 41 centers for distribution including five Central warehouses (2 in Cairo, one each in Monsura, Asyut, and Zagazig). These centers are indicated in Table L. The volume of EGYDRUG sales in 1980 was approximately LE 160 million. All pharmacies, both public and private, have access to EGYDRUG. However, this distribution company primarily takes drug orders and does not actively market or present information on the drugs it distributes.

5. Pharmaceutical Industry Investments & Expansions³

Investment in the pharmaceutical industry in Egypt occurred primarily in the ten years following World War II. From the middle 1950's until approximately

TABLE K
Egyptian Drug Exports

<u>Year</u>	1973	1974	1975	1976	1977*	1979/80	1980/81
<u>Value in Millions of LE</u>	.90	1.70	1.83	1.59	2.34	4.2	3.3

TABLE L
Distribution Centers for EGYDRUG

North Region

El Towfikeya, El Azon, El Ganhoria, El Nasr, Shobra, Heliopolis, Ghamra, 26 of July, Port Said, Esmaileya, Suez.

2. Alexandria

El Raml, Atarin, El Taawin, Eskandarany, Portsaid, Damanhour, Hospitals Center, Dairy Center.

3. South Region

Kaser El Azar, Atoba, Eab El Louk, El Mohandeseen, Abdeen, Giza, Fayoum, Bany Sweif.

4. Upper Egypt

Elmenia, Asyul, Sohag, Kena, Aswan.

5. Delta

Zagazig, Mansoura, Mahala, Shebeen, Kafr El Shelkh, Tanta, Mestawda Storage Center.

Source: "Industrial Outlook Report: Pharmaceuticals - Egypt," U.S. Embassy Egypt April 1979 as drawn from Federation of Egyptian Industries.

* Unofficial Statistics from the Technical Secretariat of the Drug Sector, Ministry of Health.

1973, no new investments were made. In the period since 1973 major modernization investments were made, and now more than half the capital equipment has been replaced. Nonetheless, industry sources still suggest that nearly fifty percent of the capital equipment was installed prior to 1966. Lack of investments in the period before 1973 meant that production of pharmaceuticals did not keep pace with the population growth. At present, the Egyptian pharmaceutical industry still has a large stock of out-of-date equipment and continues to require substantial additions for renovation, replacement and modernization to maintain its present capacity. Considerable new investment, of course, will be required to keep pace with Egypt's growing population of almost 1.3 million per year.

Some of this needed new investment is currently scheduled or in progress. Over LE 37 million were allocated in the five year plan 1973-1982 for investment to renovate and expand public sector pharmaceutical firms. In 1973, nearly LE 10.5 million was spent on pharmaceutical sector investments, primarily in the public sector firms. Additionally, public sector firms are allowed to invest any retained earnings in new facilities and equipment. Thus, CID, Memphis, Misr Pharmaceutical Company, El Qatara Company, El Nasr Pharmaceutical, Nile Pharmaceutical, the Arab Pharmaceuticals Company, and Alexandria Drug Company have installed major new equipment and expanded their product line since 1973. The Public Law 41 of 1974 encouraged foreign firms to invest in Egypt and provided various incentives, including tax advantages. To date, only Squibb operates as a private manufacturer of pharmaceuticals in Egypt, although a large number of firms have established subsidiaries or joint ventures to manufacture pharmaceutical products under license for local sale. Several of the public sector firms have also completed new facilities and initiated new contracts with foreign pharmaceutical firms to build new plants and install new equipment.

6. Tariffs and Pricing Policy

Since 1960, prices for most pharmaceuticals have been established in the year the product was registered by the Ministry of Health. The fixed final sales price is determined in part by the social value of the drug to the Egyptian public. Thus, "baby's milk" (the designation for infant formula used in Egypt), insulins, cancer drugs, tuberculosis drugs, and some antibiotics were priced below the market cost even in the year in which the drug was introduced. Other less essential drugs were priced to give the manufacturer approximately 25 percent gross profit, although some more "luxury" drugs, such as tranquilizers, were priced at higher profit margins to allow the public companies to recover their losses on the "socially" valued products.

The pharmacist's legally fixed profit is given to him in the form of a "discount," which amounts to 19 percent on locally produced drugs, 15 percent if manufactured under license without royalty payments, 10 percent on imported brands, and 10 percent on locally manufactured or packaged drugs on which a royalty is paid. Baby's milk is discounted at 5 percent and the discount on cosmetics can be as high as 25 percent. In order to control the price, the government requires that retail prices be preprinted on each package. The pharmacist's discount is thus indirectly factored into the determination of the price of both new imported and new drugs produced or packaged locally. Similarly, the distributor EGYDRUG has a fixed and regulated discount, or margin. This is not so, however, for the public sector producer, whose profit may be positive or negative depending on the fixed retail price and the cumulative effects of rising costs and imports from the year in which the price was set.

Tables M and N suggest the general accounting used to determine the price of the new drug for an importer and a local manufacturer.

TABLE M

Example of Pricing of New Imported Drugs by
Private Companies

- Import price FOB per unit in Egyptian currency	1.00
+ Freight 8% of FOB price	.08
+ Insurance 1% of FOB price	.01
+ Duties 23% of FOB price using official exchange rate	.23
+ Agent cost 55% of FOB price	.55
+ Bank charge 9% of FOB price	.09
Importation Cost	<u>1.96</u>
+ Importer margin 6%	0.10
Distributor cost	2.078
Distributor margin 7%*	0.145
Pharmacist cost	<u>2.223</u>
Pharmacist margin 10%**	.222
Retail Price	<u>2.40</u>

*Assumes distribution by EGYDRUG. Importers own distribution could lower cost to the pharmacist by 2-4%.

** This includes 2% tax paid by pharmacist.

TABLE N

Cost Sheet for Drugs Produced Locally

- Name of preparation

- Registration

- Usage

- Raw Materials	_____
- Packaging	_____
- Direct Salaries	_____
- Total Direct Cost	_____
- Direct Manufacturing Cost	_____
- Marketing Cost	_____
- Royalty, if present	_____
Total Manufacturer Cost	_____

_____	Suggested final <u>retail</u> price from the Tariffication committees (MOH)
<u>19%*</u>	Less % pharmacist margin ("discount")
_____	Pharmacies purchase price
<u>7%**</u>	Less distributor costs and margin
_____	Sales price of manufacturers

Net profit for manufacturers is determined by the fixed retail price. The percentage of net profit to total cost for a newly introduced drug for which there is not an obvious, strong social need is 25%.

* 15% if royalties are paid. Includes 2% tax on pharmacists sales.

** EGYDRUG charge. This could be less if distributed directly by the manufacturer.

The retail price of a drug imported into Egypt is calculated on the basis of the Tariffication Committee's formula outlined in Table M. This lists permissible charges to be added to FOB prices when calculating retail prices and profits. The importer cost, allowed after the importation process, appears to be approximately 196 percent of the FOB price. A final retail price is then set that allows the importer approximately a 6 percent margin on his sales, the distributor 7 percent, and the pharmacist 10 percent. The 2 percent tax paid by the pharmacist is incorporated in the 10 percent "discount."

For the locally produced or packaged drug, the pricing process is somewhat different. The fixed retail price from the Tariffication Committee is determined in part on the suggested manufacturer's cost. The actual manufacturer's profit is determined by subtracting from the retail price a fixed "discount" (margin) for the pharmacist, and a fixed discount for the distributor, EGYDRUG. EGYDRUG is allowed a 7 percent margin or "discount." The pharmacist's discount is determined as a gross discount of 19 percent for locally manufactured drugs from which is subtracted 2 percent for taxes for a 17 percent net margin. For foreign drugs, and those manufactured in Egypt under foreign license with royalty, there is a 10 percent gross discount for the pharmacist. There is a 15 percent discount for licensed foreign drugs manufactured locally without royalty. In each case a 2 percent tax is paid by the pharmacist. For distribution outside of EGYDRUG, local manufacturers may give exactly the same discount as EGYDRUG, but they have the latitude to charge less than 7 percent as an incentive. For example, they frequently charge 3 percent for late payment beyond 45 or 60 days, or offer 4 percent for cash on delivery. Some companies, such as CID, give an additional ½

percent in order to avoid exchanging expired or broken drugs. Additionally, some companies give a volume bonus (for example, El Nile gives a bonus of 10 free Trib tablets for every order over 100 or more, and CID will give 5 free Trivitacid injections for every order of 100 or 10 free for every order of 100 over 500).

The pricing/tariff procedures can cause great disparities in drug prices, even for drugs that are generically quite similar. A price for a public sector manufactured drug might have been set in the 1960s or even in the 1950s and not changed. Drug prices and chemical prices over that time have risen considerably on an international scale, by as much as 1000 percent. At the same time, drugs with similar generic properties are priced according to the needs and prices at the moment they are introduced; thus some drugs by a new manufacturer may have very different prices from those introduced earlier, and provide a different profit and incentive to the pharmacist. On the other hand, the Ministry of Health can force public company production of a needed drug, so the incentive for the public manufacturers may be countered by public policy.

Prices for locally manufactured or packaged drugs have been increased once in May, 1977 with an across the board increase of 30 percent for some 1730 medicines. Prices of more than 277 essential medicines were not affected (including those for heart diseases, diabetes, rheumatism, birth control pills, and powdered milk). The relative prices for the other medicines did not change, including disparities between similar products which were priced in different years. There are, of course, adjustments in the controlled prices of locally manufactured drugs on an individual basis, and these are seen in the occasional price change notification provided to the pharmacies. From existing data it is not clear if such changes have had any significant effect on the overall price structure.

Table O shows prices of several different medicines. For some drugs such as ampicillin and sulfa, price differences are small and relate more to year of registration. For others, such as several of the medications for stomach disorders, price differential can be considerable due to registration date (e.g., Libosis) and to "improvements" that permit a new product to receive a new and more recent pricing (e.g., Festral and Nutrizene). Several of the products are considered to be priced so low that they are frequently out of stock (either due to excess demand or poor incentive to produce). Examples of these are the magnesium and potassium salts, Vistel stomach digestive and the antidiabetic (which is subsidized). The state directly subsidizes some expensive drugs used for chronic diseases such as heart disease, diabetes and cancer, and also directly subsidizes baby's milk.

Prices of imported drugs must of necessity increase or the private importers would cease ordering them (although EGYDRUG would continue to order, at a loss). However, raising the imported drug retail price does require Tariffication Committee procedures which occur with considerable lag after the importer's petition for a price increase.

The pricing procedure produces artificially low prices which are maintained by indirect government subsidies through public manufacturing. Prior to the price increase in 1977, then Minister of Health Badran estimated such "subsidies" to medicines totalled over LE 42 million per year, although official government budget figures do not confirm this magnitude in public industries.⁴ Table P shows U.S. price comparisons for a variety of drugs produced in Egypt. Egyptian prices are clearly very low relative to the U.S., and though many of the listed U.S. products are brand name, the generics are also priced well below those in the U.S.

TABLE O
Examples of Comparative Drug Prices*

Ampicillen 250 mg (12)	CID LE 1.50	Alexandria LE 1.50 MISR LE 1.56 El Nile LE 1.56
eptazol (Sulfa)		Alexandria LE 0.65 Memphis LE 0.70
magnesium salts 60 grams Potassium salts 50 grams		LE 0.19
Vistel (stomach digestive) (20)		LE 0.27
Dourmil (anti diabetic) (20)		LE 0.27
Lipocholme (liver extract) Libosis V		Arab Drug LE 78 El Nile LE 52
Festal (digestive) (20) Festival (multivitamines)		Hoechst LE 0.275 Hoechst LE 1.42
Pantozene (digestive enzymes) Nutrizene		Swiss Pharma/Wander LE 0.345 Nil/Merck LE 1.50
Gelco (200 cc) New Gelco (200 c		LE 0.21 LE 0.80

* The Pricing Commission of the Technical Secretariat of the Drug Sector, Ministry of Health is providing a more complete comparative list, to be added at a later date.

The artificially low prices reportedly encourage smuggling of Egyptian medicines abroad for resale and encourage overconsumption of medicines.⁵ The pricing system also does not provide a strong incentive for production, giving rise to temporary shortages and to a black market for undersupplied drugs. The pricing policy can further inhibit the introduction of new imports and local, privately manufactured drugs if there is the possibility of non-market pricing of competing products.

Consumption of Drugs

The expenditures on pharmaceuticals in Egypt has been increasing at an annual rate of 20-25 percent, as indicated by the production and supply Tables E through I. The Egyptian Ministry of Health suggests consumption is expected to continue to increase at roughly this rate through the mid-1980s. Although figures are not immediately available, the Ministry of Health suggests 60 -70 percent of pharmaceuticals are dispensed in the greater metropolitan areas of Cairo and Alexandria, although they have only approximately one-half of the total pharmacies in Egypt and less than one half the population.⁶ However, per capita consumption in rural areas and smaller towns is also reported by the Ministry to be increasing at a rate that may exceed that of the larger cities. Ministry of Health pharmacy experts suggest that rural area consumption of pharmaceuticals may have increased by over 20 percent between 1978 and 1980. These increases are due to a number of factors: increased consumer awareness of health needs, active

TABLE P

Comparison of Selected Retail Prices
of Drugs in Egypt and the United States

DRUG	RETAIL PRICE U.S. \$	EQUIVALENT U.S. RETAIL PRICE IN EGYPT \$
Serpasil 0.25 mg (40 tabs)	2.76	.48
Taframil 10 mg (50 tabs) 25 mg (50 tabs)	6.10 9.10	.82 1.28
Vibramycin 100 mg (5 caps)	6.25	2.20
Lasix 40 mg (12 tabs)	1.86	.95
Ovral (21 tabs)	8.06	.22
Flagyl 250 mg (20 tabs)	16.20	1.71
Naprosin 250 mg (30 tabs)	11.52	1.80
Erythrocin 250 mg (100 caps)	22.80	16.38
Aldactone 25 mg (20 tabs)	4.06	1.56
Stellazine 1 mg (50 tabs)	9.65	.97
Tagamet 200 mg (50 tabs)	13.50	16.80
Inderal 40 mg (50 tabs)	5.08	1.44
Ampicillin 250 mg (12 caps)	2.14	1.87
Tetracycline 250 mg (16 caps)	1.44	1.02
Kenacort-A 5 gm joint	.84	.84
Gruken (21 tabs)	9.03	.25
Dramamine (10 tabs)	1.60	.32

government programs to upgrade health care, some increases in spendable income, population growth, Egyptian tradition for self-medication and low drug prices. This lack of charge for medicines issued by the government medical facilities may have also encouraged Egyptians to increase their per capita consumption of drugs.

Private expenditure on drugs accounted for approximately 83.7 percent of drug expenditure in 1978, of which 72.8 percent were from private pharmacy sales. Table Q depicts those aggregate drug expenditures and indicates that over LE 141 million was spent in 1978 on drugs. Overall that year, Egyptians spent nearly LE 3.55 per person on drugs, of which LE 2.98 was in the private sector. The geographical distribution of this demand is not available at this writing, but has been requested from EGYDRUG. Historical statistics are not yet available on private versus public consumption.

National consumption of pharmaceuticals by various drug categories is unavailable except from the production statistics discussed earlier and shown in Table J. The percent distribution by drug category and by governorate is being compiled by EGYDRUG and, when available, should be reasonably representative of national and regional consumption patterns (EGYDRUG distributes over 50 percent of drugs nationally, although EGYDRUG distribution is probably not uniform over regions and drug categories).

It is possible, however, to make some comparisons of consumption by drug category by using data compiled by the National Health Insurance Organization in Alexandria, and taken from consumption of drugs for their own pharmacies. In Alexandria, the National Health Insurance Organization provides medical care for all direct employees of public and private companies; dependent care is to be

TABLE Q
Egyptian Drug Expenditures 1978

Drug Expenditure	LE x 1000	% Total Drug Expenditures	Per Capita LE
Ministry of Health	10,229	7.2	0.26
General Organization for Health Insurance	7,619		
Government Hospital and Curative Organizations	5,226		
Total Public Sector	23,074	16.3	0.57
Private Planning Sales	102,971	72.8	
Private Purchase from Government	15,447		
Total Private Expenditures	118,418	83.7	2.98
TOTAL DRUG EXPENDITURES	141,492		3.55

instituted in 1982. The Alexandria Health Insurance Organization owns 8 pharmacies in polyclinics that deliver over 50 percent of the drugs in Alexandria. They also contract with 200 private pharmacies in Alexandria for provision of outpatient services. All drugs are provided free through prescriptions from the Health Insurance Organization's doctors, but, according to the health insurance organization, the prescriptions are tightly checked so that unneeded prescriptions or doubling up of prescriptions (which is reputed to be done frequently in Egypt) is generally avoided.⁷

Table R gives the consumption of drugs from pharmacies owned by the Health Insurance Organization in Alexandria from July 1980 to June 1981. Although the geographic and urban/industrial location of Alexandria should exhibit a somewhat different incidence of disease than the rest of Egypt (e.g., a higher frequency of pulmonary difficulties, etc.) and client list excludes dependents, it is hoped that for this analysis this distribution may be fairly representative of more tightly controlled use of drugs for medical care. A closer examination of the percentages is needed with those familiar with the use of these drugs in Egypt and with specialists in the spatial distribution of Egyptian levels. To this end the Alexandria Health Insurance Organization was to provide detailed drug prescription by ailment for this study but the availability of this data has been delayed. Without this additional data and analysis, the figure that stands out in Table R relative to national production statistics of Table J is the much smaller percentage of antibiotics consumption indicated in the Alexandria sample. This decrease from over 22 percent of total national supply by value to slightly over 9 percent of Alexandria consumption may confirm casual observation and case studies which suggest excessive self prescription and reliance on antibiotics by the Egyptian population. Comparison of the tranquilizer category, however, does not confirm suspicions of excessive use of this class of drugs.⁸ Two categories increased

TABLE R

Consumption of Drugs from the Pharmacies
in the Health Insurance Organization in Alexandria
from July 1980 to June 1981
in Egyptian Pounds

	LE	Total
Analgesics, Antiseptics, Antirheumatics	124,545	8.19
Anaseptics	1,620	0.11
Anthelmintics	3,300	0.22
Antidysenterics, Enterostatics	6,510	0.43
Antibiotics	139,590	9.18
Antimalerials	105	0.01
Anticoagulants	825	0.05
Antihistaminics	24,180	1.59
Cardiacs & Vascularetics	311,700	20.50
Cathartics	3,450	0.22
Chemobiotics	270	0.02
Antituberculous & Antileprotics	53,610	3.59
Sulphonamides	14,880	0.98
Cytotoxins & Antineoplastic Agents	6,720	0.44
Dermatologicals	45,795	3.0
Anorectals	3,570	0.23
Endocrine system drugs	242,565	15.95
Gastrointestinal - Anorexogenic Drugs	43,410	2.86
Hepato bilinogenics	750	0.05
Hemostatics & Coagulants	711	0.05
Immunologic agents	195	0.01
Miscellaneous	7,863	0.52
Ophthalmics	41,268	2.71

Crodentals	10,455	0.69
Oto-Rhino Laryngetics	8,385	0.55
Oxytocics & Myotonics	180	0.01
Pulmonics	101,697	6.7
Single Vitamin Preparations	54,395	3.6
Crude & Complex Vitamin	22,596	1.5
Minerals (Single & Combined)	5,247	0.35
Vitamins & Minerals (Complex Preparation)	62,391	4.1
Lipotropics & Geriatrics	27,495	1.81
Neuro Sedative and Hypnotics	1,239	0.08
Skeletal muscle relaxant & Tranquillizers	61,914	4.07
Spasmolytics & Anticholinergics	27,645	1.82
Urologics	54,786	3.6
Vaginetics	4,320	0.28
<hr/>		
TOTAL	1,520,400	100

Source: Data compiled by Health Insurance Organization of Alexandria

markedly in the Alexandria sample - endocrine system drugs (to 16 percent of total value versus 7.6 percent) and cardiacs and vascularetics (20.5 percent of total value versus 5.6 percent). These may reflect the employed age group and better health care of the Alexandria sample, but may also suggest a larger need for these drugs than has been diagnosed for the population as a whole.

8. Public Sector Expenditures on Drugs

Of the total consumption of drugs, only 16.5 percent derives directly from public sector expenditures (since the public sector is assumed to purchase a higher proportion of less expensive locally manufactured drugs, the actual volume percentage may be somewhat higher). Government expenditures on drugs appear to be somewhat less than proportional to the other areas of health care provided by the government and which are complementary to the use of drugs. In particular, in 1978, only LE 0.57 per person was spent on drugs by the public sector, less than 1/8 of the LE 4.4 per person total government health expenditure. Nationally, including the private sector, total health care expenditures stood at LE 9.58 per capita, one third of which was spent on drugs.⁹

Drug expenditures by the government Health Insurance Organization however, were approximately LE 5.6 per person, so that if these expenditures and their associated Health Insurance populations are factored out, the remainder of the government sector spent less than LE 0.4 per capita on drugs, and the Ministry of Health only LE 0.26. Work by Carl M. Stevens using the Government's Health Financing Study suggests comparably low figures for Rural Health Units (LE 2784 for drugs per Unit) and Rural Health Centers (LE 3565 on drugs per unit) yielding per capita public drug expenditure in rural areas of only LE 0.33.¹⁰

Ministry of Health expenditures on drugs was approximately 10 percent of the Ministry's current expenditures outlay, compared to 37 percent of all health expenditures spent on drugs by all Egyptians (see Tables S and T). Such figures suggest that the government may perhaps be underbudgeting on drugs relative to other health care, although there are other possibilities, including 1) overconsumption of drugs by the Egyptian populace as a whole, due partly to low drug prices, and 2) an excellent job already provided by the private pharmacy sector so that public sector drugs are not needed, or not chosen even when free.

Shortages of drugs at government medical units might be expected if the public drug subsector is actually underfinanced. Findings of this are suggested from both an Urban Health Survey (Appendix V) and a survey of Rural Health Units and Rural Health Centers (Appendix VI). In both of these studies shortages of drugs were indicated as a general problem in the government units.

Similarly, lack of medicines in rural government health units is cited as a reason for patients avoiding the unit.¹¹

This presumed shortage at the rural units and perhaps also other government centers appears to spill over to the rest of the pharmaceutical system. Specifically, it has been suggested that the health units attempt to satisfy their drug demand by purchasing forward on credit from EGYDRUG. EGYDRUG has been forced to absorb the loss (continuing to hold the credit), and over several years this may have amounted to over LE 7,000,000 or approximately 10 percent of EGYDRUG's sales. This appears to have been a serious factor in affecting EGYDRUG's cash flow and its capacity to continue to offer credit to private pharmacies. Credit to private pharmacies has been severely curtailed recently. This would also have an effect on EGYDRUG's capacity to hold sufficient inventories to avoid shortage in stocks at high demand points.¹²

TABLE S
Egyptian Health Expenditures
(LE x 1000)

	<u>LE x 1000</u>
Ministry of Health	
Total Current Health Expenditure	99,200
Total Health Expenditure	8,000
Public Sector	
Current Health Expenditure	137,100
Total Health Expenditure	175,600
Total Private Health Care Expenditure	206,700
Total Health Care Expenditure	382,200

Source: "Study on Health Financing and Expenditures in Egypt" Publication No. 10, ARE Ministry of Health, Health Profiles of Egypt, April, 1980; and Health Services Sector in Egypt: Some Economic Indicators, Carl M. Stevens, USAID Cairo 1981.

TABLE T

Egyptian Comparisons of Public and Private
Sector Financing of Drug Expenditures

Ratio	Ministry of Health Drug Expenditure to MOH Current Health Care Expenditures	10.3%
Ratio	Ministry of Health Drug Expenditure to Total MOH Expenditure	6.9%
Ratio	Total Public Drug Expenditure to Current Public Health Expenditure	16.8%
Ratio	Total Public Drug Expenditure to Total Public Health Expenditure	13.7%
Ratio	Total Private Drug Expenditure to Total Private Health Expenditure	57.3%
Ratio	Total Drug Expenditure to Total Health Expenditure	37.0%

Source: "Study on Health Financing and Expenditures in Egypt" Publication
No. 10, ARE Ministry of Health, Health Profiles of Egypt; April, 1980; and
Health Services Sector in Egypt: Some Economic Indicators, Carl M. Stevens,
USAID Cairo 1981.

B. PHARMACIES AND PHARMACISTS

1. Numbers and Distribution of Pharmacists and Pharmacies

The number of pharmacists who worked in hospitals, private and governmental sectors in Egypt at the end of 1981 was approximately 16,070 according to the Syndicate of Pharmacists. These numbers have grown markedly in the last seven years, as indicated in Table U. In 1975, there were approximately 9,000 pharmacists working in Egypt, but from 1976 through 1978 Egyptian pharmacy schools graduated over 1,000 pharmacists per year, and from 1979 through 1981, there were over 1,386 graduates per year added to the ranks of pharmacists in Egypt (See Table V). This resulted in the number of pharmacists per population rising from 3.2 in 1978 to 3.8 in 1981. At present it does not appear that the number of pharmacist graduates will exceed 1,386 per year.

The exact number of pharmacists working in the private sector pharmacies is unclear, since many pharmacists in the government sector work part-time in private pharmacies. The number of pharmacists working for the Ministry of Health is given in Table W, although the statistical basis for these numbers suggests that this is an undercount. If the January 1981 figure of 2,535 is correct, this would mean that there were approximately 13,500 pharmacists working in the private sector or in manufacturing. The number of Ministry of Health pharmacists ranged from 316 in Alexandria, to 264 in Cairo, to 131 in Dakahlia, to as few as 15 in Suez and 4 in the Red Sea governorate.

The number of pharmacies nationwide by January 1, 1982 was approximately 5,378, with approximately 36 percent in the greater Cairo area, 13 percent in the Alexandria district, 31 percent in the rest of the northern Egypt governorates and 20 percent in South Egypt. Table X indicates the total number

TABLE U

Registered Pharmacists

	Jan 78	Jan 79	Jan 80	Jan 81
Pharmacists	12,314	13,367	14,729	16,070
Pharmacists per 10,000 population	3.2	3.4	3.6	3.8

TABLE V

Pharmacy Graduates

	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81
Pharmacists per year	889	1,007	1,164	1,050	1,234	1,386	1,386	1,386

TABLE W

Ministry of Health Pharmacists

	Jan 78	Jan 79	Jan 80	Jan 81
	1,745	1,944	2,324	2,535

Source: "Basic Statistical Information of Health Services," Ministry of Health, General Department of Statistics and Evaluation. July 1981.

TABLE X

Pharmacists Syndicate
Cairo (phone: 29882)

NUMBER OF PHARMACIES NATIONWIDE
(Greater Cairo-North Egypt- South Egypt)

1. <u>Greater Cairo (Districts)</u>		2. <u>North Egypt (Governorates)</u>		3. <u>South Egypt (Governorates)</u>	
1. Hélopolis	233	1. <u>Alexandria Districts</u>		1. Giza	342
2. Ghamra	176	a. El Eskandrany	127	2. Bany Sweif	74
3. Al Horeya	100	b. El Atrareen	136	3. Fayoum	101
4. Shobra	165	c. El Raml	259	4. Elmenia	122
5. Sherif	121	d. El Taawen	<u>193</u>	5. Assyut	151
6. El Nasr	50	Subtotal	715	6. Sohag	144
7. El Zayton	259	2. El Esmaeleya	61	7. Kena	117
8. El Mohandesin	204	3. Port Said	55	8. Aswan	<u>39</u>
9. El Tawfekeya	181	4. Suez	36	TOTAL	1090
10. Kasr El Einy	220	5. El Mansoura	378		
11. 26 Yolyo	105	6. El Mahala	92		
12. Abdeen	<u>100</u>	7. Kafr El Sheikh	112		
TOTAL	1914	8. Domiat	89		
		9. Damanhour	227		
		10. El Sharkeya	227		
		11. El Gharbeya	139		
		12. El Menoufeya	133		
		13. El Qualubeya	<u>100</u>		
		SUBTOTAL	1649		
		TOTAL	2364		

of pharmacies nationwide and the numbers by major metropolitan districts. The 2,629 pharmacies in Cairo and Alexandria together are clearly disproportionate to their populations.

The distribution of pharmacies across the country suggests adequacy in most medium size cities, but data are inadequate to indicate the distribution in the rural areas. However, reports from health workers suggest that coverage is considerably less complete. The client population in a rural area necessary to justify the existence of a commercial pharmacy is not certain, but pharmacists have indicated that perhaps a population of 20,000 would be adequate. Using the national average consumption figure in 1978 of approximately LE 2.9 per capita spent in the private sector on drugs, a population of 20,000 could provide gross revenues of approximately LE 58,000 and potential profit of perhaps LE 6,000. Of course, expenditure on drugs in rural areas is probably considerably less than LE 2.9 per capita. Further, the number 20,000 can only be an approximation since, for example, the village of Babel Wa Kafr Hamam, with a population of 6,466 in 1978 had both a public clinic pharmacy and a commercial pharmacy.¹³ On the other hand, a study of a four village area in Qalyubia governorate, 40 Kilometers north of Cairo, with a combined population of 24,000, showed no local drug store.¹⁴ In either case, with a large number of pharmacist graduates entering the market every year, there is a potential for saturation of the country in the not too far distant future unless proper incentives are provided for pharmacists to locate in rural areas.

Examples of such incentives might include credit availability or loans for initial capital investment and status, and more available or frequent drug distribution by EGYDRUG and public and private sector manufacturers and importers.

2. Education and Training

There are currently six separate schools of pharmacy in Egypt: Cairo, Alexandria, Assyut, Tanta, Mansura and Zagazig. Together, these schools are training approximately 1,386 pharmacists per year. A B.S. degree in pharmacy is awarded after five years of schooling. Prior to graduation, an aspiring pharmacist usually receives some "on the job" training at either a government hospital or a private pharmacy. In order to become licensed, a qualifying examination must be passed, unless a candidate is a graduate of an Egyptian school of pharmacy. The exam may be taken 3 times during a two year period. Upon completion of the examination, or graduation from an Egyptian school of pharmacy, a pharmacist is licensed by the Ministry of Health. After being licensed, but before owning a pharmacy, a pharmacist must work for at least one year as a "junior pharmacist" under the direct supervision of a pharmacy manager or director.

The curriculum for pharmacy education is listed in Table Y. This curriculum is focused predominantly on chemistry and preparation of drugs, with some courses on psychology and sociology and a minor amount of work in bookkeeping and pharmacy management. The curriculum does not directly address diagnostic aspects of medical care -- aspects which appear to be a central portion of rural and small urban pharmacists' work and actual practice.¹⁵

3. Pharmacy Requirements

In order to open and operate a pharmacy, a number of requirements must be met. All pharmacies are licensed by the Ministry of Health; a pharmacy must be owned by a registered pharmacist (although a pharmacist may own two pharmacies but manage only one). In order to obtain a license to operate a

TABLE Y

University Curriculum for Egyptian Placement Pharmacist

I. FIRST YEAR:

Preparatory courses in natural sciences at the Faculty of Science.

II. FIRST YEAR AT THE SCHOOL OF PHARMACY:

Courses taken are as follows:

- a. General Pharmacognosy and Medicinal Plants
- b. Pharmaceutics and History of Pharmacy
- c. Organic Chemistry
- d. Anatomy and Histology and Physiology
- e. Mathematics
- f. English Language

III. SECOND YEAR:

- a. General Pharmacology
- b. Pharmaceutics
- c. General Pharmacognosy and Medicinal Plants
- d. Analytical Chemistry
- e. Organic Chemistry
- f. Bookkeeping
- g. English Language
- h. Arab Socialism

IV. THIRD YEAR:

- a. Pharmaceutical Chemistry
- b. Biochemistry
- c. Pharmacology, Toxicology and First Aid
- d. Pharmaceutics and Pharmaceutical Juricprudence.
- e. Chemistry of Crude Drugs
- f. Psycology and Sociology
- g. The Arab World Affairs from the Faculty point of view

TABLE Y (Cont'd)

University Curriculum for Egyptian Placement Pharmacist

- V. FOURTH YEAR:
 - a. Pharmaceutics
 - b. Industrial Pharmacy
 - c. Applied Pharmacognosy
 - d. Pharmaceutical Chemistry
 - e. Biological Assays and Biostatistics
 - f. Pharmaceutical Microbiology and Public Health

The precise timing of these courses may differ from one university to another.

pharmacy, a pharmacist supplies a birth certificate (must be over 21 years of age), an identity card, copies of fingerprints, proof that he or she has not participated in criminal activities and a LE 5 inspection fee. After an application is made, an inspection of the establishment is conducted to ensure compliance with the following:

1. That is no other pharmacy closer than 100 meters,
2. That the pharmacy is at least 25 square meters, and that the window and door space should equal 1/6 of this area,
3. That the floor of the pharmacy is higher than street level,
4. That it has a clean water supply, electricity and a sewage system,
5. That there is a fire extinguisher, stove, cabinet for drugs, a closet for narcotics with a lock, a poison closet marked with skull and cross bones,
6. That there be a location for dangerous and explosive materials,
7. That there is a proper balance scale for measuring chemicals.

Pharmacies are inspected by a Ministry of Health inspector (generally a pharmacist) twice a year, usually in January and July, although the timing can be determined by the inspector. The inspector checks that the initial requirements for the pharmacy have not been violated. He or she also checks for non-registered drugs, verifies the qualifications of the pharmacist, his registration syndicate cards, and inspects the narcotics log for quantity present, dispensed, etc. The inspector also takes a sample (two boxes) of drugs prepared in the pharmacy or of purchased preparations and sends these to the National Organization for Drug Control and Research; if they are found inadequate, the entire batch will be confiscated. The inspector also checks for the expiration date of shelf drugs.

4. Operation of the Pharmacy

Operation of a small pharmacy requires a capital investment of approximately LE 15 000: overhead of approximately LE 10,000 and a cash outlay for drugs of at least LE 5,000. These sums represent a major obstacle to expansion of pharmacies, particularly since ownership is restricted to two pharmacies.

According to the size of the pharmacy, the working hours and the amount of business, the staff of the pharmacy would include a first pharmacy manager, who is a registered pharmacist with at least one year's experience, and responsible for most operations of the pharmacy, (ordering, dispensing, preparations). The second pharmacist, who would operate in a larger pharmacy, must be at least 21 years old and work under the supervision of the manager. Third, there may be a pharmacist intern student who is in training or on summer vacation. And finally there may be a sales person aged at least sixteen years working under the supervision of the pharmacist. Working hours are regulated by law, although pharmacies may be open 24 hours a day. However, workers may not work more than 11 hours a day. Night service pharmacies are specially licensed and may be open continuously from 6 p.m. until 7 a.m. with a registered pharmacist present at all times. The night pharmacy should also have a telephone and contain emergency drugs at all times.

There is an agreement between the Pharmacist Syndicate and the government taxation office to collect taxes directly from the pharmaceutical companies providing drugs and pharmaceutical chemicals, rather than collecting taxes directly from the pharmacy as had been done prior to 1970. This tax is two percent for most drugs, both local and foreign, and for chemicals. For babies milk and food, its one percent; for drug preparation there is no charge and for cosmetics like toothpaste, shaving cream, deoderant, etc. the tax is three percent. Insecticides and medical equipment are provided tax free.

Stock purchases of drugs by pharmacists are made generally on an irregular basis depending on stocks of drugs on the shelves. This is particularly so because large forward purchases require advancement of credit from the drug company or the distributor EGYDRUG. However, since drug demand is seasonal and because stocks from the distributor are often low at the peak demand, pharmacists try to order summer drugs in the winter and winter drugs in the summer. Some private importing companies accept only cash while many of the others permit credit for 45 to 90 days. (Recently credit by all companies has been severely curtailed, thus hindering the pharmacist's stocking operation and increasing the probability of drug shortages at the pharmacy.)

Generally, purchases are from the salesperson of the pharmaceutical companies, although this differs from company to company. These sales personnel from the pharmaceutical companies operate more as purchase clerks than detailers, providing purchase lists, but not necessarily providing full descriptions of new drugs and availabilities. For some companies, purchases take only days for delivery, while for others delivery can take over a month. This depends on the location of the warehouses, the distributor's system of transportation and labor, and the relationship between the delivery person and the pharmacist.

EGYDRUG does not have salespersons, so the pharmacist must go himself to place his order at the regional EGYDRUG outlet. It then takes from several days to as many as twenty days for the EGYDRUG delivery, and again this depends on the relationship between the pharmacist and the branch manager of EGYDRUG. Frequently, in fact, the pharmacist goes himself by car to pick up drugs at EGYDRUG.

The availability of information to the pharmacist on new drugs, drug complications, changes in procedure, better pharmaceutical practices and other

communication is very uneven. For new drug information the pharmacist often depends on receiving a prescription from his client's doctor. There is no regular system for providing information about drugs to the pharmacist, although the Ministry of Health Pharmacy Directorate does occasionally provide circulars on the toxic effects of various drugs. Examples of this circular information are provided in an Appendix VII. Neither the Ministry of Health nor the Syndicate of Pharmacists is well equipped to provide regular information to pharmacists, nor is there an easy mechanism for pharmacists to communicate their problems, questions, findings and the like to each other or to the National Health Care Community. Many pharmacists have indicated a feeling of isolation from one another and from the flow of pharmaceutical information.

Pharmacists do have at their disposal, and are in fact required to have, an Egyptian Pharmacopia which describes medicines provided in Egypt. The Egyptian Pharmacopia is described in Appendix VIII. Pharmacists may also have available to them the Index of Specialists, which is a book designed to provide physicians, pharmacists and chemists with recent and complete information regarding foreign as well as locally manufactured pharmaceutical preparations. Although every pharmacist is supposed to have an "Index", most report that it is not available. The latest edition was the fifth edition, published in 1977. Appendix IX describes the Index of Specialists. Pharmacists also need to have available a Physician's Desk Reference, and although this is available in English on special order, it is not available in Arabic, and it is not found in many pharmacies. A list of drug prices and allowed prices has been published by EGYDRUG, but few pharmacists questioned have a copy. (This pricing book was to be supplied by EGYDRUG for this report but has not been received.)

For this study, pharmacists were surveyed to examine factors that they saw as most important in effecting the operation and services of their

pharmacies. This survey was self administered to Egyptian pharmacists attending a family planning conference in Alexandria. The questionnaire and its English translation are given in Appendix X. The following represents a selection of the major observations made by the pharmacists in that survey:

1. The profit available to them is insufficient when comparing expenses and capital investment, due primarily to the fixed margins that they are allowed to charge on drugs.
2. Drugs are frequently not available when requested so that it is necessary to have a larger stock than would be otherwise advisable given the pharmacists' cash flow requirements. The most frequent example is the unavailability in the summer for summer drugs or winter for winter drugs, so that pharmacists must stock out of season.
3. There is a need for more information about drugs and their pharmacological action and side effects. The medical or "scientific" representatives of the pharmaceutical companies visit the pharmacist very rarely, if at all. Questions asked the pharmacist by the company's detailer or medical representative frequently consist only of availability of their drugs at the pharmacy.
4. There is a need for more diagnostic and clinical pharmacy training in their academic or post graduate training.
5. There are too many brand name drugs instead of generic names, especially for antibiotics. This causes difficulty since doctors prescribing the drugs require that the prescription be filled with a particular branded product. Pharmacists do freely substitute, but often to the displeasure of the doctor.
6. There is generally a shortage of locally produced, inexpensive drugs. Pharmacists feel that this is because the local drug manufacturing companies are losing money on those drugs and only produce what is absolutely required for the government.
7. While labor salaries, prices of empty bottles and other pharmacy needs are increasing in price, the drug prices themselves stay the same and the product margins are fixed.

8. There is an important need for a good published index of all drugs and dosages with an indicated capability to replace one drug for another in case of unavailability.
9. The pharmacist is frequently asked to read laboratory results to their clients, although they are not trained to understand laboratory indications.
10. Pharmacies, particularly new ones, generally lack telephones. A phone is very important for taking drug orders and to provide emergency services to clients.
11. The client frequently asks the pharmacist to provide injections, first aid, prescriptions and refills. Yet the pharmacist has received no formal training for this and is by and large completely dependent on learning by experience.
12. Pharmacists frequently provide services such as prescribing and medical referral that are beyond the bounds of their legal duty and training, but a very important and required service for their clients.
13. The large stock which the pharmacist must hold in order to prevent shortages increases the chance that the drugs will become outdated. The Ministry of Health inspectors do sample for expiration date, but this occurs infrequently.

A. INTRODUCTION

The role pharmacists play in the provision of health care services and in the process of disseminating medical knowledge has been mostly ignored in the Middle Eastern sociological literature. It has been assumed that only doctors and nurses provide health care services in the modern medical sector. As for the traditional sector, recent studies¹⁶ show that there is a complementarity between modern and traditional health care practices, beliefs, values, practitioners, and medicine. A thorough investigation into the dynamics of health care in Egypt proved that the existence of large numbers of modern health practitioners does not necessarily mean that the traditional health sector will vanish or that people will utilize the modern sector according to medically prescribed rules. In Egypt, an individual with a health problem consults doctors, pharmacists, relatives, neighbors, friends, herbalists, health-barbers, bone-setters, midwives, and even occult specialists. Usually the nature of the disease, its severity, and the socioeconomic level of the patient determine health utilization patterns.

This section focuses on the actual role of pharmacists in the Egyptian health care delivery system. The emphasis is on the de facto role rather than on the de jure prescribed role. The normative prescribed role does not reveal the importance of the pharmacy and the pharmacist in the dynamic process of health care. The normative role limits pharmacists in their interaction with clients to interactions guided by a doctor's prescription. In actuality, a pharmacy in Egypt is an extremely interesting setting where a number of transactions take place between pharmacists, salespersons, and clients. Section C provides the reader with an understanding of the Egyptian pharmacist's educational background. Section D reviews the pharmacist in national health issues. Section E deals with

the dynamics of pharmacist/client relations. Section F discusses the nature of the beneficiaries as differentiated by sex, age, and socio-economic level. Section G touches on the complex subject of pharmacist/physician relationship. Sections H-J include profiles of a pharmacist, a salesboy, and a client.

B. RESEARCH METHODOLOGIES

Ten days devoted to data collection and field work were spent in Egypt. The researcher used a number of methods to obtain data for this report; the following describes the data collection methods:

1. Questionnaire Method

A questionnaire was administered to 51 pharmacists attending a family planning conference in Alexandria. The questionnaire was to provide general background information on the following topics:

- o The number of days and hours an average pharmacist works per week
- o Pharmacy work hours and night shifts
- o Number of clients
- o Size of operation
- o Reasons behind clients' selection of one pharmacy over another from pharmacists' perspective
- o Nature of services offered in a pharmacy
- o Most commonly sold drugs
- o Types of birth control methods recommended
- o Most common diseases in the area
- o Preventive medicine practices
- o Drug distribution system

- o Methods of new drug introduction
- o The most common problems encountered by pharmacists

A partial discussion of the questionnaire results was given in a previous section. A more complete description of the survey data and results has not been included since the answers to the self administered quantitative questions were very incomplete or difficult to interpret. The actual questionnaire is given in Appendix X.

2. Observation Method

A total of a hundred hours of observation were spent in different pharmacies in Cairo and in rural areas. The researcher visited pharmacies in the following locations:

- o Two pharmacies off Pyramid Road in sections where urban poor people live.
- o One pharmacy in the "Al-Hassaniya" area where most of the population work as auto mechanics, butchers, glass cutters, various craftsmen, and herbalists. An area known for its "bullies", its past history of drug use, and being a center for illegal drug distribution in Cairo.
- o Two pharmacies at downtown Cairo.
- o One pharmacy at Imbaba located in a central location close to low income housing units.
- o Two pharmacies at Dukki, a middle class area. One of the pharmacies is known for its good stock of drug supplies and many people visit it from far away neighborhoods seeking to find drugs they could not find in other pharmacies.
- o One pharmacy at Maadi in the upper class section of the suburb.
- o One pharmacy at the village of Bortos located about 22 km. west of Cairo.
- o Two pharmacies at the village of Kaha, Qalubia located forty km. from Cairo.

The samples included urban and rural pharmacies. Special attention was paid to clients' sex, age, educational level, and socioeconomic differences. Pharmacies were observed at all operating hours, and distinctions were noted between day and night time clients.

On two occasions, observation continued from 8:30 A.M. to 9:30 P.M. without interruption in order to get a better understanding of the differences between day time and night time clients. Using this observation technique enabled the researcher to interact with clients whenever it was suitable and non-disruptive to the pharmacist's work. It is interesting that people maintained as much curiosity about the researcher's role as the researcher did about them. At Al-Hassaniya pharmacy they misunderstood the researcher's role for that of a tax-collector or a social insurance agent. Clients were extremely protective of their lady pharmacist and they continued to come to the pharmacy on the pretext of making small purchases in order to listen to the researcher's questions. It was not until a second visit that the researcher was accepted by the neighborhood clients, who started to joke with her and ask questions about her personal life. Explanations of being a researcher who was only interested in their use the neighborhood pharmacy were not convincing. Only when they accepted the researcher as a person did they lose their curiosity about the job she was doing.

3. Interview Method

Several interviews were conducted with pharmacists as well as clients, doctors, and a midwife. Two herbalists were also interviewed at Giza and Al-Hassaniya. A total of 12 pharmacists, four non-owners and eight pharmacy owners were interviewed. Seven salespersons were also interviewed, including a fourteen year old salesboy who knew the whereabouts of all drugs in the

pharmacy and has learned how to verbally prescribe drugs from working at the pharmacy for four years.

A neighborhood doctor was interviewed in his clinic, and informal discussions were also held with another young doctor who does not operate a private clinic but spends many evening hours chatting with his pharmacist friend and prescribing drugs to people who ask the pharmacist for a diagnosis of their ailment - a service that he provides free of charge to his neighborhood friends who supported him while he was going to medical school. Most of the interviews focused on clients' utilization patterns and reasons for pharmacy selection, and all the intricate aspects of the pharmacy/client relationship.

C. THE PHARMACIST IN EGYPT: EDUCATIONAL BACKGROUND

To major in a scientific area in Egypt one has to pass the standardized high school examination with a certain percentage that qualifies the person to join his or her desired major. In other words, if one aspires to become a pharmacist, one has to pass the high school final exam with at least 93%, and has to specialize in sciences, "ilmy, ulum", as a major in high school. The required percentage score for joining pharmaceutical colleges varies annually. But pharmaceutical universities accept bright and competitive students who either really want to be pharmacists or could not join medical school because they failed to earn the grades that qualify them to enter medical schools.

Pharmaceutical schools enjoy good reputations and students consider themselves fortunate to be able to join them. Today, cultural attitudes toward being a pharmacist are far more favorable than in past decades when a pharmacist was considered a highly qualified "grocery store salesperson", ("Ba'al").

Students spend five years studying plants and their medicinal values, anatomy, pharmaceutical law, generic names of drugs, chemicals, pharmacology, etc. During their school years, the main emphasis is placed on drug preparation. But, unfortunately, little drug preparation takes place in today's pharmacy in Egypt. Young doctors are not taught to prescribe pharmacy-prepared drugs, finding it more convenient to prescribe factory-prepared ones. Moreover, the cost of chemicals, and the fact that many chemical components are not locally available, contribute to the decrease in drug preparations in Egyptian pharmacies.

Interviews with pharmacists revealed that their college training does not adequately provide them with some of the necessary skills they need to run a successful pharmacy. Skills related to successful management, accounting, and human relations are crucial to the daily operations of a pharmacy. With experience pharmacists find no difficulty in learning these skills, basically through the use of trial and error method. Most important is the fact that pharmacists often find themselves in the awkward position of having to prescribe medicine to their clients. Normatively, a pharmacist knows that he or she should not be involved in disease diagnosis and drug prescription. But clients expect this service and the observation is that sometimes they insist on having their trusted pharmacist recommend drugs based on his/her diagnosis. Only recently, have some pharmaceutical schools started to teach clinical medicine to their students. One young woman pharmacist said, "I think it is very important that we learn a little bit more than what we can pick up through using common sense or by following blindly some doctor's prescription. I know we should not prescribe medicine, but some knowledge of diseases and diagnosis might even make us more aware of the dangers involved. Maybe we would then insist on the client's seeing a doctor whenever necessary."

In pharmaceutical schools, students do not study bookkeeping, filing, or management, so most pharmacists do not keep records of all sales. The most common method is for the non-owner pharmacist to keep a sales record whenever the owner is not present. Owners seldom see it as necessary to keep a record of their sales. Vouchers from salesmen and receipts from pharmaceutical companies are kept only for short periods of time in a drawer and then disposed of by the owner.

During the five-year training period a student is expected to spend two summer vacations, or the equivalent of 400 hours, practicing in a private pharmacy. Students usually try to spend this period at a pharmacy close to their homes. Some students find summer training exciting and challenging, others find it a waste of time and an imposition on their vacation time. However, all students are expected to have a certificate signed by the owner of the pharmacy stating that the person has successfully worked as a pharmacist under supervision and is not liable for any breakage or accidents during the practice months. A young female pharmacist said, "I enjoyed working during the summer practice months. I was lucky and the pharmacist I worked with was patient and not arrogant so I learned a great deal. In the University I learned the generic names of drugs, and being in a pharmacy you have to learn the drug brand names. This takes time and practice. My best friend hated her training period because the pharmacy she worked at was so busy, and the pharmacist was impatient with her. So she used to skip going to her training often. She finally graduated, but now she is married and she does not work. What a waste!"

After graduation, a pharmacist must spend one year working for the government. Many pharmacists are assigned to a government hospital, or a rural health clinic. There is a great deal of resentment for having to spend an entire year at a location that might not be close to the pharmacist's home. The grade a

student earns in his or her final year of school determines to a great extent the nature and the location of this one year job. Many pharmacists never leave their government-assigned jobs. Only those who favor the private sector resign from their government jobs to open their own pharmacies. However, because of the initial cost of opening a pharmacy, many pharmacists continue with government careers until they are financially capable of opening their own pharmacy. Thus, the average age of a new pharmacy owner is most likely to be in the late thirties or early forties. Starting capital might be attained by a loan from relatives or friends, savings from an Arab country job, or inheritance. Seldom does a pharmacist start from savings based on his government job because of the low salaries (starting monthly salary of L.E. 52; about US\$ 54).

D. THE PHARMACIST AND NATIONAL HEALTH ISSUES

The major controversial issue for pharmacists in Egypt today concerns drug discounts. The Ministry of Health controls prices of most drugs manufactured locally or imported by the Egyptian government. EGYDRUG is a government organization that is in charge of both distribution of locally manufactured drugs as well as imported foreign drugs. A pharmacist might purchase drugs from EGYDRUG or directly through drug companies. Most pharmacists prefer the direct dealing with private drug companies. (Problems of distribution and ordering of drugs are dealt with in the economic part of this study which analyzes national and government drug policies.)

Most pharmacists do not keep a record of sales, but they maintain that their order vouchers and the unsold stock ought to be enough for tax collectors. All the pharmacists interviewed support the present taxation system of deducting the taxes from the discount and feel that less tax cheating happens this way.

Presently, Egypt's press and media are focusing on the subject of raising the discount to pharmacists to 20% across the board. The Pharmacist's Syndicate is supportive of the request and considers it legitimate in today's inflationary environment. A pharmacist expressed this opinion: "Our profits are ridiculous compared to our time and energy. I work 12 hours daily. I take only one day off. I work on my feet day and night; this is plus the long years of training at the University. We should be financially rewarded for our efforts."

Although most pharmacists would like to see the 20 percent discount implemented, they are also very keen on maintaining the present prices of drugs. None of the pharmacists interviewed wanted to see drug prices increase. The most commonly stated reason is "clients cannot afford to pay more for drugs. Some of our clients are poor; we should not burden them with other price increases."

So there is almost a consensus among pharmacists that their profits are small and should be increased but not at the expense of the beneficiaries. Letters published in Cairo's newspapers and magazines by clients condemn the idea of increasing the pharmacist's discount, accusing pharmacists of being greedy.¹⁷ Clients' perception of the pharmacist's profits are exaggerated and unrealistic. A middle class Egyptian said, "A pharmacist makes two to three thousand Egyptian pounds monthly, I know this. I have friends who are pharmacists; they have apartments and drive their own cars. They make thousands of pounds!"

This issue of increasing the pharmacist discount is expected to be debated in the Egyptian Peoples' Assembly within the next few months. Pharmacists feel torn between their desire to increase their profits and their wish to provide clients with inexpensive drugs. Increased government subsidies in the drug industry does not seem to bother Egyptian pharmacists who see the government role as one of responsibility to provide every citizen with cheap drugs.

The second issue is that of the pharmacist image in society. Pharmacists are aware of the two arguments pertaining to the role of the pharmacist in Egypt. One point of view maintains that the pharmacist's role is that of a medical advocate, ("ragul rissala tibia). The other point of view portrays the pharmacist as a trader, a salesperson concerned only with profit. It is interesting to note that most pharmacists feel closer to the latter point of view, but also realize the importance of their role in the health care system in Egypt.

E. THE DYNAMICS OF PHARMACIST/CLIENT RELATIONS

In spite of the fact that there are over 5,000 registered privately-owned pharmacies in Egypt, little is known about the actual role these pharmacies play in the health care delivery system. Most of the available Arabic literature emphasizes the normative role of the pharmacist and lists the rules and regulations of pharmacy operations. The normative role allows the pharmacist to fill prescriptions, prepare drugs, sell some gift items, and administer first aid on simple cuts and burns in emergency situations until the patient is able to see a doctor. The normative role often conflicts with the realities of pharmacist/client relationships in Egypt that necessitate disease diagnosis by pharmacists.

Observations and interviews with different pharmacists lead the researcher to conclude that each pharmacy is a unique place very much influenced by its

owner's aesthetic taste, philosophies, and values. It is easy to fall into the trap of stereotyping pharmacies in Egypt because they all seem crowded with drugs and clients. However, the personality of the pharmacist, the location of the pharmacy, the socio-economic level of the client, the sex and age of the client, and the client's health problem and its severity are all variables that influence the pharmacist/client interaction.

1. The Pharmacist Personality

Interviews with pharmacists reveal a great deal of variation in the way they perceive their role and the way they interact with their clients. The following are a number of statements that reflect pharmacists' self images: "As a pharmacist I have to help people by providing them with the medicine they need when they need it." "As a pharmacist I see myself as a bit of a doctor (physician), a bit of psychiatrist, a bit of a salesperson, a bit of a manager, and above all a humanist." "As a pharmacist I see myself as a jack of all trades. I have to comfort people, prescribe medicine, give injections, sell gifts, listen to family problems, recommend doctors, joke with people, and feed my family!"

All the pharmacists interviewed mentioned that human relations and concern for the client's interests are crucial to the success of a pharmacy. This view is shared by clients - a female client said "I come to this pharmacy because of the kindness and concern the pharmacist shows me. Plus his hands are blessed; every medicine he gave me worked well. He always asks me about the children, too."

It is interesting to note that people do not necessarily visit the pharmacy to purchase drugs or ask for medical advice. They come to chat and joke with the pharmacist, or just to say hello. The social bond between pharmacists, salespersons, and clients determines the volume of sales in the pharmacy.

The sex of the pharmacist, whether male or female, does not seem to greatly influence interactions. Male clients ask female pharmacists they trust for condoms or vitamins with male hormones without embarrassment. Female clients purchase birth control pills, tampons, and feminine hygiene objects from male pharmacists. A female pharmacist commented on this point by saying, "After a month or two, people liked me and forgot about my being a woman. Men here do share their intimate sexual problems with me and ask for medicine. Only young teenage girls are shy and prefer a lady pharmacist. Once you gain their trust, sex, religion, and every other distinction disappear and you are accepted as a friend."

To maintain a sense of humor, and to smile and joke seem to be important personality traits favored by clients. In an interview with one client, he said, "I used to buy my medicine from the pharmacy around the corner. I stopped going there; the pharmacist is like a machine. I have never seen him smile or joke. You go to the pharmacy because you or someone close to you is sick. You need empathy, cheering up, and a good sense of humor."

Honesty in interaction is a quality clients look for. Honesty is measured by the pharmacist's recommending cheap brands rather than expensive ones. Many times a client would ask the pharmacist to recommend the most important medicine on the prescription because of lack of money. Also, whenever a pharmacist suggests medicine he or she should not select an expensive brand.

Cleanliness, good grooming, and good communication skills are expected of the pharmacist. Friendliness, and the ability to help people are also part of the image of the pharmacist as clients see it. A female client said, "I will never change this pharmacy. I still remember when my son fell in the street and cut his leg. The 'doctor' pharmacist here cleaned it and put antiseptics on it. You know he refused to accept any money. He said that the kid is like his own

children." Often people rush to pharmacies asking for "an antiseptic on a piece of cotton, please." It is a free service pharmacies offer to people.

The pharmacist's philosophies reflect on the way he or she manages the pharmacy. One pharmacist stated, "I do not see much difference between a pharmacy and a grocery store in terms of the economic aspects of the operations. I feel that I am a trader and I have to take risks. I also have to predict the market and peoples' needs, especially because of the shortages in drugs here. I spend every penny I own on purchasing and stocking my pharmacy with drugs. People come here because I very seldom say to them that I do not have what they need." Another pharmacist said, "I am a 'doctor', a man of science. I should rise above seeing my pharmacy as a commercial operation. However, we all have to feed our families."

The pharmacist's values are important in his interaction with people. Honesty in drug preparations, sound moral and medical advice, and integrity all contribute to a pharmacy's good reputation. A woman client stated, "This man, the pharmacist, is a great man. I buy the kids' prescriptions on credit. I always pay him, but sometimes I am short of money. He knows my circumstances; the kids' father died and left four children. Life is hard, but God helps by giving us a kind man like this one."

Religious ethnic symbols, like religious pictures of the Virgin Mary, Christ, and Quranic writings, decorate all pharmacies visited. People tend to deny the importance of the pharmacist's religious background whenever they are asked. Pharmacists also denied that their religion has anything to do with clients' frequenting their pharmacies. However, in three instances clients were heard saying to the pharmacist, "You are one of us (same religion), you will always have my business." The normative answer, "We are all Egyptians, Copts or Moslems," seems to be the most frequent answer to all ethnic questions.

However, observations support the idea that trust, a good supply, location, and having the same religious background all determine clients' pharmacy selection. Apart from religious pictures, individuals look for the owner's name and recognize the religious background from the name.

2. Pharmacy Location and Type

One can classify pharmacies into "small neighborhood pharmacies" and "large central location pharmacies." According to pharmaceutical laws, a person cannot build a pharmacy too close to another one. The minimum distance between two pharmacies has to be at least 100 meters. In the past, there was a shortage in the number of pharmacies, and there was a tendency to open pharmacies only in downtown Cairo close to doctors' clinics. Today, Cairo has almost 2,000 privately owned pharmacies in addition to hospital and publicly owned pharmacies. This increase in the number of pharmacies was necessitated by the increase in the number of pharmaceutical university graduates and the increase in the population. Also, the influx of money from returnees from Arab countries made more capital more available to pharmacists using their savings and their relatives' savings in the form of loans.

a. The Small Neighborhood Pharmacy

This type of pharmacy sells to about 250-300 clients daily. The average daily sales are worth about LE 200-250. The pharmacist-owner's net profit is about LE 600 monthly. The profit is mostly used in supporting the pharmacist's family, improving the storage space, paying the salary for the salesperson and the other pharmacist that works the night shift, paying taxes on cosmetic sales, and paying utilities bills.

Physically speaking, the small neighborhood pharmacy is usually crowded with drugs. The storage space is extremely small and is barely in compliance with the law. An owner may classify his drugs alphabetically under their different group classifications or he may arrange them in a way that gives him easy access regardless of their group classification. The aesthetic aspects of a small neighborhood pharmacy are totally ignored in favor of utilizing every square meter of space for storage of drugs. A ladder, three or four chairs, a refrigerator, a T.V., a small transistor radio are often available in this type of pharmacy. Religious pictures or a cosmetic poster are often used to decorate the pharmacy. One of the interesting arrangements observed was a stand for the sale of condoms surrounded by two copies of the Quran.

The researcher's observations indicate that about 20% of the drugs needed by clients that frequent neighborhood pharmacies are not available. Sometimes this is caused by a shortage in the market, and other times because the pharmacist did not order enough supplies or has cash flow problems. However, the shortages in drugs are often compensated for by a real concern for the clients' interests and a strong patronage relationship on the part of the clients.

The owner of a small neighborhood pharmacy knows his clients by name. The pharmacist often solves clients' nonmedical problems. The clients become protective of the pharmacist, and they seek the "doctor" pharmacist's help in nonmedical related problems. For example, a woman pharmacist talks to a client's daughter about studying hard to pass a school test because the mother and the daughter trust the pharmacist with their problems. One cannot help but recognize the strong bond between a successful pharmacist and his/her clients in the neighborhood pharmacy.

Moreover, the small neighborhood pharmacy offers home injection services to their clients. An orderly may be sent to the client's home to give injections,

or offer first aid help for cuts, simple wounds, and burns. Pharmacies are often the place where people seek diagnosis and cure for their medical ailments without visiting a physician or a dentist.

Clients expect a lot from the neighborhood pharmacist. They expect empathy, concern, humor, drugs, friendliness, good advice, doctor's referrals, efficiency in first aid care, and, most importantly, that the pharmacist is able to "read their mind." It is common for a client to walk in and say, "Give me my medicine; I bought some from you a few months ago," or, "Give me the \$1.20 box for my mother," or, "Give me the red tablets I am used to." Clients are offended if the pharmacist does not know or remember what they want.

There is a great deal of competition among small neighborhood pharmacies because of the increase in their numbers in the past several years. A pharmacist finds himself in a position of offering extra services for his clients to gain their patronage. One pharmacist mentioned, "I have a policy of never serving a client while I am sitting on a chair giving orders to my helper. I have the habit of standing up and showing my client respect regardless of their socioeconomic level. Eating bread is hard and one has to bend with the tide." In this instance the researcher also noticed the same pharmacist tell his clients that there is a shortage in certain drugs but he had some stored in his back room for special clients.

The owner of the small neighborhood pharmacy is most keen on having good relationships with the neighborhood doctors. In spite of the fact that doctors in Egypt feel the competition from pharmacists prescribing medicine to their clients, one finds networks of friendships among doctors and pharmacists. One doctor said, "I can destroy a pharmacy if I want to, but I also know that a pharmacist can kill my practice by making sceptical remarks about my

prescriptions. I just wish pharmacists would stop philosophising and prescribing drugs without learning all the facts."

It is a common practice for some doctors in Cairo as well as other parts of Egypt to ask their patients to fill their prescription from a certain pharmacy. It is also common practice to ask the patient to show the doctor what he or she has bought before taking it. One pharmacist said, "I feel insulted when my clients buy medicine from me then they have to go back to the physician to show it to him. The doctors do not trust us. But I cannot do much about it; I do not want to have bad relations with the doctors."

Often neighborhood pharmacies stock drugs for ailments neighborhood doctors specialize in; for example, a neighborhood that has a gynecologist and a pediatrician only may have a pharmacy that stocks up on gynecological pediatric medicine. One pharmacist stated, "I know that the doctors close by prescribe certain drugs, so I buy more of these drugs. I do not buy what I cannot sell, remember I am short of cash all the time."

The scene of a child buying drugs for his family is also familiar in small neighborhood pharmacies. Children as small as four years of age are sent to pharmacies by their parents with either a prescription, a note, or the child is told to purchase a special drug. Often the pharmacists must ask the child to go back home and send an adult because the request is not too clear.

Because of the trust clients have in their pharmacists, they may ask the pharmacist whether a prescription is any good or not. They seek reassurance from their pharmacist that the medicine will work. Some common phrases heard in a pharmacy include: "Take this medicine and God will help you," "May this medicine bring you health," and before giving an injection, a pharmacist may say, "May the hand of Mohammed, the Prophet, bless my hand," or, "May God

facilitate your cure." It is interesting to note that both Moslem and Coptic Christian pharmacists use some of these common Moslem phrases.

In these small neighborhood pharmacies, the number of non-prescription patients increases. People bring their medical problems to their pharmacist. Observation supports the fact that pharmacists prescribe medicine for minor colds, indigestion, seasonal diseases, etc. One pharmacist said "I do not touch a case when there is a fever for a number of days. Pain in the right side may be an indication of a ruptured or inflamed appendix, high fever might be measles, typhoid, etc. I ask them to go see Dr. Ali. His clinic is across the street."

Fieldwork data supports the idea that the most sought-after drugs are antibiotics, vitamins, and painkillers. Cosmetic sales are more common in big, centrally located pharmacies. Baby formula sells well in small neighborhood pharmacies. Vitamins with male hormones are used frequently by lower class urbanites and rural residents. Prolonged drug addiction decreases the sexual appetite of males who take great pride in the sexual prowess. Many male clients whisper to the pharmacists to give them their "nerve injection." The injections are given in privacy at the back room with the client smiling and saying, "I'll see the harem tonight," meaning his wife.

Luxury items like "Pampers" are sold to Egyptians returning from Arab countries who reject the traditional cloth diapers in favor of the more expensive "Pampers." "Kleenex" is sold now in Egypt and has replaced handkerchiefs. Shampoos are already replacing the old method of washing the hair with oily soaps. Rural migrants to Cairo imitate T.V. commercials promising silky hair after shampooing for a week so they try the different brands.

A small neighborhood pharmacist complained, "I had a problem with a client who asked me for a good brand of shampoo. So I recommended one. Four days later she came to the pharmacy looking horrible with sticky hair. She said

she just wanted me to know what happened to her hair with the shampoo I recommended. I questioned her and found out that she put the shampoo on her hair every night and never washed it. She thought washing it would take away the benefit. So I cannot take anything for granted. I have to be patient and explain everything."

One can summarize the roles a small neighborhood pharmacist plays in the health care of his clients as follows.

- o Provides clients with prescription drugs.
- o Prepares some drugs at the pharmacy.
- o Provides first aid services.
- o Prescribes drugs to clients who cannot afford a doctor's fees or who do not want to see a doctor.
- o Gives shots, or has a person in the pharmacy that gives shots at home.
- o Comforts his clients, and empathizes with their health problems.
- o Cross-checks doctors' prescriptions with clients who seek this service.
- o Provides diet advice for sick clients.
- o Refers clients to doctors.
- o Counsels his clients who trust him or her with their social and sexual problems.
- o Offers family planning advice and promotes contraceptives if clients ask for them.
- o Participates fully in his community's events by attending weddings, funerals, etc.
- o Counsels women on cosmetic brands.
- o Extends credit to needy clients to purchase drugs.

b. The Big Central Location Pharmacy

It is referred to locally as the "Agzaxanit nuss il Balad," the downtown pharmacy. This term will be used to refer not only to downtown Cairo's pharmacies, but also to all pharmacies located in Cairo's squares and main streets in Dukki, Zamalik, and Maadi's. These pharmacies are characterized by a large supply of drugs and at least four staff pharmacists. Daily sales may reach LE 500, and a full time manager may be assisted by three to six pharmacists and salespersons. Some of the pharmacists in these big pharmacies may speak a number of foreign languages.

"Big" pharmacies might be big in supplies and personnel but not in space. Space is expensive in these locations, and unless the pharmacy is an old one with low rent, the pharmacist might have to procure the bare minimum space to satisfy the legal requirements. These pharmacies are generally clean and aesthetically more pleasing relative to the rural or neighborhood pharmacies. Posters with European brands of makeup are usually hung on the walls. A scale might be put very close to the entrance for clients who watch their diet. Generally these big pharmacies are better organized than the small ones, e.g., books and filing might be done more systematically because of both the experience of the manager and the volume of sales and orders the pharmacy handles.

Observations point to the fact that clients of these pharmacies belong to two groups. The first group lives close by the pharmacy, relating to the pharmacist in a similar fashion as clients in a small neighborhood pharmacy. The pharmacist knows these clients by name and knows their medical problems. These clients are referred to as the "regular clients of the pharmacy." They are given special treatment and their expectations are identical to those using a small neighborhood pharmacy.

However, because the educational level is high of people living in Maadi, Zamalak, Heliopolis, or downtown, foreign languages are often used in interactions. Clients ask about medicine using the correct pronunciation of brand names. A lesser percentage of the clients frequent the pharmacy without a prescription. Clients purchase foreign drugs whenever available in the pharmacy. Foreign cosmetic brands are more likely to sell than local brands.

Most of the big central location pharmacies are owned by older pharmacists who might not have formal training but have thirty years' experience in the trade. People still call them "doctors" and their long years of experience enables them to read the market and keep good stock of drugs. One pharmacist said, "My lab is one of the best. I prepare special drugs for some of my old clients. They travel from all over the country to come to me. But the prices of chemicals have increased so much in recent years. People might think we pharmacists make a fortune in drug preparations; they are mistaken. It is a hobby of mine, it is the only time I feel like a scientist, so I do it. Otherwise it is not worth it."

The second group of clients are those who do not live close to the pharmacy, but may have seen a doctor downtown and need the medicine urgently or are afraid they will not find the prescription in their neighborhood pharmacy. The transactions with these clients are mechanically polite, but abrupt. A person buys the drug and departs or might be told that due to a shortage in the market and the drug is not available.

Because of the great demand on the services of the big central pharmacies, pharmacists seldom have time to socialize with clients. Another noted fact is that the pharmacist is less likely to direct the client to substitute drugs in case the desired drug is unavailable. A pharmacist said, "We simply do not have the time to talk too much. A small pharmacy owner might be too keen on providing

the client with a substitute so he would not lose the client. We do not have this problem."

In interviewing a client in a big pharmacy, he mentioned, "I only come here when I cannot get what I need from my neighborhood pharmacy. My secrets are all known to my neighborhood pharmacist, not to this one here. They have contacts with the drug distributors, this is why they keep the pharmacy well-stocked."

To summarize the role pharmacists play in the big central location pharmacies, one can say that all the services offered in the neighborhood pharmacies are also offered in the big pharmacies. However, one notices the following:

- o More foreign brand-name drugs.
- o More stocked drugs.
- o Larger numbers of clients.
- o Less time to spend with clients.
- o Fewer clients without prescriptions.
- o Clients require minimum instructions for drug use.
- o More sales of baby formula and birth control methods, especially OC's and foaming tablets.
- o A better sense of organization and bookkeeping.

One pharmacy manager stated, "people come to us because they cannot find what they need. I have good relations with the distributors. You have to keep them happy. So I stock my pharmacy with winter drugs in the summer and vice versa. This seems to be a good strategy to have the necessary drugs all the time."

c. Rural Pharmacies

Pharmacies open in main villages or districts simply because of the availability of infrastructural services necessary for pharmacy operations. Rent is cheaper than in Cairo, so pharmacies tend to be more spacious, but not necessarily more organized. Dust, flies, and fleas are no strangers to a rural pharmacy. Staffing usually consists of a pharmacist owner/manager and an assistant salesman.

The drugs available at the rural pharmacy are indicative of consumption patterns: no "Pampers", foreign cosmetics brands, or fancy red hair dyes. As one rural pharmacist said, "Only very few buy 'Pampers.' I buy them for my pharmacy for summer clients who return from Arab countries loaded with money and have learned about these luxury items. People here prefer 'Henna,' a local powder dye, to foreign brands. The local prices also are more reasonable than imported cosmetics. However, T.V. commercials are changing peoples' minds. They introduce new cosmetic brands in an appealing way." Antibiotics, vitamins, and painkillers are still the most commonly purchased drugs.

A rural pharmacist has to know the clients by name. A client's family history, political influence, wealth, and socioeconomic positions are important background for the rural pharmacist. People pay more attention to taking part in community and personal events like funerals, weddings, visits to a sick patient, etc. The pharmacist has to show respect to heads of families and might have to be involved in the village politics. A pharmacist expressed his view by saying, "I have to take the time to visit important sick patients and offer them my help. I also have to spend time talking to some important clients. We are all friends and relatives here." The rural pharmacist might be a stranger to the village or he might be from the village. If he or she is from the area, people's expectations increase. Thus, a pharmacist might be awakened at 3:00 A.M. to

get a medicine for a family friend, neighbor, or relative. Discounts are expected by close family friends. Economic transactions in the rural pharmacy have to comply with the social expectations. Patronage is often based on a strong feeling of obligation and an intricate relationship of favor exchanges. A pharmacist in a rural area might give a discount to the district mayor, and the mayor might give special instructions to security guards to make sure that no robberies take place in the pharmacy's area.

Rural clients often have difficulty understanding the pharmacist's directions of drug use. A pharmacist has to be patient and talk to the client in their own dialect and repeat his sentences three or four times. A female peasant who came in with the researcher said that the medicine the pharmacist had sold her was not good. After a lengthy discussion, the pharmacist discovered that she was using the eyedrops as nasal drops and vice-versa. Confusion about drug use is a problem of illiterates who forget verbal instructions and cannot read the pharmacist direction, written usually by hand on the outside box.

Female clients are shy and usually send their mothers or older friends to ask for medicine. More men and children frequent the rural pharmacy than women. Important village families send a servant to the pharmacy to purchase their needs, or the head of the family himself might stop by the pharmacy and chat with the pharmacist for a while and purchase whatever he needs. Younger females might frequent the pharmacy with a mother or an older friend. The older woman is usually the spokeswoman for the younger female. A female in her fifties accompanied by a young girl of seventeen asked for night cream and a red dye. She looked at me and said, "It is not for me, it is for her; she is a bride. Oh, she ran out; don't be shy. I just want you and the pharmacist to know that I do not use these things. I am old now; my young days are gone!"

A pharmacist might select a rural location close to Cairo where he lives. He might also ask two or three of his friends to open clinics in neighboring villages. The doctors and the pharmacist complement each other's work. Professional jealousies in these cases are forgotten because of the personal relations. Sometimes the doctors and the pharmacist commute daily to the village in one car. In these cases, a pharmacist does not prefer to prescribe medicine himself; he is most likely to refer the client to his doctor friend. A pharmacist commented on this subject by saying, "If I prescribe to a client, I will never sell more than a 1.50 piastas or LE 2.00 worth of drugs. But the minimum prescription now costs LE 5.00. It is better for me to send the client to a doctor. Plus, of course, I will be free of the responsibility of maybe prescribing the wrong medicine."

Sometimes a pharmacy is located near a factory where laborers fill their prescriptions for a nominal fee amounting to one fourth of the price from the pharmacy. The pharmacist writes a receipt and submits his receipts to the factory at the end of the month to be reimbursed. One pharmacist complained, "Sometimes I have to wait for weeks before I get paid. Of course, I have to pay the company representative regardless of my getting the money from the factory or not. If I do not pay on time, I'll never be able to order again. So this system gives me headaches. However, it's a good source of income, too. The worst part are the clients from the factories. They do not always want the prescribed medicine. They might want cosmetics instead, or even cash! Some pharmacies, I hear, substitute the medicine with cosmetics. I do not do this. It is illegal."

One could summarize the differences between a rural pharmacy and an urban pharmacy in the following manner:

- o There are fewer personnel in a rural pharmacy.
- o Clients often have difficulty with drug use instructions.

Generally speaking,

- o There is more space in a rural pharmacy.
- o Rural pharmacies deal more in local drugs than imported brands.

PHARMACISTS' CLIENTS

1. Sex, Age, and Socioeconomic Levels

Pharmacies are frequented by people of all ages and sexes. Pharmacies also carry veterinary medicine, so clients might bring their animals' health problems to the pharmacist. One pharmacist had to scold a man who brought his sheep inside the pharmacy. The man bought a plastic syringe and asked the pharmacist to give the sheep an injection. The indignant pharmacist refused and asked the man to see a veterinarian.

Female clients mentioned that they prefer a female pharmacist because of modesty, especially in birth control counselling and feminine hygiene topics. A young female client said, "I like this pharmacy because of the lady pharmacist. I am not embarrassed to ask her for tampons and things like hair removal creams or the local brands for hair removal. I am shy by nature!" Several other female clients supported this view. Topics related to sex, menstruation, feminine hygiene, birth control methods, and intra-vaginal or anal drugs are all embarrassing to females, especially young ones. The presence of a female pharmacist or a saleswoman facilitates communication in these areas.

It is interesting to note that female pharmacists might be trusted by male clients, and topics like sexual problems and male birth control methods are discussed with the female pharmacist in privacy. One female pharmacist said, "I put condoms in an accessible place for clients so they can pick it up themselves. I do not make a big fuss when a client asks for male hormone shots. As a matter

of fact, I know who wants them and I just wrap a few for the person and charge them. Secrecy is extremely crucial because the male ego cannot stand publicity about potency matters." It usually takes time, trust, and friendliness before a male trusts a female pharmacist with his sexual problems.

Male birth control methods are used now in Egypt with increased frequency. Condoms, which were associated with illicit sexual activity, are finding their way to middle class Egyptians whose wives complain of pill complications. A rural pharmacist laughed and said, "Yes, even the peasants are starting to use them, especially when the wife is lactating. I believe sixty percent of the sales are for use during intercourse and forty percent for the kids. They use them as balloons. They are cheaper than balloons and do not pop as fast." In rural areas female pharmacists are scarce. Male pharmacists mentioned that birth control drugs are often bought by a male or a child who is sent with a piece of paper requesting a certain brand.

More females than males visit the pharmacy in the daytime. Females might stop by the pharmacy for purchasing a drug or medical advice from the pharmacist in the morning slow hours. Females buy their cosmetics, ask about vitamins, and talk about their families' health problems because the pharmacist has a little free time. The morning hours are spent in organizing, cleaning the pharmacy, and chatting with clients. A pharmacist finds free time to ask about the clients' families and their medical problems. Even social counseling about marriage and partner selection are among the topics discussed with a trusted pharmacist.

Small purchases are made in the morning hours. Children frequent the pharmacy, purchasing aspirin, oplatedun, Novalgin (pain killers), cough medicine, and first-aid medicine. The work load is usually less than the evenings or the afternoons. A pharmacist finds time to count his money, arrange his change,

talk to distributors, or even go to the different drug companies. In many rural areas, pharmacists do not open their door until noontime because there are not many clients in the morning hours.

During the early afternoon hours, males start frequenting pharmacies in greater numbers. Males returning home at 2:00 or 3:00 P.M. buy their families' drug needs before going home. Single day prescriptions are commonly seen in these transactions. Interactions with the pharmacist tend to be short and prescription-guided.

Owners of rural and urban pharmacies sometimes extend credit to their clients. Clients who are temporarily short of money, or paid on a schedule that makes cash flow difficult at certain times of the month, ask for medicine on credit. A pharmacist extends credit to people he or she trusts. Familiarity with the clients' socioeconomic problems, their addresses, the number of children the person has, their past payment record, their honesty, their need, etc., are all variables taken into consideration when credit is given to a client. Only small neighborhood and rural pharmacies use this system. The pharmacist usually writes the name of the person and the amount loaned. Clients pay their debts to the pharmacy before any other debts simply because with bad credit they will never be able to buy medicine in emergency situations. Clients even borrow from relatives to pay their debts to the pharmacist. One female client said, "Before I feed my kids, I pay my debts to the pharmacist. Otherwise, I will lose face and I could never ask him for medicine again."

The educational level of the clients determines their selection of drugs, their need for instructions to use drugs, their utilization of the pharmacy, and their relationship with the pharmacist. The educational level of the client is reflected in dress, grooming, and above all in the way a client pronounces names of drugs. An illiterate client is most likely to identify a drug by price, box color,

pill color, and use. A typical request might be: "Would you please give me the LE 2.00 drug, the red one for my side." An educated client will identify the drug by its proper brand name. An educated client is most likely to see a doctor rather than ask the pharmacist to prescribe medicine. However, middle class Egyptian males take their wives and children to doctors when needed, but will postpone seeing a doctor themselves. Part of the behavior is explained in the cultural belief that men are strong and should not be sick, and that a head of the family should be the last to spend money on himself. (Only in severe medical conditions is a male forced to see a doctor.) This attitude is more prevalent among educated rural clients than Cairo dwellers. Vitamin sales are higher among educated clients who culturally view vitamins as a must for prevention of disease.

A pharmacist answered the question of differences between educated and uneducated clients by saying, "Only in the way they dress or pronounce the name of the drug. An educated client says, 'Do you have "Pampers" please?' The uneducated will call it 'bampers.' Mispronouncing the name is common among the uneducated. Also the uneducated ask about drug utilization three or four times before they understand it." Educated clients prefer foreign imported medicine over locally manufactured drugs. They are also big consumers of foreign brand cosmetics.

The client's educational level also determines the degree to which personal problems are discussed with the pharmacist. The higher the level of the client's education, the less likelihood there is of sharing personal problems. Relationships with the pharmacist are usually friendly but formal. Short interactions often result in drug purchase or medical advice.

Traditional health practitioners frequent pharmacies to purchase modern drugs. A pharmacist said, "The local midwife comes here to buy gauze, cotton,

antibiotics, and the injection to speed labor." In an interview with a midwife she mentioned that modern medicine is as important as traditional medicine in her trade. She said, "I buy the labor shots to help in delivery, but I use an herbal concoction called "mugat", an herbal recipe recommended for new mothers, to make the new mother feel strong again. I buy antiseptics like "Detox" to wash the new mother. I buy powder and gauze and sulfa powder for the baby's belly button." An owner of a rural pharmacy stated he is often requested to give the injection to mothers in labor by his midwife friend. There seems to be some form of cooperation between rural pharmacists and rural midwives.

Clients traveling to Arab countries stock up on drugs from Egypt before they leave the country, as the subsidies that go into the drug industry, make Egyptian drugs are cheaper than their equivalents in other countries. Egyptians who work in Arab countries find it cheaper to buy their favored drugs from Egypt before their departure. Drug sales during the month of August escalate when Egyptians leave after spending their summer vacations with relatives and friends.

2. Clients' Health Problems and the Pharmacist

In Egypt, people see the pharmacist as an important figure to consult with whenever there are health problems. The common Egyptian believes that "health is in the hands of God." But sickness necessitates a cure. A cure could be sought from modern specialists like physicians and pharmacists, or from traditional practitioners like herbalists, health barbers, midwives, and bone setters.

It is easier for an Egyptian to walk into a pharmacy and talk to a pharmacist about his health problems than to visit a doctor. A pharmacist's advice is free, while a doctor's advice could be costly. The pharmacist saves time; there is usually no long waiting period like a doctor's clinic. To the

uneducated Egyptian, since both a physician and a pharmacist are addressed as "doctor", it is assumed they both must know the same information. One pharmacist said, "I know I should not prescribe medicine, but I also know that the client that seeks my advice seeks it for a reason. He must not have the doctor's fee, or is shy to see a doctor, or is lazy and will never go to a doctor, or too proud to see a doctor, etc. We pharmacists fill this gap."

A pharmacist's advice requires no fees, ritual, or long wait. Pharmacists are numerous in Cairo and in rural areas, so a client does not have to travel far to see a pharmacist. Moreover, pharmacists tend to talk to clients more than doctors. They tend to explain matters in more detail. They reassure clients, they interpret doctors' prescriptions, and they comfort clients who seek their services.

Most pharmacists are careful not to handle cases where there is high fever, bleeding, or badly infected wounds. Pharmacists refer clients to private doctors or to hospitals. Pharmacists fear the responsibility of legal action against them in case of the wrong diagnosis.

It is interesting to note that many individuals ask a pharmacist whether their prescription is a good one or not. A client said, "It is a second opinion. Plus, this good man always explains things to me. Doctors are so busy they never take the time to explain to us our problems." One orderly working for a village doctor stopped by the pharmacy and said to the pharmacist, "I do not feel well. The doctor I work for wrote me a prescription; would you please see if it is any good?"

3. Clients' Medical Repertoire

The average Egyptian overeats, and consequently finds himself in need of digestive drugs. Seasonal diseases like colds, summer diarrhea, spring fevers,

and eye problems are not uncommon. Dust, flies, poor sanitary conditions, coupled with a total lack of self control in eating fatty, sweet foods all affect Egyptian health conditions. People show their generosity or their wealth by indulging in eating greasy foodstuffs. Many Egyptians buy huge supplies of liver and digestive drugs to help cure their stomach ailments. Regardless of education, class, sex, or age, an Egyptian in his or her thirties becomes dependent on drugs to remedy stomach problems. The researcher was offered a delicious but greasy dessert in a pharmacy. When she expressed concern about the difficulty of digesting the dessert, everyone present said, "No problem! Take Festal tablets, an Alka Seltzer type tablet for digestion. It will help you digest even iron!"

Because of this cultural attitude of dependency on drugs, Egyptians' common knowledge about drugs is high. They learn about drugs from their parents, relatives, friends, pharmacists, etc. Sharing prescriptions, or giving medical advice to a friend, or recommending a medicine that worked for a case to another person are all common practices.

The most popular drugs known to the average Egyptian and their associated indications are as follows:

Aspirin	Headaches
Optalidon	Headaches
Algon & Caffenol	Headaches
Novalgon	Painkiller
Liposis	For liver problem
Festal	Digestive
Andrews	Indigestion
Polzygom	Digestive tract
Zymogen	Digestive tract

T.R. Iodin	Cuts
Microchrome	Cuts
Tiramicin ointment	Eye problems
Chrolamphinicol	Eye drops for eye infections
Titracyclin	Throat problems
Introvioform	Diarrhea
Entocide	Tablets for diarrhea
Bellacide	Stomachache
Polydermin ointment	Burns (known locally as "the red ointment for burns")
Gentiana	Paint for rashes
Vitamin A	Known locally for eye problems
Vitamin C	Known locally for colds
Vitamin Bx	To be taken with antibiotics
Vitamin E	To increase male sexuality
Vitamins with male hormones like:	
Primotestone	For sexual potency
Bazoma	Tablets for sexual potency
Jeverene	Known locally to increase male sexual appetite
Jevral	For increasing female sexuality
Spasmocanols	For cholic attacks
Coliurinals	For urinary infection
Nasar pills	For irregularity
Boldolaxin	Laxatives
Alphalaxin	Laxatives

The average Egyptian knows these drugs by their brand name and uses them without doctors' prescriptions.

As for birth control, the pharmacist could be instrumental in recommending different methods. Most pharmacies visited sell different brands of pills. Condoms, creams, and IUDs are present in some pharmacies. Clients know about birth control pills and IUDs more than creams. In the past, condoms were used only whenever a male frequented a place of prostitution. Today a new condom brand called "Tops" seems to be popular, especially when females are lactating or suffer from oral contraceptives' side effects. Pills are often used incorrectly by uneducated females. Some use the pills only on the night intercourse takes place. Others forget the pill for a few days and resume them later. During the fasting month for Moslems, some females continue taking the pill so they can fast the complete thirty days of the month. Continued pill use helps the female avoid menstruation, a medical and hygienic condition that requires the female to stop fasting.

Clients identify drugs by price, box color, tablet or pill color. Any changes in the drug color causes clients and pharmacists a great deal of confusion. Rural clients in particular insist on matching the old outside box with the new one. They sometimes look at the tablet colors to cross check the content of the bottles. Rural clients prefer red colored pills over yellow ones, but one woman said, "We have no control over the color. We take whatever the doctors prescribe for us."

People know about new drugs from their doctors and pharmacists. Individuals maintain a suspicious attitude about a drug until doctors prescribe it or a pharmacist or a friend recommends it.

Baby formula is known to urban and rural clients. Urbanites use formula more than rural mothers. However, most pharmacists have confirmed that

formula sales in rural areas are rapidly increasing. A mother takes her relatives' recommendations about the formula brand name. If she notices problems and the baby's health is not good, she may change to another formula brand recommended by a doctor or a pharmacist.

Pregnancy test kits are sold both in pharmacies and grocery stores. Only educated clients are encouraged to use the kits. Pharmacists advise uneducated women to go for a pregnancy test to a doctor. A pharmacist said, "It requires that instructions be followed strictly without changes. Uneducated people are incapable of following the instructions. The kit is expensive and if they get the wrong results, they will give me a headache."

G. PHYSICIANS VS. PHARMACISTS IN EGYPT

Like most countries, professional jealousies exist between pharmacists and doctors. In Egypt, the relationship between doctors and pharmacists tend to be tense because of competition. Doctors accuse pharmacists of being unprofessional when they diagnose diseases and prescribe medicine. A doctor expressed this view by saying "Medicine and clinical studies are sciences. To ignore the long years of training and recommend medicine on the basis of superficial recognition of symptoms is very dangerous and is illegal in Egypt. But pharmacists interfere in our job."

Doctors also complain that pharmacists sometimes sell substitutions for drugs rather than originally prescribed drugs because of drug shortages. Physicians require that patients show them the medicine before they take it to make sure no substitutes were sold to the patient.

In spite of this, pharmacists and doctors recognize that their work is complementary to each other. They also realize the influence a doctor or a pharmacist has on the other's practice. The pharmacist/physician referral

system is interesting and indicative of a good relationship between the two professionals. One pharmacist said, "There are three gynecologists in this area, but I always recommend Dr. Ahmed. He is a skilled and experienced surgeon. People come to see him from miles and miles away. He is also a good friend."

Pharmacists tend to give doctors special privileges that range from big discounts to free drugs. Doctors reciprocate by refusing pay from pharmacists or their close relatives. Exchanges of gifts and favors are not uncommon in Cairo as well as rural areas. The nature of the relationship determines whether a pharmacist orders drugs that are prescribed by a doctor or not. A young male pharmacist mentioned that he receives clients from four area doctors, so he is keen on having their favorite drugs available for his customers.

Because clients talk more to pharmacists they trust, a pharmacist could destroy a doctor's practice by spreading rumors or making a client lose faith in a particular doctor. It is crucial to the patient to feel that his pharmacist approves of his doctor's prescription. Lack of trust between a doctor and a pharmacist results in clients' discomfort and change of either the pharmacist or the physician.

In interviews with pharmacists in rural areas, it became obvious that each pharmacist has his favorite physicians where he draws most of his clientele. The religious background may play an important role in the referral network. However, a pharmacist said, "What is more important than religion is that the professional is skilled in his work. Coptic or Moslem does not matter as much as being a good doctor or a good pharmacist. Clients look for skill first and religion second."

Pharmacists interpret prescriptions to their clients. They take the time to explain the malady, the utilization of the drug, and may even pass a judgment on the prescription. Doctors resent being judged by pharmacists. One doctor said,

"The pharmacist role is a sales role; he or she ought to sell the drug, write the way it should be used, and keep their mouth shut. They are not trained in medicine like us." From a pharmacist's point of view, their role is bigger than the sales aspect. They see themselves as intermediaries between physicians and clients. They feel that their role includes comforting the client and answering all inquiries about diseases and drugs.

H. A PROFILE OF A SMALL NEIGHBORHOOD PHARMACY OWNER

Dr. Hussein's pharmacy is located in a low income neighborhood off Pyramid Road. He has owned it for six years. He employs a veterinarian doctor for the night shift and a fourteen year old salesboy. He works from 9:00 A.M. until 3:00 P.M. with the boy helping him in the morning slow hours. He goes home at 3:00 and his veterinarian friend takes over until 7:00 P.M., when Dr. Hussein arrives back to the pharmacy and the two doctors and the boy all work until midnight.

The pharmacy is extremely crowded with drugs, chairs, a refrigerator, a scale, a desk, a wooden counter that separates clients from the pharmacists, and a very small back room where there is a sink, several boxes, a little space for giving injections, and hundreds of stored drugs on shelves. There are no pictures except one framed verse of the Quran.

The wooden counter at the center gives this pharmacy the appearance of a grocery store rather than a pharmacy. Behind the counter stood the salesboy, the veterinarian, and the pharmacist. In the busy evening hours sometimes there were more than six people being helped all at the same time. The salesboy was always using a ladder to get drugs from high shelves. There were three plastic chairs surrounding the wooden desk with an open middle drawer with money in it. One of the side drawers had the word "Narcotics" written on it in Arabic, and I

was told there were 5 morphine shots stored in this drawer. Although there is a total absence of aesthetics in the place, there was certainly a relaxed feeling of trust between clients and the pharmacist.

Dr. Hussein said, "I am sorry the place is a mess, the dust here is real bad because they are digging the sewage pipes in the street, but that would not stop us from receiving our clients. Now it is 3:00 P.M.; it is a busy time for us here in the pharmacy. People leave their doctors' clinics and come to fill their prescriptions. As you might have noticed we do not chat and joke a lot like in the mornings, when we have more time to talk to clients and listen to their problems. These people sometimes go downtown to see their physicians, but they still come here to their neighborhood pharmacy to fill their prescriptions. They trust my pharmacy because I keep a good supply of all the needed drugs. This is the secret of my success: I predict needs, I stock supplies, I read the market, and I invest most of my earnings in the pharmacy. Let me tell you the truth about being in this business: you need to be 90% trader and 10% scientist, and a humanist. This is my philosophy. My father was a trader; he owned a grocery store, and I used to work for him after school hours. I watched him carefully. He read the market, he predicted needs, and stocked the store with goods. He never turned a client away because he did not have what they wanted. He knew that was his secret, and I follow the same philosophy. Yes, being nice to clients, being sympathetic, being interested, being honest, all help. But the secret is to provide them with what they need. When I tell someone I do not have this drug, he knows it is going to be very difficult to find it somewhere else.

"I graduated from the University nine years ago. I wanted to be a pharmacist, so I studied hard to go to pharmaceutical school. After my graduation, I was drafted in the army. I got in trouble because I would not obey orders. I used to question everything first before I accepted it. This did not go

too well with the military types, so I was thrown in military jail several times. I used to dream in my cell of the day I will own my pharmacy. But my insubordination in the military stood between me and the dream. Finally I got out of the army, penniless. I worked at night in a friend's pharmacy. After two years, I succeeded in convincing my mother to loan me ten thousand Egyptian pounds. I got this place, the license, and bought five thousand pounds worth of drugs. The first year was very hard because I had to work all alone by myself because I could not afford to hire anybody to help. I used to work ten hours and even eleven hours a day. But I was not married then, and work was my life.

"After a year, I got married and it became obvious to me I cannot work long hours. So I hired this kid; he is fourteen now, but then he was ten from our village in Upper Egypt. He is like a son to me; he has learned a great deal. He recognizes all the drugs; he is starting to prescribe medicine! Of course, I do not leave him alone; he is always with a pharmacist. It is too bad he does not know how to read well.

"During the first two years I have borrowed money from my mother and uncles. You know I cannot use the pharmacy as collateral to procure a loan. I can use land but not a pharmacy. My policy is to live on the bare minimum and to buy with the money drugs. Maybe this is why the pharmacy is a little crowded; I hope you do not mind. But I will soon have a carpenter build an attic. I have to find a good one because they could cheat you; this is hard-earned money."

He talked while he handed people medicine and gave them change. He stopped to tell a customer that he had no change and will give him four piasters worth of aspirin instead of the money. "I am sorry, but we have this difficulty with change in this country. Anyway, aspirin is good, they will use it; it would not go bad. Grocery stores give out match boxes and pharmacists give aspirin.

People do not object anymore. One day people will start dealing in matchboxes and aspirin instead of money!"

"Excuse me for a minute. Hello Abou Ali, how are you?" He lifted the counter and stepped out to kiss and greet this man. The he looked at me and said "He is my best customer. Would you like tea, coffee, or something cold? Go, kid, and get us something cold for our visitors. Abou Ali is an auto mechanic shop owner. He comes here once a month to buy vitamins and colognes, etc."

As the veterinarian continued to fill prescriptions, a long irregular line started to form. Dr. Hussein was busy with his friend Abou Ali, who proceeded to purchase ten vinamin bottles, 3 antibiotic boxes, 2 big bottles of perfume, 3 kinds of toothpaste, 10 boxes of kleenex, 4 rolls of toilet paper, four boxes of shaving cream, six bottles of cough medicine, and several boxes of pain killers.

The purchase was interrupted by conversations with other customers and questions from the veterinarian about the whereabouts of certain drugs. The pharmacist amazingly maintained his client and friend Mr. Ali interested, answered his questions of "Do you not have a more expensive kind of perfume, like the one my neighbor Mr. Kamal bought? You know his wife is not better than mine, so I'll buy the most expensive type." Also Dr. Hussein continued to take money and hand over change and aspirin to other clients. After half an hour and a LE 46 purchase, Mr. Abou Ali left.

Dr. Hussein looked at me and laughed. He said, "Like I told you, he is one of my best clients. He comes in once a month and buys drugs like crazy. I can never figure out why he buys all these drugs. I know the vitamins with male hormones are for him, many people here have sexual problems because of drug problems, so they use these male hormone pills. Cough medicine is used here by drug addicts as a substitute for drugs."

As for the pharmacist's hopes for the future, he wanted to own an apartment for his small family. He said he enjoys working for himself and has no desire to change jobs. He said, "I have two children; maybe there will be a third. But my wife works, and we want the kids to go to good schools. So only three children is right for us."

He also expressed hope that the law would allow pharmacists to raise their discount to twenty percent on all drugs. He felt that customers should not pay more for drugs because they cannot afford to, but it is the government's obligation to subsidize drugs. He mentioned that the present discount system does not keep up with inflation in Egypt.

I. PROFILE OF A SALESBOY IN A SMALL NEIGHBORHOOD PHARMACY

Ali is only fourteen years old, yet he has spent the last six years working as a farm laborer and as a pharmacist's helper. Ali is the fifth son of a peasant family of nine in Upper Egypt. He was born to a landless peasant father who was overcome by schistosomiasis and lost his job as a farm laborer. Ali used to help his father with his agricultural chores after school. He went to school for one year, and had to drop out because his family was worried about their poverty and school required shoes, supplies, and clothes.

Ali worked as a farm laborer earning 30 piastres for two years. He never took time off because his family depended on his income for food and drugs for his sick father. He worked with two of his brothers at a state farm and visited his family for feasts only.

One day Ali's father told him he did not have to work at the farm anymore, but he would be sent to Cairo with Dr. Hussein, a friend whose family owns land in the village. Ali's reaction was sadness because he would not see his brothers or family anymore. He talked about his mother crying when he left for Cairo.

Now Ali is fourteen years old. Having worked at Dr. Hussein's pharmacy for four years, he knows all the drugs by name. He said, "When I first came here, I cleaned the pharmacy, washed the floors, and did errands only. But I used to listen to Dr. Hussein and his doctor friends. I soon began to know the drugs by their outside boxes and their colors. I also know their locations in the pharmacy. I watched Dr. Hussein prepare some drugs. Now I could also prepare these drugs. I miss my family, but I see them once a year. Dr. Hussein sends my salary to my family. I do not know how much exactly. He also buys me clothes, and I have some spending money, too. He is a good man, even when he beats me for making mistakes or breaking bottles."

Ali's only hope is that he learns how to read and write. He said, "I wish I can go to school one day and learn reading and writing. Then I would be able to read the prescriptions and the labels on the boxes. There is a literacy school offered here in the evenings, but the evenings are busy times for us here."

In a few more years, Ali would give shots to patients in the pharmacy. He did not seem to know if he would continue working for Dr. Hussein. Only the doctor and Ali's father make these decisions for him now. He expected to stay with Dr. Hussein because he was a good man that allowed him to watch T.V. whenever there were no clients in the pharmacy.

J. A PROFILE OF A CLIENT

Hassan is an automechanic who earns LE 7 daily at a body shop in old Cairo. He is 33 years old, but looks like he is forty. He dropped out of school at age eight to work as a plumber's helper for 10 piastres a day. He left plumbing to work for a carpenter for three years. He enjoyed working there, but the owner died and his family closed the shop. Hassan took a job as a shoe repairer and learned the skills necessary to work with leather.

Hadj Ahmed, who lived in Hassan's neighborhood, opened an autobody shop and needed helpers. Hassan liked Mr. Ahmed. He said, "I went to work for him because he is a kind man and he is also honest. I started here a few years back with a 50 piastre daily wage. Life was tough then; there were not so many cars and the competition was strong. There were times when I did not get paid, but Hadj Ahmed always made sure I had food. Now things are different. We have more work than we could finish. My wage is LE 7 a day. I am the head automechanic next to Hadj Ahmed. I love my work; I just pray it continues this way."

Hassan married at age twenty-one. He has four children. He commented on the topic of the family size. "Four children is good. I will send them all to school, girls and boys. I cannot read or write, but they will have this opportunity." Hassan's health is not good, according to his pharmacist's and doctor's opinions. He has high blood pressure, intestinal problems, and back pain. He visits the neighborhood pharmacy at least once a day. He said, "I have to buy aspirin, or my digestive pills - I take these after every meal, and of course, most important, the blood pressure drugs. They are no good for me as a man, so I have to take vitamins - the ones with male hormones." Hassan also has a drug problem. He smokes hashish whenever he can afford it. He feels there are "a few ways to enjoy life. one of them is to smoke hashish." He started smoking at age fourteen. He smokes two packs of cigarettes a day.

He said, "I go to the pharmacy to get something for my headaches. Whenever I am short of hashish, I get bad headaches. I went to the doctor only once for my blood pressure. The pharmacist is a good man; he recommended some drugs for my back and stomach. I keep a good supply of my back drugs because I cannot live without them. Our pharmacist is a very good doctor. I have to go congratulate him; his wife gave birth to a boy."

Hassan uses a credit system with the pharmacy. There are times when he is short of money. He sends his kids, or goes himself to the pharmacy and tells the pharmacist he will pay later. He makes sure to pay his debts promptly so the pharmacist will not deny him credit.

On the subject of the relationship between Hassan and the pharmacist, Hassan said, "We all respect the pharmacist here. I go to him because he is kind and skilled; he also jokes a lot and I love to joke. I fixed his car for him for free the other day. He has done me so many favors, I could not have accepted payment from him. I first got to know him when I had an emergency at the shop. One of the helpers cut his hand. So I rushed to this new pharmacy because it was close, and I asked for help. He came with me, carried the boy to the pharmacy, and administered first aid. Since then, I never buy medicine from anybody else."

NOTES

1. Based on discussions with the Ministry of Health, the Pharmacy Administration, and the Technical Secretariat for the Drug Sector, and from "Legal and Practical Requirements for Registration of Drugs for Human Use," Second Edition (1980) the International Federation of Pharmaceutical Manufacturers Association, Zurich, Switzerland.
2. The Ministry of Interior mentioned levels as high as LE 35 million in a June 14, 1977 discussion at the People's Assembly.
3. The source for most of this section is "Industrial Outlook Report: Pharmaceuticals-Egypt," American Embassy Laws, April, 1979.
4. June 2 "Al Akbar article discussing the price increase.
5. Ex Minister Badran mentioned these as partial justification for the 1977 price increase, especially in his speech to the Peoples' Assembly, June 14, 1977.
6. From discussions with Ministry of Health Officials and "Industrial Outlook Report: Pharmaceuticals - Egypt," American Embassy, April, 1979. A more precise geographical distribution of consumption is to be provided from figures requested from EGYDRUG.
7. See Chapter III.
8. See Appendix IV, February 7, 1982 editorial for the Egyptian Gazette, for an example of this view of Egyptian drug use.
9. Sources for these figures and the discussion that follows are from the Ministry of Health, Health Profiles of Egypt, Study on Health Financing and Expenditure in Egypt," Publication No. 10, April, 1980; and from Carl M. Stevens, "Health Services in Egypt: Some Economic Indicators," USAID, 1981.
10. Ibid.
11. Nawal Nadim, "Rural Health Care in Egypt," International Islamic Center for Population Studies paper under sponsorship of International Development Research Centre, 1980. p.8.
12. The source of this information is private conversation with public officials and with private pharmacists.
13. Hind Kahattab and Syada Daeif, "Impact of Male Labor Migration on the Structure of the Family and Roles of Women," Population Council Regional papers, 1978.
14. Nawal Nadim, "Rural Health Care in Egypt" International Islamic Center for Population Studies, under a grant from the International Development Research Center, Idrc-ts15e 1980.

15. See Chapter III for discussion and observations on this.
16. S. Sukkary, "She is No Stranger: The Traditional Midwife in Egypt," Medical Anthropology, Vol. 5, No. 1, Winter, 1981.
17. Akhersaa, No. 2461, Dec. 23, 1981, p. 62.

APPENDIX I

List of Pharmaceutical Firms

A partial list of the firms in the pharmaceutical industry includes:

1. Al Gomhouria Company for Trading, Chemicals, and Medical Appliances
6 Shawarby Street, Cairo
Telephone: 976200 or 976208
Cable: GOMCOM, Cairo
This firm imports the chemicals and other raw materials used by the seven public sector and three joint-venture drug manufacturers.
2. The Egyptian Company for Trade and Distribution of Pharmaceuticals (EGYDRUG)
33 Abdel Khalek Sarwat Street, Cairo
Telephone: 933248 - 976833
EGYDRUG distributes drugs manufactured by Egyptian Pharmaceutical firms and imports finished drugs on behalf of the Egyptian Government.
3. El Nasr Pharmaceutical Chemical Company Purchasing Office
28 Talaat Harb Street, Cairo
Telephone: 49168
The El Nasr factory produces fine chemicals for the manufacture of drugs. (Factory located in Abu Zaabal, Northeast of Cairo).
4. Medical Packing Company
47 Industrial Zone
Abbassia, Cairo
Telephone: 836144
The Medical Packing Company manufactures the packing for pharmaceuticals produced by public sector firms.
5. Al Qahira Company for Pharmaceuticals and Chemical Industries
46 Kasr Al Ainy Street, Cairo
Telephone: 32449
P.O. Box 793, Cairo
Cable: DOSENAL
6. Memphis Chemical Company
9 Emad El Din Street, Cairo
Telephone: 906708
7. The Arab Company for Pharmaceuticals and Chemical Industries
3 El Massanei Street
El Amlria, Cairo
Telephone: 8645a94 or 871491
P.O. Box 1343
Cable: PHARMA ARAB, Cairo

8. **Chemical Industries Development Company (CID)**
Talbia, Cairo
Telephone: 850922/3
9. **Misr Pharmaceuticals and Chemicals Industries Company**
92 Mataria Street
Zeitoun, Cairo
Telephone: 862093 or 863865
10. **El Nil Pharmaceuticals and Chemicals Industries Company**
3 El Sawah Square
Amiria, Cairo
Telephone: 875820 or 875825
P.O. Box Massaken el Amiria, Cairo
Cable: NILPHARM
11. **Alexandria Company for Pharmaceuticals and Chemical Industries**
El Siouf, Alexandria
Telephone: 63726 or 61726
Cairo Office: 11 Dr. Abdul Hamid Said Street
Telephone: 937023
12. **Pfizer Company Egypt**
47 Ramsis Street, Cairo
Telephone: 970427 or 979213
P.O. Box 2357
Cable: PFIZER, Cairo
13. **Swiss Pharma**
El Sawah Street
Amiria, Cairo
Telephone: 871806 - 9
Cable: SWISSFARMA, Cairo
14. **Hoescht Orient**
3 El Massaneh Street
Matareya, Cairo
Telephone: 860246
15. **Squibb**
Factory: 17 Studio Misr Street, Pyramids Area
Scientific Department: 3 Ahmed Nessim Street, Giza
P.O. Box 4, Giza, A.R.E.
Telephone: 984155

APPENDIX II

Regulations or Guidelines
For Registration of Pharmaceutical
Preparations.

Steps :

- 1) There is a list of Documents required(enclosed)
- 2) Submission of the file including the required documents to the Registration Department in the General Administration of Pharmacy
- 3) The file is presented to a high committee assigned by the Minister of Health, concerned with high policy procedures- There, it is evaluated in different aspects including efficacy, need for the Egyptian market and price.

A primary approval is issued for registration procedures.

- 4) The file is returned to the Pharmaceutical Registration department where it is thoroughly studied and confirmation of its safety data is fulfilled - A report is prepared and added to the file
 - 5) Samples of the product are sent with the file to the National Organisation for Pharmaceutical control & Governmental Laboratories for chemical analysis, conformity & potency.
 - 6) If results are positive, the report of analysis with the file are submitted for final approval by the Scientific Committee for drug control(according the pharmacy Law 127 in the year 1957).
 - 7) The drug is granted a licence and a registration number which has to be marked on the outer label.
- Re-Registration is required every 10 years.

Documents Required for Registration
of Pharmaceutical Specialities

1. A covering letter indicating the documents contained in the file.
 2. An application form for registration, duly filled in and signed.
 3. Five copies of the formula, indicating excipients, colouring matters, preservatives, solvents, etc ...
 4. Certificate of Origin and Free Sale from the Ministry of Health at the country of origin, legalised by the Egyptian Embassy or Consulate in that country, including clearly:
 - a- Name and address of the manufacturer.
 - b- Name and strength of the product concentration of active ingredients
 - c- That the product is freely sold in its country of origin under the same name and composition.
 5. Five copies of the methods of analysis.
 6. 7-10 samples for analysis.
 7. A governmental postal order for the sum of 5 Egyptian pounds to be issued in the name of the General Pharmaceutical Administration Ministry of Public Health.
 8.
 - a- 5 outside labels
 - b- 5 inside labels
 - c- 5 inner circulars if any.
 9. Certificate of analysis in 2 copies, showing the same batch number of the samples submitted for analysis. It should show the date of preparation and expiration date, if any.
 10. In case of antibiotics, another certificate of analysis for the raw material used, must be submitted. This should also show the date of preparation and expiration date of the raw material.
 11. A full scientific file for new products.
 12. Agency Agreement or Authorisation for Registration. This should be legalised by the Egyptian Embassy or Consulate at the country of origin.
 13. Prices: The following prices should be indicated for the product and/or any form thereof:
 - Ex-Factory price.
 - Public Price at the country of origin.
 - F.O.B. Price
 - Expected Public Price in Egypt.
 14. A subsidiary file containing a copy of each document submitted in the original file.
- For Pharmaceutical preparations, all the above documents should be submitted, except those under Nos. 2, 3 and 11.

APPENDIX III

**Requirements For Good Practices
In the Manufacture and Quality
Control of Drugs in Egypt.**

Ministerial Decree No.265 of the Year 1961.

- Sanitary and Technical Requirements
For the Manufacture of Pharmaceuti-
cal Products . *

The Minister of Health:

In pursuance to the Law 127 of the year 1955 governing the practice of Pharmacy and other laws amending it and to the ministerial decree issued April 2nd 1956 implementing sanitary regulations for pharmaceutical premises and according to the content of the Supreme Committee for drugs on January 11, 1961 and presentation by the Under Secretary of State For Pharmaceutical Affairs:

Decided

Article 1: All new pharmaceutical firms should comply with the specifications set by this decree, before granted the licence. Already established firms are granted a transition period of three years to meet these standards.

Article 2: The Minister of Health assigns a technical committee concerned with evaluating the degree of compliance of the new project with the established standards set by this decree.

It includes: 1- The under secretary of state for pharmaceutical Affairs.

- 2- The Head of the National Organisation for Drug Research and Control
- 3- The Director of Licensing department in the General Administration of Pharmacy.
- 4- The director of pharmaceutical firms inspection department in the General Administration of Pharmacy
- 5- A professor From Faculty of Pharmacy (Industrial Pharmacy)
- 6- The Chief of Research and Control Sector of one of the pharmaceutical firms.

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Article 3 : The department of inspection in the general Administration of Pharmacy - Ministry of Health is concerned with periodic inspection of the pharmaceutical firms to ensure continuation of compliance with the specifications in this decree .

Article 4 : This decree does not contradict the acts of the ministerial decree for sanitary regulations of the pharmaceutical firms issued April 2nd 1956 and these regulations are valid.

Article 5 : This decree is to be published in the Egyptian Official Journal and is to be followed from this date.

Ministe. Of Health
Professor. Dr. M. Ghor

16/4/1961

**Sanitary and Technical Requirements
in Pharmaceutical Manufacturing Premises**

Part I : Definitions

Part II

General Requirements for the Drug Manufacture

Location

- Premises
- Personnel
- Equipment
- Sanitation
- manufacturing Operations
- Starting materials
- Bulk Products
- Packing and Labelling
- Finished Products
- Distribution
- Rejected materials
- Quality Control
- Outsource manufacturing under other management
- Manufacturing Records
- Documentation
- Complaints
- Self - inspection

Part III

Requirements for handling starting materials

- General
- Storage areas
- Equipment
- Sanitation
- handling starting materials
- Storage procedures
- Preliminary Operations
- Control

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Part IV

Requirements for Manufacturing Sterile Products

- Introduction
- Personnel
- Manufacturing areas.
- Equipment
- Sanitation
- Manufacturing procedures
- Quality Control
- Building for Laboratory Animals.

Part V

General Regulations For Industrial Control and Safety

- Precautions against hazards and injuries
- Precautions against fire and explosion
- Social and psychological care of workers
- Resting places
- Nurseries
- General Library(culture)
- Restaurant

Definitions

For the purpose of this document the following definitions are adopted except if different meanings are specifically stated.

Drug: Any substance or mixture of substances that is manufactured sold or represented for use in:-

- a The treatment ,prevention, diagnosis or mitigation of pains or symptoms of disease resulting from physical or non-physical abnormal states in man or animal.
- b- Indicated for healing,restoration or correction of organic functions in man or animal

Drug Manufacturing Firm: Pharmaceutical organisation authorized to manufacture pharmaceutical products or starting materials.

Pharmaceutical Product: Any substance or mixture of substances manufactured as a drug, in a pharmaceutical form, intended for use to man or animal according to Health rules and regulation of the country.

Manufacture: All operations involved in the production of a finished form of drug including separate procedures as (processing,compounding,formulating,filling,packing,labelling etc ...) occuring whether in one or several firms

Starting materials: Any substance used in the manufacture of a pharmaceutical product.

Finished Product: Any pharmaceutical product that has passed through all manufacturing procedures and is ready for use.

Intermediate Product: Any product that must undergo further production processes to become a finished product.

Bulk Product: Any product that has not gone through one or more of the following operations :filling,packing or labelling.

Batch: A defined quantity of substances or mixture of substances during a given cycle or several cycles of manufacture under the same conditions resulting in homogeneity. produced /

Batch Number: Numerical or alphabetical designation printed on the label of the product to identify the batch to be traced.

Code Number: Numerical or alphabetical designation that identifies the products name.

Manufacturing Date: Date of defined operation in the manufacture of the bulk product or the date of release of the finished product as decided by the manufacturer.

Expiry Date: Date defined clearly on the finished product the limit of use based on stability data.

Quality: Degree of conformity of a pharmaceutical product with its formula and specifications and conformity of its production and of its control with the basic standards of good manufacturing practice.

Quarantine: The status of a material which is not permitted for use until released after control.

In Process Control: Checks and tests performed by the manufacturer during the course of manufacture of a pharmaceutical product.

The Egyptian Gazette

FEBRUARY 7, 1982

Drugs again

SIX million pounds worth of medicines were consumed in Egypt in 1950. By 1980 this figure had risen to L.E. 300 million. Even if we assume that prices have multiplied by ten since 1950, that would make six million into sixty million by today's prices. Even going by that figure, our consumption from 1950 to 1980 has multiplied by five whereas the population has merely doubled in that time. Therefore we are safe in assuming that the average Egyptian is consuming two and a half times the quantity of medicines he used to consume thirty years ago. The question now is, why?

An Englishman residing in Egypt was commenting on how when he wandered into a chemist's shop complaining of sleeplessness and general malaise, the chemist placed about 30 Valium tablets in front of him. Now Valium is well-known not only to be anti-depressant, but habit-forming. With alternative, less dangerous anti-depressants on the market, no doctor should prescribe Valium. Yet, here in Egypt any chemist can dish them out. So this can be pinpointed as the first cause: medicines being dispensed without a doctor's prescription.

We can add to the above a certain trend in the ignorant public, namely to regard any private practitioner as inefficient unless he prescribes a long list of medications. Most private doctors play up to that attitude of mind and write lengthy prescriptions for minor troubles for which nothing is needed beyond a word of reassurance from the doctor.

Another reason is that while Egypt boasts some of the best surgeons in the world, when it comes to internal medicine, really good diagnosticians are lacking. This is due to two causes: insufficient undergraduate training in shrewd diagnosis; and insufficient private facilities for the tests so often needed.

to pinpoint an illness. This could be partly remedied by opening the doors of our general hospitals to members of the public or to private doctors willing to pay for tests and X-rays. Thus we could get over the habit of our doctors prescribing two or three different cures simply because they are not sure of the ailment.

Finally, our average young medical graduates have next to no knowledge of the medicines on the market. When a young graduate opens a practice, he finds himself bombarded with representatives from a plethora of drug firms often leaving him confused as what to prescribe. Again, if undergraduates were given a solid course on what sort of firms manufacture what sort of medicines and at what sort of prices, a lot of this confusion might be eliminated.

Finally, there is something to be said for the system by which a newly graduated doctor is not allowed to set up a practice on his own but must go into partnership with one or more senior doctors for a minimum number of years. Perhaps we ought to make this rule a first step towards setting up a national health service.

APPENDIX V

Urban Health Care Survey - Pharmacists Questions

As one aspect of a survey for the Egyptian Urban Health Delivery System Project, pharmacists and their clients were surveyed in two administrative zones of Helwan.* The target populations for the project were lower class working urbanites and lower grade employees, and the geographic areas were selected as typical of areas toward health services should be focused. The socioeconomic observations on the pharmacies, pharmacists and their clients are given in the following tables. Although these cannot statistically be generalized to other urban or rural areas of Egypt or to other socio-economic classes, they are illustrative of the pharmacy ownership and staffing and the relative importance of the pharmacy in serving a variety health needs in the communities.

* Urban Health Delivery System Project Health Sector Assessment sponsored by USAID Grant No. 263-0065. The methodology and results of this study are described in "Community Studies Compiled Data Monograph H/1 Helwan Zone, April 1981." The tables in the appendix are drawn from Tables H/1-3.19 through H/1-3.32 and H/1-3.66 through H/1-3.25.

Table No.: H/1-3.21		District : Helwan		
Group : Private HCS		PHARMACIES' DAY OFF		
Area \ Day	Friday	Sunday	Other	Total
Helwan Station	9	4	2	15
El-Maasara	8	2	1	11
Tora	1	1	-	2
Total	18	7	3	28

Table No. : H/1-3.22		District : Helwan		
Group : Private HCS		OPENING TIME OF PHARMACIES		
Area \ Opening time	morning	afternoon	morning * & afternoon	Total
Helwan Station	-	2	13	15
El-Maasara	-	1	10	11
Tora	-	-	2	2
Total	-	3	25	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

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Table No. : H/1-3.19		District: Helwan	
Group : Private HCS			
OWNERSHIP OF PHARMACIES			
Area \ Ownership	Owned by one person or more	Owned by an Organization	Total
Helwan Station	15	-	15
Maasara	9	2	11
Tora	2	-	2
Total	26	2	28

Table No. : H/1-3.20		District : Helwan	
Group : Private HCS			
OWNERSHIP/EMPLOYMENT OF PHARMACIST			
Area \ Pharmacist	Owner	Employee	Total
Helwan Station	12	3	15
Maasara	6	5	11
Tora	2	-	2
Total	20	8	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

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Table No.: H/1-3.33

Group : Private HCS

District : Helwan

YEAR OF ESTABLISHMENT OF PHARMACIES

Year of establishment	-1950	- 1955	- 1960	- 1965	- 1970	- 1975	Total
Area							
Helwan Station	1	1	-	2	6	5	15
El-Maasara	-	-	-	2	2	7	11
Tora	-	-	-	-	-	2	2
Total	1	1	-	4	8	14	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1.3.23		District : Helwan		
Group : Private MCS				
PHARMACIST HAVING A SECOND JOB				
Area	Pharmacists with other jobs	Have a second job	Have no other job	Total
Helwan Station		2	13	15
El-Maasara		2	9	11
Tora		-	2	2
Total		4	24	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.24		District : Helwan				
Group : Private HCS						
YEARS OF EXPERIENCE OF THE PHARMACIST						
Years of experience Area	-5	-10	-15	-20	Over 20	Total
Helwan Station	4	3	5	-	3	15
El-Maasara	6	3	2	-	-	11
Tora	2	-	-	-	-	2
Total	12	6	7	-	3	28

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Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

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Table No.: H/1-3.25		District : Helwan				
Group : Private HCS						
YEARS OF EXPERIENCE OF PHARMACIES EMPLOYEES (EXCEPT PHARMACIST)						
Area \ Years	-5	-10	-15	-20	Not Mentioned	Total
Helwan Station	5	4	3	-	3	15
El-Maasara	2	-	-	1	8	11
Tora	-	-	-	-	2	2
Total	7	4	3	1	13	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

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Table No.: H/1-3.26

District : Helwan

Group : Private PCS

QUALIFICATIONS OF PHARMACIES EMPLOYEES (EXCEPT PHARMACIST)

Qualification Area	Primary certificate	Preparatory certificate	Secondary certificate	Diploma of specialisation preparatory school	Without qualification	Not mentioned	Total
Helwan Station	1	5	3	-	2	4	15
El-Masara	-	-	2	-	1	8	11
Total	-	-	-	-	-	2	2
Total	1	5	5	-	3	14	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" (USAID Grant No. 2630065 April 1981.

Table No.: M/1-3.27 Group : Private R/S		District : Helwan		
MEAN NUMBER OF PHARMACY CLIENTS WEEK				
Area received service	Number of clients			
	Helwan Station (15 pharmacies)	Maasara (10 pharmacies)	Tora (2 pharmacies)	
New prescriptions %	156.6 33.3%	191.5 18.8%	108.5 9.4%	
Old prescriptions %	110.1 16.3%	91.7 9%	102.8 8.9%	
Without prescriptions %	196 26.9%	289.8 28.4%	183.8 15.5%	
Consulting Pharmacist %	88.3 11.9%	199.2 19.4%	595 51.2%	
First Aid %	39 5.3%	72.6 7.1%	49 4.2%	
Injections %	137.8 16.7%	175 17.1%	122.7 10.5%	
Total %	738 100%	1021 100%	1162 100%	

Sources: Urban Health Delivery System Project, "Community Studies: Compiled Data, Monograph M/1, Helwan Zone" USAID Grant No. 2635063 April 1981.

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Table No.: H/1-3.26		District : Helwan		
Group : Private HCS				
MEAN NUMBER OF WEEKLY DEHYDRATION CASES PER PHARMACY				
Way of receiving service	Area	DEHYDRATION TREATMENT		
		Helwan Station	Maasara	Tora
New prescriptions		46.5 76.3%	17.5 11.2%	35 16.8%
Old prescriptions		8.75 14%	32.4 20.7%	28 13.3%
Without prescriptions		7 11.1%	70 44.9%	70 33.6%
Consulting pharmacist			35 22.4%	75.3 36%
Total		63 100%	155 100%	208 100%

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.29		District : Helwan		
Group : Private HCS				
MOST COMMON FACTORS CAUSING CLIENTS TO RESORT TO PHARMACIES				
Area	Causes	NUMBER OF PHARMACIES		
		Helwan Station	Maasara	Tora
	Gastroenteritis	12	8	2
	Common cold and pneumonia	12	8	2
	Rheumatic diseases	3	2	-
	Skin diseases	1	3	1
	Skin infection	1	2	-
	Children diseases	1	3	-
	Infectious diseases	3	-	-
	Cough	3	-	-
	Blood pressure	2	-	-
	Other			

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.30		District : Helwan		
Group : Private HCS				
CONTENT: MOST COMMON ITEMS PURCHASED FROM PHARMACIES				
Area Kind of drugs	Number of Pharmacies			Total
	Helwan Station	Maasara	Tora	
Antibiotics	9	1	-	
Vitamins	8	3	-	
Sedatives and Aspirin	6	-	-	
Cosmetics	4	1	-	
Drugs for diarrhea	3	2	2	
Drugs for stomach	3	3	-	
Drugs for children	2	3	-	
Drugs for cough	1	1	2	
Other				

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No. : H/1-3.31		District : Helwan	
Group : Private HCS			
EFFICIENCY OF DRUG SUPPLY IN PHARMACIES			
Area \ Efficient supply of drugs	Yes	No	Total
Helwan Station	8	7	15
El-Maasara	5	6	11
Tora	2	-	2
Total	15	13	28

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

District : Helwan

Table No.: H/1-3.32
 Group : Private HCS

ASSUMED CAUSES OF SHORTAGE OF DRUG SUPPLY IN PHARMACIES

Causes of shortage	Shortage of production	Shortage of Import	High Price of drugs	Bad planning of drug companies	Shortage of chemicals
Area					
Helwan Station	1	4	2	2	2
El-Maasara	1	-	-	1	1
Tora	-	-	-	-	-
Total	2	4	2	3	3

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Source: Urban Health Delivery System Project, "Community Studies Completed Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

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Table No.: H/1-3.66		District : Helwan							
Group : Private HCS		FIRST DESTINATION FOR SEEKING HELP							
Place	clients Area	Hospitals clients				Mostawsafs clients			
		Maadi		Helwan		El-Masara		Tora	
		N	Z	N	Z	N	Z	N	Z
Self help & neighbours		-	-						
Relatives & Neighbours help						16	24		
Pharmacy		6	50			1	2		
Traditional healer		1	8			3	5		
Governmental health units									
Govern. hospital		2	17	1	8.5			1	5
Private physician		1	8					1	5
Private Mostawsaf								3	18
Private hospital		-	-	-	-	46	69	12	72
Health Insurance		-	-	11	91.5	-	-	-	-
Curative Organization		2	17						
Total		12	100	12	100	66	100	17	100

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.67		District : Helwan							
Group : Private HCS		FIRST DESTINATION FOR SEEKING HELP IN CASE OF CHILD DISEASE (LOSS OF APPETITE AS A LIGHT SYMPTOM)							
Place	Area	Hospitals clients.				Mostawsafs clients			
		Maadi		Helwan		El-Maasara		Tora	
		N	Z	N	Z	N	Z	N	Z
helps himself		2	25			20	31	1	7
neighbours'help		1	12			3	5		
Pharmacy		2	25					2	14
Traditional healer									
Govern. health units									
Govern. hospital		3	38	1	8	1	2		
Private physician						4	6	4	28
Private Mostawsafs						35	56	6	37
Private hospital									
Health Insurance				11	92			2	14
Curative organization									
Total		8	100	12	100	63	100	15	100

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.68		District : Helwan							
Group : Private HCS		FIRST DESTINATION FOR SEEKING HELP IN CASE OF CHILD DISEASE (INABILITY TO WALK AS A GRAVE SYMPTOM)							
Place	clients Area	Hospitals clients				Mostawsafs clients			
		Maadi		Helwan		El-Masara		Tora	
		N	%	N	%	N	%	N	%
Self help									
Neighbours' help									
Pharmacy									
Traditional healer									
Govern. health unit									
Governmental hosp.	3	50	3	25	6	13	2	12	
Private physician	2	33			8	17	4	25	
Private Mostawsaf					31	67	7	45	
Private Hospital					1	3	1	6	
Health Insurance			9	75			2	12	
Curative organiza- tion	1	17							
Total	6	100	12	100	46	100	16	100	

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph 11/1, Helwan Zone" USAID Grant No. 2630065 April 1981.

Table No.: H/1-3.74		District : Helwan							
Group : Private HCS		PROBLEMS MEETING CLIENTS IN GOVERNMENTAL SERVICES							
Problems	Area	Hospitals clients				Mostawsafs clients			
		Maadi		Helwan		El-Maasara		Tora	
		N	%	N	%	N	%	N	%
No drugs found		1	5	1	7.6	9	11	1	6
Insufficiency of drugs (quantity)		5	25	1	7.6	13	16	3	18
Waiting long		6	30	4	30.7	18	22	4	24
Bad Treatment		6	30	2	15.8	21	26	3	18
Carelessness in Examination						13	16	5	34
Absence of the working person		2	10	4	30.7	4	5	-	--
Difficulty of reaching the doctor		-	--	1	7.6	2	3		
Slowness of the treatment						1	2		
Total		20	100	13	100	81	100	16	100

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April. 1981.

Table No. : H/1-3.75		District : Helwan							
Group : Private HCS									
CAUSE OF NON-USE OF GOVERNMENTAL SERVICE									
Cause	Area	Hospitals clients				Mostawsafs clients			
		Maadi		Helwan		El-Maasara		Tora	
		N	Z	N	Z	N	Z	N	Z
Far distance						4	16		
Preference of private doctor						5	20		
Free examination is not good		1	33	2	50	9	36		
Unsuitable opening time				1	25	6	24		
I treat myself		1	33						
I dislike people		1	34			1	4		
Total		3	100	4	100	25	100		

Source: Urban Health Delivery System Project, "Community Studies Compiled Data, Monograph H/1, Helwan Zone" USAID Grant No. 2630065 April 1981:

APPENDIX VI

Rural Health Questionnaire

The attached tables are a partial indication of the status of pharmacies and availability of pharmaceuticals in Rural Health Centers and units in 1979. The results are taken from a questionnaire of 132 Rural Health Centers and Units. Though not validated by physical checks on the premises, they suggest short supplies of both pharmacists and drugs in rural public clinics.

* Extracted from "Results of the Health System Questionnaire Administered by the Ministry of Health ARE at 132 Rural Health Centers and Units March-April 1978: A Reference Manual" Health Care Delivery System Project: Monograph #3, MIT-Cairo University Health Care Delivery System Project, Sponsored by USAID, May 1980 pp. 157-163.

Q. 66: PLEASE INDICATE THE NUMBER OF STAFF, BY POSITION, CURRENTLY WORKING AT THE CENTER/UNIT.

RESPONSES			
	<u>N</u>	<u>% of Centers Responding</u>	<u>% of Total Centers</u>
1. Senior doctor			
0	34	26.4	26.2
1	95	73.6	73.1
No answer	<u>1</u>		0.8
	13		
2. Doctor			
	65	50.0	50.0
	58	44.6	44.6
	6	4.6	4.6
	1	0.8	0.8
No answer	<u>0</u>		
	130		
3. Dentist			
0	90	70.3	70.2
1	26	20.3	20.0
2	10	7.8	7.7
3	2	1.6	1.5
No answer	<u>2</u>		1.5
	130		
4. Pharmacist			
0	119	93.0	91.5
1	8	6.3	6.2
2	1	0.8	0.8
No answer	<u>2</u>		1.5
	130		

* Extracted from "Results of the Health System Questionnaire Administered by the Ministry of Health ARE at 132 Rural Health Centers and Units March-April 1978: A Reference Manual" Health Care Delivery System Project: Monograph #3, MIT-Cairo University Health Care Delivery System Project, Sponsored by USAID, May 1980 pp. 157-163.

Q. 66 (continued)

AVERAGE NUMBER OF PROFESSIONAL STAFF*
BY TYPE OF FACILITY BY REGION AND SAMPLE

	<u>Combined Unit</u>	<u>Rural Health Center</u>	<u>Rural Health Unit</u>	<u>Sample</u>
Lower Egypt (67)	11.1	10.4	5.4	7.0
Upper Egypt (60)	10.0	8.7	4.5	5.8
Sample (127)	10.5	9.7	4.9	6.5

"Professional staff" includes the following: senior doctor, doctor, pharmacist, nurse, clerk, sanitarian, lab assistant.

Note: Numbers in parentheses are the total number of centers/units in the sample that responded to this question.

* Extracted from "Results of the Health System Questionnaire Administered by the Ministry of Health ARE at 132 Rural Health Centers and Units March-April 1978: A Reference Manual" Health Care Delivery System Project: Monograph #3, MIT-Cairo University Health Care Delivery System Project, Sponsored by USAID, May 1980 pp. 157-163.

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67: HOW TRUE OF YOUR CENTER/UNIT ARE THE FOLLOWING STATEMENTS?

		RESPONSES		
		<u>N</u>	<u>% of Centers Responding</u>	<u>% of Total Centers</u>
a. "We often lack needed personnel."				
	True	28	22.8	21.5
	Not true	95	77.2	73.1
	Don't know	0		
	No answer	<u>7</u>		5.4
		130		
b. "We often lack needed vaccines."				
	True	33	27.3	25.4
	Not true	87	71.9	66.9
	Don't know	1	0.8	0.8
	No answer	<u>9</u>		6.9
		130		
c. "We often lack needed pills and drugs."				
	True	105	80.8	80.8
	Not true	24	18.5	18.5
	Don't know	1	0.8	0.8
	No answer	<u>0</u>		
		130		
d. "We often lack needed supplementary foods."				
	True	102	82.9	78.5
	Not true	21	17.1	16.2
	Don't know	0		
	No answer	<u>7</u>		5.4
		130		

* Extracted from "Results of the Health System Questionnaire Administered by the Ministry of Health ARE at 132 Rural Health Centers and Units March-April 1978: A Reference Manual" Health Care Delivery System Project: Monograph #3, MIT-Cairo University Health Care Delivery System Project, Sponsored by USAID. May 1980 pp. 157-163.

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APPENDIX VII

المعهد القومي للصيدلية
 وزارة الصحة
 القاهرة

Circular Information No 4

معلومات عامة رقم ٤

DRUGS AFFECTING BLOOD GLUCOSE LEVEL

(Pharmacologic and Toxic effects).

Although little effect may be seen in normal subjects, patients receiving antidiabetic drugs should be watched carefully if any of the following drugs is given, for the possible need to change of antidiabetic dosage requirements:

I - DRUGS WHICH MAY ELEVATE BLOOD GLUCOSE LEVEL

<u>Group</u>	<u>Generic name</u>	<u>Brand names (Examples)</u>
- Antihypertensives	Reserpine	Serpasil - Ravoline - Serpano Adeelphan Esidrex.
- Antirheumatics	Indomethacin	Indocid.
- Corticosteroids	e.g. Cortisone - Prednisone - Dexamethazone - Betamethazone - Prednisolone
- Cathartics	Phenolphthalein	Agarol - Petrolagar with phenolphthalein.
- Diuretics	Acetazolamide Furosemide Chlorthalidone Ethacrinic acid Clopamide Triacetazine Thiazides	Diamox - Cidamox Lasix - Florec - Frusex. Hygroton - Saluretin. Edecrin. Brinerdin. Dytide - Dytac. Clotride - Forane - Pluryl - Cidrex - Navidrex - Diclortide Esidrex - Hydrex - Fludrex - Renase - Fluitran ... etc.
- Estrogens	Oral Contraceptives
- Heparin	Heparin
- Hepatobilitogenics	Arginine	Hepagrum - Arginine Sorcitol.
- Morphine	Morphine

- Tranquilizers	Lithium Carbonate	Priadel.
	Tricyclic Antidepr. (Imipramine)	Tofranil - Eufranil - Melipramine - Imizin.
	Phenothiazines	Chlorpromazine - Largactil Promacid - Neurazine - Anatensol - Moditen - Spari Prozine . . . etc.
- Thyroid hormone	Thyroxine	Eltroxin - Tyroxin.
- Urinary Disinfectant	Nalidixic acid	Negram - Naligram - Nalidra Nevigramon.
- Vasodialators	Nicotinic acid(Niacin)
	Nicotinyl alcohol	Ronicol.

II - DRUGS WHICH MAY DECREASE BLOOD GLUCOSE LEVEL

- Anabolic steroids	Methandienone	Dianabol - Verabolin - Ners
- Antihypertensives	Guanithidine	Ismilin - Sanotensin.
	Propranolol	Inderal - Bentanil.
- Antibiotics	Chloramphenicol	. . .
	Oxytetracycline	. . .
- Antirheumatics	Phenyl butazone	Butazolidine - Curazolidin Ticinil.
	Salicylates	. . .
- Analgesics	Propoxyphene	Doloxene.
	Phenramidol	Analexin
- Anorexogenics	Fenfluramine	Ponderax.
- Chemotherapeutics	Sulphanamides: Sulfaphenazol - Sulfamethazine	. . .
	Sulfisuxazol - Sulfamethizol	. . .
- Diuretics	Tromethamine	Tham.
- Ethyl alcohol	Ethyl alcohol	
- Hypercholesterolemics	Clofibrate	Atromid S - Miscleron - Lipomed.
- Tranquilizers	Haloperidol	Haloperidol - Serenase - Safenase.
- " (MAO Inhibitors)	Phenelzines	Narsil.
- Uricosurics	Probenicid	Proben.
	Allopurinol	Zyloric - Alloprim.
- Trypanocids	Pentamidine	Lomodine.

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ANTI - INFECTIVE DRUG INTERACTIONS

A- ANTIBIOTICS

B- CHEMOTHERAPEUTIC AGENTS

- Inhibition of activity of antimicrobial agents due to drug interactions is likely to be mistaken for microbial resistance to the antibiotic.
- Effect of antimicrobial agents on the actions of other drugs probably go unnoticed but may also give rise to increase or decrease of intended activity or may cause combined toxicity.
- So, Physicians in addition to limiting the number of drugs prescribed concurrently, may need to warn patients taking certain drugs against the use of over the counter (OTC) medications .

B- CHEMOTHERAPEUTIC AGENTS

ANTI INFECTIVE DRUG	INTERACTING DRUGS	ADVERSE REACTIONS	MANAGEMENTS
Amino salicylic acid (P.A.S.) 300 mg Aminox 500 mg Daspasil 500 mg	Ammonium chloride	Increase urine acidity resulting in aminosalicic acid crystalluria.	Avoid high dosage of NH_4Cl or ascorbic acid.
	Ascorbic acid		
	Oral anticoagulants	Increased hypo-prothrombenmia resulting in increased anticoagulant effect (dicoumarol type)	Readjustment of anticoagulant dosage.
	Probenecid	Enhancement of blood level of PAS	
	- Proben	2-4 times leading to P.A.S. toxicity	Treatment under observation with reduction of PAS dosage.
	- Benemid		
	- Nibirol		
	Rifampin	Reduced serum rifampin level due to impaired gastrointestinal rifampin absorption.	Spacing 8 - 12 hours.
	Diphenhydramine	Impair gastrointestinal absorption of PAS possibly due to its effect on gastrointestinal motility .	Make effort to give PAS when Pharmacological effect of Diphenhydramine is at a minimum.
	Para aminobenzoic acid (PABA)	Administration of PABA may be expected to inhibit the antimicrobial activity of PAS action on T.B. as that of sulfonamides on other organisms .	It would be prudent to avoid PABA administration in patients receiving PAS.
Ethionamide (treacator) Rigeonicide	Cycloserine	Potentiating central nervous system Toxicity of cycloserine	Watch carefully for C.N.S. toxicity.
	Alcohol	Probable psychotoxic reaction	Avoid excess alcohol ingestion

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Furazolidone Furoxone-Fudizol	Alcohol Tyramine containing foods.	Alcohol intolerance (nausea & vomiting) Hypertensive crisis due to increased MAO inhibition effect	Avoid alcohol ingestion Avoid tyramine containing food e.g. bananas-old cheese-chocol chicken liver etc....
Nitrofurantoin (Furodantin) colifuran.	Diamox, cidasox, (acetazolamide), sod.bicarb. Nalidixic acid (negram)	Due to alkaline urine, nitrofurantoin becomes less active. Antagonize the nalidixic effect.	nitrofurantoin is more effective in acid urine. Avoid concomitant therapy.
Isoniazid (I.N.H.)	Diphenylhydantoin (Dilantin) (anticonvulsant) P.A.S. Disulfiram antabuse Alcohol Aluminum containing Antacids Rifampin	Blood level of dilantin is increased due to inhibition of its metabolism in the liver leading to intoxication. Increased INH blood level due to its decreased acetylation. Adverse mental changes & coordination problems due to inhibition of both P. hydroxylase & monoamine oxidase Decrease of INH activity Decreased isoniazid absorption Possible increased hepatotoxicity in patients with previous liver damage and /or in those who are slow inactivators	Anticonvulsant dosage should be decreased if necessary This interaction is beneficial Better avoid concomitant use Avoid simultaneous administration of both, give INH an hour before antacid. These patients should be monitored more closely.
Methenamine Urinary pathogens in acid medium Mandsilamine (Uritone) Hiprox Sulfonamides e.g.) Sulfadiazine) Sulfapyridine) Sulfamerazine)	Acetazolamide Sod. bicarb. Thiazide diuretics Hydrex- Enduron - hydrazide Renese-Sa- luron - Pontyl	Alkalinization of urine will be not favorable for methenamine which need PH 5.5 or lower to give Formaldehyde in urine Crystalluria (because of the acid medium required for methenamine)	Should not be used together Preferable to use sulfonamides which do not precipitate in urine e.g. sulfasoxazol.

B- CHEMOTHERAPEUTIC AGENTS

ANTI INFECTIVE DRUG	INTERACTING DRUGS	ADVERSE REACTIONS	MANAGEMENTS
Nalidixic acid nevigraman (negram) Naligram gm+ive organisms	Oral anticoagulants - warfarin - marevan Nitrofurantoin colifuran furadantoin	Increase of anticoagulant effect as nalidixic acid displaces warfarin from human albumin binding sites Antagonize the effect of nalidixic acid.	Reduction of anticoagulant dosage may be required. Avoid concomitant
Piperazine thioderazine	Phenothiazines (tranquilizers) sparine-prozino phenergan - torecan melleril-stelazine etc...	Exaggerated phenothiazine effect	cautiously when used together
Pyrazinamide (against T.B. to hospital only. ALDINAMIDE) TEBPACID	P.A.S. Probenecid salicylates	These agents inhibit the hyperuricemia following pyrazinamide therapy	May be intended for use to inhibit pyrazinamide induced hyperuricemia (Probenecid in equal dose as pyrazinamide)
Pyrimethamine (ant. malarial antitoxo-plasmodic) Daraprim Erbaprelina	Folic acid Quinine	Inhibition of pyrimethamine effect (due to its effect on folic acid of the parasite). excess free quinine in blood due to its displacement from plasma protein binding by pyrimethamine	Folic acid should not be given to patients on pyrimethamine therapy for toxoplasmosis. should not be given together or if necessary reduction of quinine dosage is needed.
Sulfonamides	-sulfinpyrazone "Anturane for gout" -Probenecid. -Indomethacin "Indocid" -butazolidine" -Phenyle butazone -Salicylates -Antacids	Increase of blood level of sulfonamides due to its displacement from plasma protein bindings-which may affect renal excretion. decrease sulfonamide absorption	The prescriber should be aware of possible interaction. doses of the 2 drugs must be sp

B- CHEMOTHERAPEUTIC AGENTS

ANTI INFECTIVE DRUG	INTERACTING DRUGS	ADVERSE REACTIONS	MANAGEMENTS
Sulfonamides (Cont.)	- Anaesthetics (local) derivatives of PABA (benzocaine, procaine, tetracaine etc...)	Since sulfonamides act by inhibition of PABA of the micro organism, the use of PABA local anaesthetics antagonize the effect of sulfonamides	doses of the 2 drugs must be spaced. Better use non PABA derivatives for local anaesthesia in patients receiving sulfonamides
	- Mineral Oil	Interfere with the action of non-absorbable sulfonamides.	Avoid concomitant use.
	PABA	Minimize the antibacterial effect of sulfonamides (due to the latter's specific action on PABA of bacteria)	should not be used together.
	Methenamine compounds.	crystalluria (as methenamine require acid medium).	should not be used together.
	Oral anticoagulants coumarine	Increased anticoagulants effect (due to displacement from binding sites)	follow cautiously the case
	Oral hypoglycemics	Increased sulfonylurea hypoglycemia of tolbutamide by sulfaphenazole (orisul-Neosulfa-phisulfan).	
	Paraldehyde	Increased sulfonamide crystalluria (less soluble sulfonamides).	To be given with caution and adequate fluid intake.
	Methotrexate	enhanced methotrexate action	great caution if used together.

Circ. Infor. N°3

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APPENDIX VIII

Egyptian PharmacopiaDescription:

- The medicaments included in the pharmacopia are those substances or mixtures of substances of therapeutic or pharmaceutical necessity.

With few exceptions the substances of the pharmacopia, which are commonly arranged by biological methods are those for which a standard or reference has been recommended by the permanent commission on biological standardization of the World Health Organization of the United Nations.

In the preparation of the Egyptian Pharmacopia, the text of latest editions of the U.S. French, British, Swiss, German, Danish, Italian, Dutch, Spanish and International Pharmacopia are taken into consideration.

The Pharmacopia is divided into 4 sections:

1. General notices, which give the meaning of some words used in the book and the kind of system used and under that condition.
2. General section, which deals with the sampling and examination of drugs, their extraction and alkaloidal array.

In this section, official methods are described for the following: determination of uniformity limits of powders and alcohol, insoluble residue extractions, volatile and non-volatile extractions, volatile oils, moisture, crude fibres and nitrogen. Specifications are also given for the determination of viscosity, melting temperature, boiling temperature, specific gravity, refractive index, optical rotation, iodine value, and pH value. This section also has methods of sterilization, tests for sterility and tests for pyrogen, tests for clarity of solution for injection, test for glass including tests for limit of alkalinity, tests for temperature and tests for identification of chemicals.

3. Special section, which includes the official articles arranged in the alphabetical order of their Latin names. At the same time it brings together medicaments and preparations of the same nature.

The drugs mentioned in this section fall into 4 categories:

- a. Chemical compounds both organic and inorganic,
- b. Crude drugs whether of vegetable or of animal origin,
- c. Pharmaceutical preparation,
- d. Biological products including serums, vaccines, and organo-therapeutical preparations.

These drugs are fully described to furnish, as far as possible, a uniform classical account of each comprising its origin, characteristics, identification and purity.

4. The appendices, which include accounts of the general reagents, test solutions, volumetric solution, colorimetric solutions, buffer solutions and indicators required for the tests in the pharmacopia as well as tables for the following:

Atomic weight - diluted alcohols for drops/gm of liquid medicines, isotonic solution of drugs intended for IV for eye drops and lotions. Correction of specific gravities at different temperatures. Specific gravity of different concentration in solution of ammonia hydroxide, acetic acid, Nitric acid, Sulphuric acid, and alcohol. The international biological standard.

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APPENDIX IX

Index of Specialists

This book is designed in a way to provide physicians, pharmacists and chemists with recent and as complete information regarding foreign as well as locally manufactured pharmaceutical preparations as possible.

It is classified into three sections:

Section I (white pages):

The products listed in this section are classified under respective drug groups according to their pharmacodynamic actions. Most of their drug groups are divided into subgroups.

Product description is made in one form of monograph to cover the following information: drug group, form, scientific code, generic or chemical name, mode of action or indication, trade name, pack, manufacturers, available sizes and strengths.

Section II (pink pages):

The drug listed alphabetically by trade names and followed by manufacturer's name.

The number following the trade name refers to the page number in Section I which contains product description.

Section III (yellow pages):

The product listed in the section by generic names. The generic names applied in this index are according to the British Pharmacopia. The number following the generic name refers to the page number in Section I indicating product description.

Last edition was the fifth edition in 1977.

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APPENDIX X
Pharmacist Questionnaire

Distributed by The Futures Group at the Second Conference for Pharmacists held by the Family of the Future Association and The Pharmacists Syndicate, 21-23 November, 1981.

مسند الصيدلاني

يلعب الصيدلاني دورا رئيسيا في توسيع خدمات الرعاية الصحية في مصر .

ونحن آن هناك ضرورة لبراز وتوجيه دور الصيدلاني والوقت وراة من كاتبة الجهات المعنية محليا وعالميا .

ولتحسين ذلك نشرنا شرون اسراء المستنيز ووكالة التسمية الاثريكية ان تكون عليكم الاشارة المرفقة حيث ان اجابتم عليكم عليها هو خير مسند للجهات ليتكمن من تقدير يوم العمسون والتأيد لكم

وتفضلوا بتقبل فائق الاحترام ..

- الرجاء كتابة البيانات التالية :-

الجنس : ذكر ()

انثى ()

العمر :

الديانة :

اسم الجامعة المتخرج منها :

سنة التخرج :

الوظيفة الحالية :

ما حسب ميدلية واعمل بها ()

اعمل في ميدلية يملكها غيري ()

اعمل في مستشفى حكومي او وحدة صحية ()

اعمل في اماكن اخرى ()

اين يقع مكان عملك :

قرية () بحرن مدينة () بحرن

() قبلى () قبلى

عامسة محافظة () بحرن

() قبلى

اذا كنت تعمل في ميدلية خاصة فما هي الاليام التي تعمل فيها الميدلية واذكر -

عدد الساعات كل يوم .

عدد الاليام () يوم ساعات العمل يوميا

هل يوجد اتفاق بتبادل ساعات العمل مع ميدليات اخرى

نعم (/) لا (2)

بالقريب ما هو عدد عملاء الصيدلية في اليوم العادي

ما هو عدد الصيدليات الاخرى القريبة من صيدليتك تقريبا

ما هو حجم تعاملك التجاري .

كبير (1) متوسط (2) صغ

٨ - بصفة عامة ماهو في رأيك السبب الرئيس لاقبال عملائك على صيدليتك وعدم التردد من صيدلية آخرين .

- علاقاتك الطيبة مع عملائك ()
- ملائمة الموقع ()
- فتح الصيدلية عدد ساعات أكبر ()
- تعدد الخدمات التي تقدمها صيدليتك ()
- أسباب اخرون مع ذكرها ()

٩ - من الخدمات الآتية ماهي الخدمات التي تقدمها في صيدليتك (يمكن ذكر أكثر من واحد) اذا وجدت

- غسرب حقايق ()
- عمل ساعات اضافية مثل الخدمة الليلية ()
- تقديم الهدايا ()
- استشارات ()
- تحفيرات ()
- توجيه العميل للجبهة المختصة بمشكلة ()
- اسمانات أولوية ()

١٠ - من بين المترددين على صيدليتك من هم أكثر ترددا

- رجال ()
- نساء
- أطفال

١١ - ماهي النسبة من بين عملائك الذين تعتبرهم عملاء دائمين ويترددون على الصيدلية

١١ - عمل الغالبية العظمى يشتركون الدواء من صيدليته

- (١) لانفسهم
 (٢) لاقاربهم
 (٣) لاطفالهم

١٢ - ما هي اكثر الاسراع انتشارا بين الاشخاص في منطقة صيدليته

١٤ - ما هي الادوية التي غالبا ما تسأل طبيبها لعلاج شك الابرار

١٥ - ما هي النسبة المئوية التفرقة لعدد الذين يسألونك عن

- أ - دواء معلى بدون تذكرة طبية ()
 ب - دواء معلى بتذكرة طبية ()

١٦ - ما هي النسبة المئوية التفرقة للتذكرة الطبية التي تأتيك من :

- أ - الوحدات الصحية ()
 ب - المبادرات الخاصة ()

١٧ - اذا طلبت منك النصيحة في وسائل تنظيم الاسرة فما هي الوسيلة التي تقترحها .

- الحبوب () اللولب ()
 الاقراص الرغوية () كريم ()
 جيلين () الواقي الذكري (الكبوت) ()
 المعجلة () فترة الامان ()

١٨ - من بين الترددات التي سجلتها ماهن نسبة الذين يعانون من كل هذه الاضرار
وماذا تتوقع في كل حالة .

مهم جداً

مقترحاتك في العلاج	النسبة المئوية من الترددات بين علس العميلة	اسم الممرض
		الاسم بال فـ
		تسوية
		نسبة
		ارتفاع في درجة الحرارة
		التعب في النوم
		تأخر في العمل
		دم في البول
		مغص في المعدة
		جروح وجروح
		تشنج
		الآم في الظهر
		نزلات
		ألم

- ماهن مصادر معلومات الاولية عن :-
- أ - الأدوية المتوفرة حالياً
- ب - الأدوية الجديدة
- ج - علاج الأ

- ٢٠ - هل يأتيك بعض الاشخاص ليس لديهم أي أمراض مرضية يدعونك عن نصيحة لتحسن صحتهم .
- كثيرا جيدا () كثيرا () قليلا () لا يأتيون ()
- ٢١ - ماهي مند زيارات مند ويسي الدعاية لك خلال الشهر .
- ٢٢ - بالنسبة للادوية التي تاهي المعامل التي سوف تحدد اقبال الزبون عليها .
- ٢٣ - ماهي المعلومات الاضافية في مجال الادوية - العلاج - ماركة الدواء او اي مجالات ستكون مفيدة بالنسبة لك . .
- ٢٤ - ماهي اكبر المشاكل التي تواجهك كمند ليس في عملك وما هو الحل في نظرك . .

PHARMACIST QUESTIONNAIRE

Introduction: Would you please take a few minutes to fill out the following questionnaire. We are conducting a study of the characteristics of Egyptian pharmacies and pharmacists to determine where additional services might be offered. We appreciate your cooperation.

1. Please fill in the following information:

Sex () Male () Female

Age: _____

Religion: _____

Name of University: _____

Year of Graduation: _____

2. Which of the following best describes your current position?

() Pharmacy Owner () Work in pharmacy owned by someone else

() Work in government hospital/clinic

() Other: _____

3. Where is your place of work located?

 Village Market Governorate Cairo/District

4. Please check the days of the week that you are open, and fill in the hours open each day.

hrs per day; # days

~~() Monday _____ () Friday _____~~

~~() Tuesday _____ () Saturday _____~~

~~() Wednesday _____ () Sunday _____~~

~~() Thursday _____~~

Do you have a scheduling or a shift arrangement with another pharmacy?

() Yes

() No

5. Approximately how many customers visit your pharmacy during a typical day? _____ (#)

6. How many other pharmacies are close to your pharmacy? _____ (#)
7. Do you consider your business to be:
 Large Medium Small
8. In general, what do you consider to be the main reason that people come to your pharmacy instead of another one?
 Good relations with my clients
 Convenient location
 Open more hours
 Offer more services
 Other _____
9. Which of the following services are offered in your pharmacy? (Check as many as apply.)
 Injections Drug preparation
 Special Hours Referrals
 Gift Items First Aid
 Counseling other _____
10. Of all the people who buy drugs in your store, would you say that men, women, or children are the majority?
 men
 women
 children
11. What percent of your customers would you say are regular customers - that is, customers who continue to come back to your store? _____ %
12. Do the majority of people who buy drugs in your pharmacy buy for themselves, for an adult relative, or for a child?
 Self Other adult Child
13. What are the most common illnesses among the people who live in the area where your store is located?
-

14. What drugs are most commonly asked for to treat these common illnesses?

~~15. What drugs are most commonly asked for in your pharmacy?~~

~~16.~~ About what percent of your customers ask for a specific drug?
15 } _____ %

~~17.~~ About what percent of your customers have a prescription for a specific drug when they come into your pharmacy? _____ %

~~18.~~ About what percent of prescriptions are from a health care unit and what percent from a private doctor? _____ %

~~19.~~ Please check how frequently you see clients with the following conditions.

	Very Often	Sometimes	Not Often	Never
Diarrhea alone	()	()	()	()
Vomiting alone	()	()	()	()
Diarrhea and vomiting	()	()	()	()
Anemia	()	()	()	()
Blood in urine	()	()	()	()
Fever	()	()	()	()
Stomach ache	()	()	()	()
Cuts or wounds	()	()	()	()
Bone aches	()	()	()	()
Sore throat	()	()	()	()
Colds	()	()	()	()
Pregnancy	()	()	()	()
Tetanus	()	()	()	()

17. If someone asks your advice about birth control, which of the following methods do you recommend?

- () Pill
- () IUD
- () Foaming Tablet
- () Cream
- () Jelly
- () Condom
- () Diaphragm
- () Rhythm

18. For your clients, what is the percent requiring treatment and what is the suggested treatment for each of the following diseases.

	<u>% of people in your pharmacy</u>	<u>Suggestion for treatment</u>
Diarrhea only		
Vomiting only		
Diarrhea and vomiting		
Fever		
Sore throat		
Pregnancy complications		
Blood in urine		
Pain in stomach		
Burns and wounds		
Tetnas		
Backache		
Cold		
Anemia		

19. 64. What is your primary source of information about:

- A. Existing drugs _____

- B. New drugs _____

- C. Treatment of disease _____

22. What would you recommend if a client had the following problem?

- A. If a person had a high fever. _____

- B. If a person had back pain. _____

- C. If an infant had simple diarrhea without vomiting. _____

- D. If an infant had diarrhea and vomiting. _____

- E. If for the past two days a person had a sore throat. _____

- F. If a person had burned his/her hand with hot oil. _____

- G. If you thought a person had schistosomiasis. _____

- H. If you thought a person had measles. _____

- I. If you thought a woman had complications of pregnancy. _____

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20. ~~22~~. About how often do your customers who do not have a specific symptom ask your advice about how to improve their general health?

() Very often () Sometimes () Not often () Never

23. ~~24~~. What kind of additional information about drugs, treatments, business practices, or other areas would be useful to you?

21. ~~23~~. How many times per month are you visited by a detailer? _____ (#) per month.

22 ~~6~~. For a new drug, what are the factors which would determine customer preference?

24 ~~7~~. What are the most important problems you encounter in your business?