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PRIVATE AND PUBLIC SECTOR
HEALTH SERVICES DELIVERY SYSTEMS
IN EGYPT

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- E: High Institute of Public Health (Alexandria):Hospital Administration

*Note: The Issues section has been incorporated in the Executive Summary.

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The names of many of the persons interviewed are appended to this section.

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PUBLIC AND PRIVATE HEALTH SERVICES DELIVERY SYSTEMS IN EGYPT

Executive Summary

This report deals with the private and public health services delivery systems of Egypt. It is concerned with specific matters related to the systems' organization, resources, distribution, and performance.

The report finds that:

* The private health services delivery systems of Egypt are large, and growing. They serve the more affluent urban areas, and some adjacent rural sections. They are addressed to curative care only. They average 30,000,000 to 43,000,000 outpatient visits per year out of the total of 99,000,000 to 134,000,000 outpatient visits in the entire country.

*The expansion of the private system is damaging performance in the publicly operated health services delivery systems for a number of reasons.

*At the same time, the decentralization process in government is altering the organization and supervision of the publicly operated systems by relating them to the governorates and districts. These more localized administrations are feeling popular demand for health services. They are beginning to consider how different, more cost/effective, publicly operated health services delivery systems might be established.

*Government under-financing of the public system is a constant phenomenon; and it constitutes an excellent reason for developing delivery systems which more effectively share the burdens of preventive, promotive and curative health care with the private sector.

Distinctions are drawn in terms of the meaning of "public" and "private" as these describe organizations and employment patterns in Egypt. Social and economic reforms in Egypt since 1952 have created special meanings for both terms. Rapid economic growth in recent years has also produced special Egyptian employee behavior, particularly in "public" organizations.

In general "public" refers to a vast array of organizations and institutions which are assigned responsibilities for protection of the welfare, income, and food supply of all Egyptians. Some are directly controlled by ministries; others are autonomous organizations.

In general, also, Egyptian employees in the "public" organizations and institutions behave as "part-time" workers if they have marketable technical or professional skills. The very low salaries and allowances which they earn as employees of "public" entities encourage this and perhaps make it personally necessary for them.

The health sector has its own peculiarities with reference to these terms. All Egyptians are entitled to "free health care". In order to translate this entitlement into reality, most Egyptian physicians are employed by government. They staff and operate the "public" systems of health services delivery and related autonomous organizations. Very few of the 30,000-plus registered physicians do not have positions or "off duty status" arrangements with the Ministry of Health.

Two ministries directly control various aspects of curative care delivery on some scale. These are the Ministry of Health and the Ministry of Education. The former operates a full panoply of primary, secondary, and tertiary facilities, numbering 5,700 throughout Egypt. The latter is responsible for University Hospital Complexes where 5,000-plus annually graduating physicians are trained. Several other Ministries, such as Defense, Interior, and Agriculture, operate their own hospitals and clinics for their employees.

Among the autonomous "public" organizations, the Government Health Insurance Organization (GHIO) is one of the largest. It has 22 hospitals, and it contracts for space in others. It operates a health insurance system for over 2,000,000 beneficiaries who are either employees of government "public" organizations or of private companies. Present government thinking favors expanding this system on a much wider scale.

The Curative Organization of Cairo and the Curative Organization of Alexandria are two systems of hospital care which are now "public". They consist of former large private hospitals (12) which are regulated by the Minister of Health. They provide services on a fee basis, but at relatively modest rates.

The term "private" in relation to all of the foregoing has a special meaning in that all but a few hundred of the physicians in "private" and fee-charging practice are also government employees. There are more than 14,000 "private" medical practices in Egypt, of varying kinds. These may be solo activities, clinics, polyclinics, and hospitals. The majority of them are part-time activities of physicians who work in government hospitals, clinics, health offices, rural or urban health units, etc.

The Ministry of Health registers private practice activities and it is now developing some standards for registration of private clinics. Once licensed, physicians in Egypt never have to be re-licensed. They are required to register with the Medical Syndicate, a prestigious professional association of Egyptian physicians.

Physicians in "private" practice may also provide their services through facilities of private voluntary organizations or of Mostawsafs, which are local charitable or group-supported entities. Fees are charged in such facilities; but they are sometimes lower than what might be paid to a physician in a private clinic.

The private voluntary activities, including those through Mostawsafs, are not regulated or registered by the Ministry of Health. However the Ministry of Social Affairs does keep records about some of the more formally organized groups. These exceed 400, and the Mostawsafs are said to number several thousand.

The private sector also includes practitioners of traditional medicine, including mid-wives and health barbers. These are not registered or trained, but they exceed 20,000 individuals who are popularly accepted and widely scattered about the country. There are now also over 6,500 trained and licensed pharmacists operating private pharmacies throughout the country.

The entire private sector is characterized in this report as vigorous and expanding. Professionally trained personnel tend to concentrate in the higher income sections of urban neighborhoods, but some do establish practices in rural areas not too distant from urban centers. Services are of a curative kind and there is little or no attention to preventive care.

While estimates vary, it is generally conceded that about L.E. 50 million per year is being invested by the private sector in the form of new equipment, facilities, rented space, etc.

The performance of the private sector is difficult to assess. Cairo and other urban centers have possibly some of the best private clinics and hospitals to be found anywhere. The total volume of outpatient visits to private facilities is estimated at 29,700,000 per year, or about 30% of the 99.2 million outpatient visits estimated for Egypt annually. There is relatively little private sector coverage in Upper Egypt, because the concentrations of private services are in the urban governorates (Cairo, Alexandria, etc.) and increasingly in Middle Egypt. It should also be noted that private hospitals and clinics were encountered which had facilities and treatment practices far worse than anything observed in public facilities. Standards in this sector obviously need regulation.

By contrast, the publicly operated health delivery systems are under-financed and over-extended, with over 60% of the facilities and equipment at least twenty years old. The Ministry of Health is endeavoring to provide equitably distributed, comprehensive, free-of-charge, preventive and curative care to all Egyptians. It obtains annually only about half the sum mentioned above for the private sector for building and equipping facilities.

The various health services delivery systems designed to accomplish the MOH mission are now operated by Directorates of Health, one in each of Egypt's 26 governorates. A number of decentralization laws adopted since 1960 have

vastly altered the authority and organizational structures for a number of ministries. These include the Ministry of Health. All administrative and implementation responsibilities now lie with each governorate. The Governors are appointed by the President and carry ministerial rank. There is a system of elected village, district, and governorate councils which are charged with establishing policies at their levels. In recent years, these bodies have been given some additional revenue powers; they now also have the authority to establish and operate profit-making, public service entities of varying kinds.

Central ministries, including Health, have accommodated slowly to these changes. Recently, for example, the Ministry of Health has been totally reorganized so that it is supposed to concentrate upon establishing standards, assisting in planning, developing management support systems, and generally maintaining liaison with the governorate Directorates of Health. The governorates now plan their own health budgets annually, with particular reference to salaries, allowances, and supplies. All investment efforts and new facility developments have to be planned with the Ministry of Health. Since 73% of all governorate revenues still come through grants-in-aid from central government, it is possible for the Ministry of Health to continue to exercise influence. Nevertheless, governorate revenues are rising steadily. In 1975 central grants-in-aid still accounted for 83% of the governorate funds; as remarked above, that figure is now at 73%; between 1975 and 1979, overall grants-in-aid increased by 98%, but locally raised funds jumped by 276%.

These decentralization trends do not, as yet, disturb the health services delivery systems designed and established by the Ministry of Health during the past two decades. So far, each governorate adheres to the same operational models and criteria, within the limits of available staffing and funding. However, there is increasing talk among the governorates about the need to review systems and possibly redesign models in consonance with current demands and operational limitations.

The current models are widely spread throughout the country. However, Upper Egypt in general appears to be somewhat disadvantaged according to a number of indices. The total bed ratio for all sectors is two per 1,000 population and, in general, the Ministry of Health tries to maintain bed ratios close to that level. However, in the governorates of Upper Egypt the ratio is less than one bed per 1,000 population. Similarly, there are much lower nurse/physician ratios in Upper Egypt.

Certain elements of the publicly supported system are specially designed to impact upon the rural population. These comprise the Rural Health Units, Rural Health Centers, and Rural Health Hospitals. They are physician-manned, statically based facilities, offering integrated first-line preventive and curative care. They are distributed at the rate of one per 9,049 population or one facility per 1.77 villages.

Geographic coverage by these services is adequate. However, there appears to be some inequity in actual accessibility, and evidence indicates that their

outreach work in maternal and child care and their health education efforts are very limited. They are also by-passed by patients seeking more specialized care.

Urban areas are not so well-served by publicly supported primary health delivery services. This reflects long-standing government priorities, because the rural areas have always been considered as highly disadvantaged, lacking amenities, and containing some of the most economically depressed groups. In recent years various factors have bettered what were totally adverse rural conditions. The Ministry of Health is now developing, staffing, and testing urban services delivery models aimed at providing integrated care for populations of about 75,000 persons per unit.

At secondary care levels, there are government-operated hospitals at each District Center (sub-units of governorates) and governorate capital. There are 173 of these, and they vary in size from 120 beds to 50 beds. All operate outpatient departments, and as a result of the by-passing phenomenon those facilities are heavily used. Bed utilization rates are high; but they are even higher in the University Complex Hospitals which the Egyptians, at all levels, regard as the best-operated public hospital facilities.

A wide range of polyclinics, specialized clinics, and specialized hospitals is also operated by the Ministry of Health.

The performance of this entire system is remarked upon, by level of care, in the body of this report. Various deficiencies of training, staffing, supervision, standards, etc., are noted. In general, though, those observations have to be taken in the context of an old establishment which is not being adequately renewed or expanded to serve a rapidly growing population. Furthermore, it does not provide levels of remuneration sufficient to hold trained staff in place on a full-time basis. As a result the system is constantly losing energies and talent to private practice. Young physicians in the system no longer accept supervisory jobs; if they are forced to do so, many give only minimal attention to the supervisory tasks and instead concentrate on private practice. The result is a very steady decline in supervisory quality within a system which is already over-extended.

Management support systems, essential to meeting the contemporary situation, desperately need development at both Ministry of Health and governorate levels. These include supervision, management information, program budgeting and accounting, and health planning. There are Egyptian training institutions (such as the High Institute of Public Health at Alexandria) which have much untapped capacity to assist in management training for hospital administration, supervision of personnel, etc. These should be engaged.

This report presents a series of findings which, fundamentally, assert that the private sector growth and the processes of decentralization provide twin opportunities for a time of innovation and testing. Those opportunities should be thoroughly examined now, and means of using them to help meet contemporary health services delivery systems needs in Egypt should be found and applied.

A set of issues, related to the contents of the report and the findings, follows:

ISSUE 1

Which elements of the population, located where, are going to be the primary responsibility of public health services delivery systems, and which will be the responsibility of the private services? There is no simple answer to this. Yet, in the Egypt of today, with an expanding private sector, it is a key and continuing issue which affects how the various systems are to be deployed, manned, compensated, trained, and supervised to get the job done. The G.O.E. should conduct cost effectiveness studies of the level of coverage provided through the present complex system of services delivery organizations, with a focus on coordination, information flow and feedback, sharing or duplication of services, resources, and gaps in population coverage. Egypt appears to be in need of a rationalized health and health services information system that will encourage functional evaluation of services' coverage and effectiveness and that will serve as a tool for evaluation, management and resources planning.

ISSUE 2

Operating within the existing systems, how can financial, administrative, training and other means be developed to:

- * Raise incentives and status for those engaged in the public sector and special groups concerned with critical problems such as supervision, hospital administration, etc.?
- * Transfer physicians totally, at some age or after some years of performance, to the private sector?
- * Sustain and utilize the up-graded services of the traditional private health care sector?
- * Encourage and interrelate public sector activities and programs with the facilities of the Mostawsafs and private voluntary entities?
- * Encourage experimentation with alternative controlled cost private sector clinics in rural areas to test the acceptability and utilization of such facilities.

ISSUE 3

Governorate-based publicly supported health services delivery systems, together with the District-related structures, have much potential for eliciting popular participation in setting local priorities and expressing local needs. However, they all require improved systems of management, supervision, local financing, etc. Given their importance and needs, how can appropriate supportive assistance best be provided?

ISSUE 4

Future program interventions in all systems cannot be structured and justified only in terms of health status altered, introduction of effective treatment modes, personnel trained, etc. A prominent feature of each intervention must be cost/effectiveness and management characteristics, both internally to the activity and in relation to decentralized and central aspects of finance, supervision, and training.

MOH population coverage by secondary care facilities is fairly even by region, but varies considerably among governorates. Public and private sector contribution is small and unevenly distributed, with concentrations in urban areas. Governmental tertiary care facilities coverage is geographically very uneven, heaviest in Lower Egypt and least in Upper Egypt. Private Sector contribution is confined to Cairo and Alexandria.

Facilities planning for the next 5 to 10 years must be coordinated among governmental, public and private sectors and follow a resources investment plan that considers population growth and movement, existing inequities in distribution, and intended referral systems. The objective should be to maintain the present level of population coverage by facilities (all health sectors) and to improve equity of geographic access to free or low cost secondary care.

ISSUE 5

Objectives and task performance assignments require re-assessment throughout the systems. These include initiatives such that:

a. Mission assignments for institutions and programs require reassessment, steadily, in the light of contemporary advances in diagnostic and therapeutic technologies. Thus, for example, in the case of the development and present use of T.B. Hospitals in Egypt, it may be that after careful review and the introduction of new modalities of care, these facilities could be shifted to other and more crucial assignments.

b. In certain instances, capacity-to-pay criteria should be introduced for targeting diseases that might be identified and treated by specific elements of the public and private health services delivery systems. Thus, in some circumstances, pharmacies might be assigned a larger role. In others, principle responsibility might be placed on the private physician sector.

ISSUE 6

Adoption of suggested improvements in the publicly operated health services delivery systems must be thoroughly assessed against anticipated performance modes. There are a number of meritorious examples, but upon reflection complicating circumstances and other possibilities suggest themselves.

a. Controlled referral systems are vitally needed; but the acceptability and availability of lower tier facilities parallels meeting that need. Otherwise, the controls will languish.

b. Health education and out-reach activities should be expanded in great degree, but the trained nurse staffing in some governorates (notably Quena, Aswan, and Sohag), as well as the kinds of administrative and other time-consuming assignments currently expected of that class of staff, suggest that a number of alternatives must be examined if expansion is to be truly attained.

c. The creation of additional Rural Hospitals is planned, but with the graduation of increased numbers of newly trained doctors perhaps more would be gained by more heavily staffing the Rural Health Units and Centers with such personnel. In such a case, expanded ambulatory care capacities at District Hospital levels might be indicated as the most cost/effective way of proceeding.

d. Geographic population coverage by beds reflects the distribution of secondary and tertiary care facilities of the various sectors. Distribution is uneven among regions and among governorates. 84 percent of beds are supplied by the MOH and governmental authorities. Public sector accounts for only ten percent, and the private sector for only 6 percent. The MOH provides 50 percent of total beds in Lower Egypt and almost 90 percent in Upper Egypt. Population coverage in several governorates is less than 1 per thousand, while the national average is 2 per thousand population. Further improved hospital administration and a rationalized referral system may be able to offset shortage of bed/population coverage through more efficient utilization of beds. The M.O.H. should be encouraged to follow through on its plan of increasing rural bed coverage by RHC conversion to RHH's, provided that the expansion is commensurate with requisite staffing standards.

ISSUE 7

How can the private sector be solicited, coaxed, or coerced into effective participation in addressing the preventive, promotive, and curative health care problems of Egypt during the next two decades? Arrangements must be designed and institutionalized so that the private sector can be channeled into activities which are supportive of those objectives. A number of possibilities might be indicated:

a. Creation and operation of competing, privately owned health insurance systems.

b. Re-licensure and re-registration procedures based upon up-graded skills and facilities, as well as on recorded care of some percentage of the economically disadvantaged.

c. Joint ventures between groups of physicians and Village and District Councils for certain types of services, with relatively low fixed fees.

ISSUE 8

Governmental secondary and tertiary care facilities have an excessive outpatient volume in rural as well as in urban areas. Uncontrolled self-referral bypasses existing primary care facilities. It overtaxes the services capacities of secondary and tertiary care facilities, resulting in fragmented care of questionable quality.

How can the MOH rationalize this self-referral and bypass phenomenon? The MOH should address the problem of consumer-perceived quality of care in primary facilities by setting and enforcing standards for availability and quality of services. Pilot projects could be designed to experiment with more integrated clinic services models, more convenient clinic hours, and fees for service to increase utilization. This could also include the use of primary care facilities for medical training.

ISSUE 9

Primary health care services delivery is separately administered and planned for rural and urban populations. These distinctions may in the near future no longer fit the population dynamics. The MOH should experiment with integrated rural/urban primary health services planning, administration and services delivery. Resource allocations should be tailored to the identified population distribution and movement, disregarding rural/urban distinctions. However, implementation of an enforced referral system should not precede rationalizing, upgrading and augmenting of the primary level care system, in both urban and rural areas.

ISSUE 10

Community outreach for MCH care is very limited. It is possibly one of the main factors contributing to low utilization in the more tradition-oriented rural areas. Shortage of nurses should not be an impediment to community outreach. The MOH should experiment with an active program of internationally tested community outreach mechanisms in rural areas and augment nursing personnel with community health workers who can bridge the social gap between the formal health system and community perspectives. This approach should be combined with an energetic community-based health education program.

PUBLIC AND PRIVATE HEALTH SERVICES

DELIVERY SYSTEMS IN EGYPT

1. Introduction

Egyptian health services delivery systems, both public and private, are complex, sophisticated, and rooted in political, social, and economic conditions particular to the country. Therefore, all analyses of the systems need to be circumspect and highly conditional.

One fundamental fact is pre-eminent: only publicly operated and supported health services delivery systems have major responsibility for preventive and curative health care in Egypt.

What is the meaning of 'private' and 'public' as those terms relate to Egyptian health services delivery systems? What comprises the systems? How do they relate to each other?

Ministry of Health Organization at the central level is presented in Figure 1 on the next page. It is followed immediately by a diagram showing the connections between the Ministry of Health and the 26 Governorates and 150 Districts of Egypt, Figure 2.

The meaning of these two figures will be discussed later in section 4:

- a. How the Ministry of Health deploys its resources to provide services at varying levels of care.
- b. How the 26 Governorates and 150 Districts participate in the delivery of health care.

A first section which follows discusses 'public' and 'private' terminology as it applies to the health sector of Egypt. That same section contains an outline (Figure 3) depicting the kinds of 'public' and 'private' health services delivery systems operational in Egypt today.

Subsequent sections besides those mentioned above deal with: resources; coverage and utilization; quality and efficacy of services; management support systems; and conclusions/issues.

Policy analysis concerning these delivery systems, as well as planning considerations related to their present posture and future potentials, appears in Dr. James Jeffers' Health Sector Policy Review.

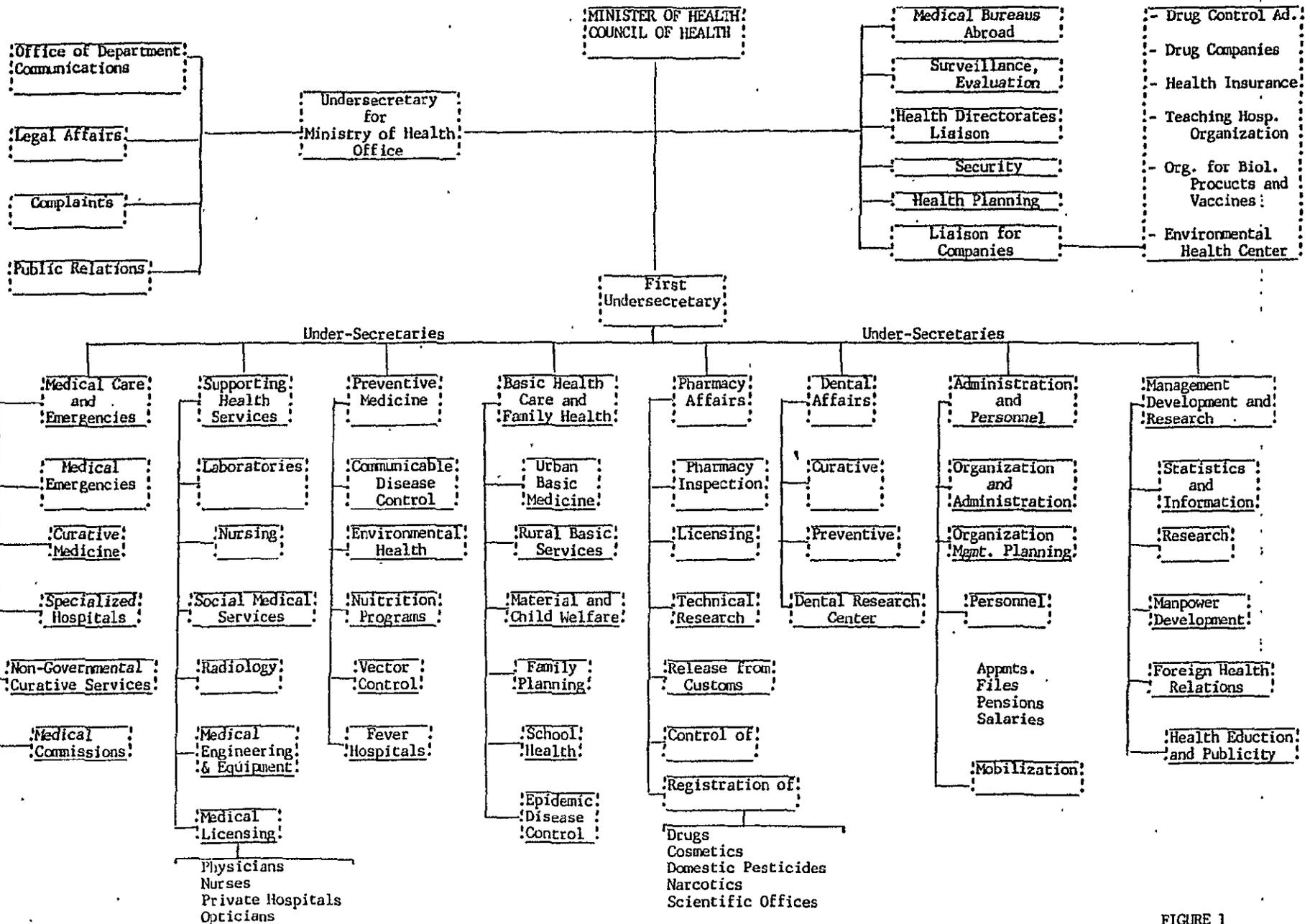


FIGURE 1

ORGANIZATIONAL RELATIONSHIPS
OF
MINISTRY OF HEALTH TO GOVERNORATE HEALTH
ACTIVITIES OF RELEVANT MINISTRIES

MINISTRY LEVEL - CAIRO

GOVERNORATES (26)

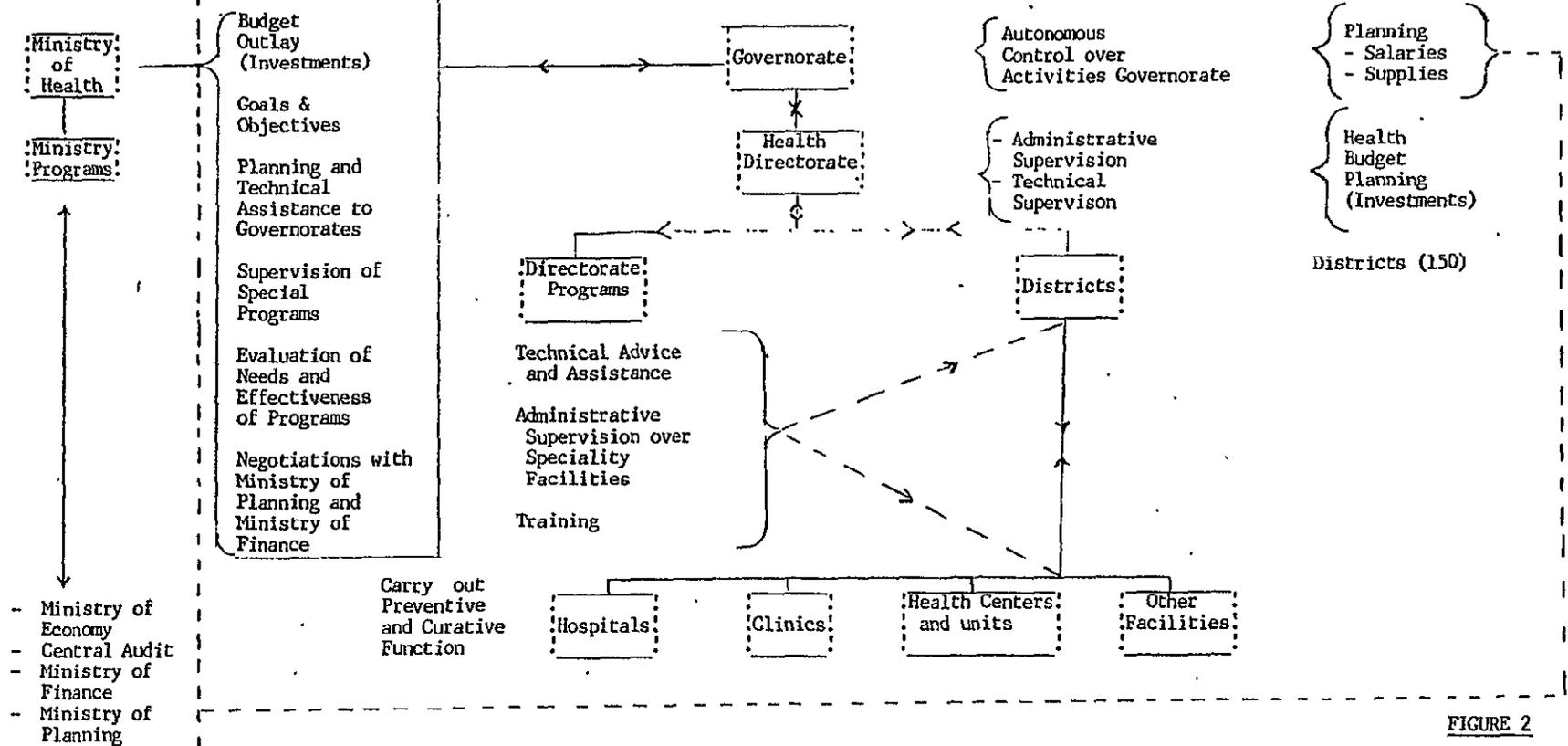


FIGURE 2

FIGURE 3

MAJOR HEALTH DELIVERY SOURCES - ACTIVITIES
IN EGYPT

PUBLIC

Source	Preventive	Curative	Teaching	Geographic/Consumer Spread	Remarks
Ministry of Health	X	X		Nation-wide: Clinics, Hospitals, Home care, Mobile Clinics, Emergency Medical Services	Free Services for all; with some nominal fee services in special hours.
<u>Ministry of Health:-</u> (Autonomous Orgs.)					
* General Organization for Educational Hospitals and Institutes		X	X	Limited: Clinics and Hospitals	Advanced medical training, and specialized medical research/care.
* Curative Organizations: Cairo, Alexandria		X		Limited: Clinics and Hospitals	Serves fee-paying clients, and provides some free service in a few locations.
* Government Health Insurance Organization (GHIO)		X		Limited: Clinics and Hospitals	Serves beneficiary health consumers only.
<u>Ministry of Education:-</u>					
* University Hospital Complexes		X	X	Limited: Clinics and Hospitals	Medical training institutions, for specialized institutions.
Ministry of Housing, Construction, and Land Development	X			Nation-wide	Potable water; sewerage disposal
Organization for Reconstruction and Development of the Egyptian Village (ORDEV)	X			Nation-wide	Potable water; sewerage disposal
Ministry of Social Affairs	X			Nation-wide; Clinics and Hospitals	Ministry registers hospitals and clinics operated by Egyptian Private Voluntary Organizations (PVO's)
<u>PRIVATE</u>					
Source	Preventive	Curative	Teaching	Geographic/Consumer Spread	Remarks
Traditional: Daya's (Mid-wives) Halaa el Saha (Health Barbers)		X		Nation-wide	Not organized; registration of Daya's may soon be re-instituted
Pharmacists		X		Nation-wide	Trained and licensed
Egyptian Private Voluntary Organizations		X		Nation-wide; but limited to larger towns and villages	Registered with Ministry of Social Affairs. Mostly small clinics.
Mostawsaf's (Registered with Ministry of Social Affairs)		X		Nation-wide	Charity and community-supported voluntary entities providing clinic and some hospital care.
Private Physicians		X		Nation-wide; but tend to concentrate in larger towns and more comfortable urban neighborhoods	Virtually all employed by government; and private practice is a 'side-line'
Private Clinics and Polyclinics		X		Nation-wide; but same pattern as above	Same pattern as above.
Private Hospitals		X		Nation-wide; but same pattern as above.	Same pattern as above.

2. 'Public' and 'Private' Sectors - Egypt:

The terms 'public' and 'private' must be defined within the context of how they have come to be used within Egypt. Figure 3 shows all the resources and activities, both "Public" and "Private".

2.1 'Public'

Services within Egypt, since the 1952 Revolution and the application of socialist ideals which have marked later developments, have been based upon national mobilization, equity, and, command economy principles of organization, supply, staffing, and pricing.

The new leaders in 1952 had little or no faith that private enterprise, as they had witnessed it, could be of value in helping them to modernize Egypt. Furthermore, among those leaders, then as well as in 1982, Koranic ideals of responsibility for others blended with ideals of western socialism in support of major mobilization and subsidization decisions.

Today the immediate definitional consequence of adopting a command economy system is that in the Egyptian context the word 'public' has a very wide application. It includes the conventional usages of the terms as applied to government functions anywhere; but it also applies to a very large number of government organizations in production, services, and distribution. Additionally, it includes subsidization in various forms such as support to private, voluntary organizations; price control and cheap supply of goods for certain sectors of the population; free education and medical services; health care for everyone, etc.

Essentially, all of these practices are aimed at providing equitably distributed, low-cost or free services and commodities to the vast bulk of the low-income rural and urban Egyptian population.

The Ministry of Health, in the health sector, is in the forefront of that effort. It has been, and continues to be the organized provider of free health care for all portions of the population. This is in consonance with government policy and, as pointed out in Dr. Jeffers' Policy Review, it relates to serious income variation patterns within the population as a whole.

Institutionally, the command economy approach results in the term 'public' being applied in different ways. Government (public) refers to the conventional usages of the term as applied to the organization of constituted authority for protection of society and for the administration of an economy.

In Egypt, the term 'public' is also used when describing a series of special production, services and distribution organizations of varying character. They may or may not provide free services. Essentially, they are government owned.

In some instances, they may comprise accumulations of private capital now administered by public organizations. One example of this in the Egyptian health care delivery system is comprised of the Cairo Curative Organization and the Alexandria Curative Organization. These include a number of hospitals. They will be described in the next section.

Another public sector health care organization is the Government Health Insurance Organization (GHIO), which was established in 1964 and began in Alexandria. It includes a number of hospitals and clinics catering to a specifically insured clientele. It will also be described in the next section.

Finally, there are public organizations which vary in their authority to combine into joint ventures with private capital or operate only as publicly owned and financed entities. The Egyptian Company for Trade and Distribution of Pharmaceuticals (EGYDRUG) is one of the latter. It is the primary distributor of pharmaceutical products in Egypt. The total volume is said to be about L.E. 330 million per year, of which this company distributes about 50%.

2.2 'Private':

This term has varying meanings within Egypt, depending upon the service or function that is being performed. In general, usage is based upon principles of a market economy; but the form and substance of what happens in that economy is heavily conditioned by the magnitude of government commitment to continued development and maintenance of a command economy.

For example, in the health care field the private market economy is very much intertwined with the public sector. This is not unique, since the same phenomenon occurs anywhere among so-called free economies. However, the Egyptian case does seem to be distinctive because of the magnitude of interdependence.

The private health care sector is heavily subsidized in a number of ways. All medical schools and training institutions are free and open to a very large intake of students. Subsidized systems exist for low-cost medical supply and pharmaceuticals distribution. Though prices are controlled on non-subsidized drugs, there are standards-revisions means by which these prices are steadily raised. That is, by slightly improving the chemicals 'mix' in a drug, the pharmaceutical producers can then have the drug re-classified on the price list and set by the price control committee at new and higher

prices. Finally, virtually all physicians engaged in private practice are employed members of a salaried, tenured, curative and preventive health care establishment - the Ministry of Health.

Since 1972 the scale and diversity of health care services offered by the Egyptian private market economy has expanded rapidly. The traditional elements of that economy have always been present. They include the Dayas - traditional midwives; Halaa el Seha - health barber's; and Folk Healers. However, it is the commercialized, drug-oriented, western-derived health care services that have multiplied in volume during the past ten years.

The growth of the private economy displays at least seven phenomena with particular reference to professionally trained suppliers of health care:

- a. It continues to benefit from advantages conferred by the government's sustained efforts to expand and improve the command economy health care services. For example, in order to speed and expand the availability of command economy health care staff throughout the country, there is no re-licensure system. However, this may change in some degree since plans are now being developed to review and certify certain kinds of health establishments. The very high graduation rates of relatively less trained physician's is another way of conferring advantages upon experienced physicians already in private practice. Patients that can afford the services tend to flow to them rather than to more recent graduates who may enter partial private practice. As a consequence, the health care private market benefits from these and other policies because it is operating, essentially, in an unregulated seller's market.
- b. The demand for private curative services continues to escalate.
- c. New actors in curative health care services of a minimal kind are emerging. These particularly include pharmacists; but other types of technicians are engaging in the same process.
- d. Investment expansion by the private curative services in terms of facilities, equipment, and technician staff employment is also escalating.
- e. The emphasis in the entire profit-oriented development of the private sector is upon curative care. However, in a very modest way and only for a very small sector of the population, there is attention to some aspects of preventive care, (immunizations, dental care, etc.)
- f. Distribution of the private sector services is distorted. The traditional practitioners are widely spread throughout the

country among the lower-income rural and urban segments of the society. The professionally trained practitioners are concentrated in the larger urban towns or villages and among the more comfortable higher-income neighborhoods.

- g. Tax records and other means of monitoring what is occurring in the private health care delivery system are either deficient or non-existent. It is therefore difficult, but not impossible, to ascertain the dimensions of what is occurring with reference to the content, distribution, and quality of those services. Essentially, this is a phenomenon of scale - and the scale is now enlarging to a size where private practice is no longer of low visibility.

Figure 3 depicts the kinds of "public" and "private" institutions and sources which affect the delivery of health care in Egypt today. As indicated, only the Ministry of Health deals directly with preventive health, while two others play important prevention-related roles concerned with potable water supply and sanitation. As indicated, also, only the Ministry of Health tries to deal with the entire country and its health problems. All other "public entities" cater to discrete groups of health consumers. The "private" sector, though becoming more widely distributed in geographic areas, tends to concentrate only upon the curative care aspects and higher income areas of the country.

3. Health Systems Components - Public and Private:

No attention is paid, in this section, to the systems concerned with operations of potable water supply and sewage disposal by the Ministry of Housing, Construction, and Land Development or the Organization for Reconstruction and Development of the Egyptian Village (ORDEV). The WASH group's HSA report on Environmental Health deals with those entities. Similarly, there is no treatment in this section of pharmacies or traditional providers of health care in the villages. The former is described in the HSA Report on "Pharmacies". The latter are described, in Dr. Nawal Nadim's Report on "Users' Perspectives on Health Services".

Here, attention is devoted to the principal components of the public and private health services delivery systems.

3.1 Public Sector Health Services Systems:

3.1.1 Ministry of Health

3.1.1.1 Entities Operated by the Ministry of Health:

The list of entities operated by the Ministry of Health is an extensive one. It is presented in Table 1/1 below, current as of January 1, 1981. Ministry policy concerning how these entities are used and deployed to provide services is presented next, preceding discussion of the functions and other attributes of the principal groups of these entities.

3.1.1.2 Grouping of MOH Entities by Levels of Care:

The Ministry of Health follows a services-oriented bias when defining the roles of its component entities as they pertain to primary, secondary, and tertiary care. MOH accepts that there will be varying degrees of overlap among the services, facilities, and organizations. The groupings follow:

Primary Care

Predominantly preventive, with some curative services. They are provided through various types of facilities, with or without beds. They include particular services and organizations. They began as fragmented activities; but in the rural areas are now integrated; the thrust of government policy is also towards integration of services at this level in urban areas.

As examples of the various organizations and services related to this level of care the following are cited: Rural Health Units (RHU); Rural Health Centers (RHC); Rural Health Hospitals (RHH); Urban Health Centers (UHC); General Urban Health Centers (GUHC); Maternal Child Health Center (MCHC); School Health Centers (SHC); School

TABLE 1/1

ENTITIES OPERATED BY THE MINISTRY OF HEALTH, EGYPT, JANUARY 1981

<u>Facilities</u>	<u>Numbers</u>
Rural Health Units	1,898
Rural Health Centers	549
Rural Health Hospitals	41
Urban Health Centers	61
Urban Maternal & Child Health Centers	238
School Health Units	235
Dental Units	1,259
Health Bureaus	351
Health Education Centers	90
T.B. Screening Units	59
General and District Hospitals	173
School Health Polyclinics/Branches	31
School Health Hospitals	5
Polyclinics & District Clinics	148
General & District Hospital Specialized Clinics	64
Rabies Clinics	92
Chest Dispensaries	72
Chest Disease Hospitals	35
(Fever) Infectious Diseases Hospitals	73
Obstetric & Pediatric Hospitals	3
Endemic Diseases Hospitals	27
Ophthalmic Hospitals & Clinics	34
Leprosy Hospitals & Clinics	55
Skin & V.D. Hospitals & Clinics	15
Mental/Psychiatric Hospitals and Clinics	12
Laboratories	150
Cancer Institute	1
Quarantine Centers	22

Source: MOH, ARE (discussions with MOH officials during March, 1982).

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Cancer Institute	1
Quarantine Centers	22

Source: MOH, ARE (discussions with MOH officials during March, 1982).

Health Visitor's (SHVC); Health Bureaus (HB); Health Education Bureaus (HEB); Emergency Medical Services (EMS); the outpatient clinics of all but the most specialized hospitals; preventive care including communicable diseases; environment-sanitation; industrial health; nutrition; family planning; and endemic diseases control.

Secondary Care:

These are services defined as offered in specialized facilities that have diagnostic capability. This level of care takes different shapes and degrees of specialization according to size of facility.

Examples of the various facilities and services related to this level of care are: Polyclinics; Rabies Clinics; Chest Disease Clinics and Hospitals; Venereal Disease Clinics; District and General Hospitals; GHIO Hospitals, Curative Organization Hospitals, Endemic Diseases Hospitals; Fever Hospitals; Educational Hospitals; and such services as pediatrics, urology, ophthalmology, dentistry, gynecology/obstetrics, etc.

Tertiary Care

These are services defined as offered at highly specialized "Centers of Excellence" (which are not necessarily large centers). The term "Centers of Excellence", as used by MOH senior personnel, in general reflects to intensive care, high technology, kinds of treatment facilities. Examples of the various facilities and services related to this level of care are: Cancer Institute; pediatric and other special hospitals in the University Hospital Complexes, etc.

Some of the entities listed in the above groupings are not directly controlled by the Ministry of Health. Examples include the Government Health Insurance Organization, the Curative Organizations of Cairo and Alexandria, and the University Hospitals. Those institutions will be described elsewhere below so that they can be related to the above groupings.

3.1.1.3 Description of Individual Categories of MOH Entities

3.1.1.3.1 Rural Health Units (1,898)

These are the main front-line, first-contact points of the Ministry of Health in the rural areas. Care is free of charge. The units are located in villages. Each is staffed with 1 physician (General Practitioner), 2 Nurses, 1 Sanitarian, 1 Assistant Sanitarian, and 1 Lab Assistant. Some also have Dentists. The activities of the unit are integrated. It handles maternal and child health care; school health care; communicable disease control; endemic and parasitic disease control; environmental sanitation; health education; curative medical care; and vital events registration.

The ratio of such facilities to population is about 1/9,049, with an entity/village ratio of 1/1.77.

The physician in charge can be one of those compelled to serve for one year in the rural areas after completion of medical training. In recent years, a growing number of these physicians opt to remain for longer periods of time at the units.

In recent years, also, the physicians are allowed to charge a modest fee for "house calls" when off-duty. In practice, this has been taken as a signal to allow them to engage in some private practice after office hours. Clinic hours at the units are officially from 8:00 AM to 2:00 PM, six days a week.

3.1.1.3.2 Rural Health Centers (549)

These are the next level up and they are better staffed. Each is to have 2 General Practitioners, 1 Dentist, 1 Lab Technician, 1 Chief Nurse, 6 Nurses, 1 Sanitarian, and 1 Laboratory Assistant.

The Centers have some inpatient beds and facilities. They also have equipment for dental services. They, too, implement the preventive, statistical, and curative acute functions. A Rural Health Center will often serve several smaller villages surrounding a central village in which it is located.

These centers are located, usually, in the old "combined center" complexes of the 1960's period. In those days government exerted an effort to physically locate several services in the same building. These often included social affairs, health and agriculture. While still functioning in the 1980's, these types of "combined centers" are no longer being built.

3.1.1.3.3 Rural Health Hospitals (41)

These are located in villages/towns with populations of at least 20,000. They contain 30-50 beds; and they are to provide simple primary medical and surgical care to the local towns.

Minimally, they are staffed with 1 Surgeon, 1 General Practitioner, 1 Dentist, 1 Pharmacist, 1 Sanitarian, 1 Laboratory Technician, 1 Radiology Technician, 1 Chief Nurse, and 8 Nurses.

In general, these facilities appear to be under-utilized, and appear to have prolonged periods of bed occupancy when they are utilized.

3.1.1.3.4 Urban Health Centers (61)

These are to serve urban populations of 25,000 to 50,000. They are to operate integrated health programs oriented to the communities they serve. There is one physician per 5,000 population.

They are organized to provide the following services: Maternal Child Care, School Health, Communicable Diseases Control, Endemic and Parasitic Diseases Control, Environmental Sanitation, Health Education, General Practitioner Medical Care, Emergency Medical Care, and Dental Care.

As in the case of the Rural Units and Centers, service is free of charge.

Each center is staffed by: 5-10 Physicians, 2 Dentists, 2 Pharmacists, 15 Nurses, 3 Sanitarians, 2 Laboratory Technicians, 1 Radiology Technician, and 1 Social Worker.

3.1.1.3.5 Urban Maternal and Child Care Centers (238)

These are to serve urban populations of 75,000. They are located often in rented facilities. They usually contain 6 to 10 beds, and operate on a 6-clinic-a-week basis. That is, daily the following schedule may be observed:

- Newborns to three months old examined, smallpox and T.B. inoculations given
- 3 to 6 month olds are seen
- 6 to 9 month olds are seen and immunizations for diphtheria and polio are given
- Tetanus shots given
- Over nine month olds seen and measles immunization and boosters given
- Newly pregnant women seen and given urine tests.

The Clinics provide medicine and treatment free. Staff members provide round-the-clock assistance for deliveries, which they will attend in the homes. Average staff includes 1 Physician, 1 Nurse-midwife, 2-3 Orderlies, 1 Pharmacist, 1 Dentist, 1 Nutritionist, and 1 Laboratory Technician.

3.1.1.3.6 School Health Units (235), School Health Polyclinics and Branches (31), and School Health Hospitals (5)

The Units are located in the District Centers, and Polyclinics, Specialized School Health Clinics (Branches), and School Health Hospitals are scattered among the capital cities of the Governorates and Cairo or Alexandria.

There are 2,000 School Health Doctors and 3,000 School Health Visitors in this system. Personnel are distributed as follows:

- 1 School Health Doctor/4,000 children
- 1 School Health Visitor/1,100 children

Beginning this year, one doctor is to be assigned to each school which has 800 or more students. Doctors are assigned to the Units (Centers) and there may be 4 to 6 at each location. They travel around among schools on schedules arranged so that they can carry out periodic physical examinations of children as well as periodic screenings of children related to various diseases (T.B., etc.).

Health Visitors are scheduled to visit schools daily. They have the following tasks to perform:

- Observe for infectious diseases
- Provide First Aid
- Observe environmental conditions and seek the cooperation of the Head Master in changing them.
- Maintain Health Status sheets on each pupil: weight, eye tests, periodic screening results, immunization records, etc.
- Assist doctors in their screening and immunization work
- Carry out health education activities through organizing and training 2 members of each class to act as Health Monitors and information conduits. These members are elected by their classmates. They meet weekly with the Health Visitor, who instructs them in what health messages to convey to their classmates.
- The School Health Visitors and School Health Doctors are also to relate to the Health Society of each school, which includes students, teachers, and some parents.

3.1.1.3.7 Dental Units (1,259)

These are attached to some Rural Health Units, all Rural Health Centers, and all Rural Health Hospitals. Similarly, they may be a part of Urban Maternity and Child Care Centers, and they are assigned to Urban Health Centers. They are also scattered among Polyclinics, District Hospitals, and General Hospitals.

3.1.1.3.8 Health Bureaus (351)

These are preventive health units in urban areas. They are to serve 60,000 people each. Each one is headed by a physician with a support staff. They are to concentrate upon food quality control, sanitation, immunizations, vital statistics, etc.

3.1.1.3.9 Health Education Centers (90)

These are headed by physicians and they are scattered among the Governorates and major urban areas. They are responsible for developing programs in health education for health services personnel and the general public.

3.1.1.3.10 T.B. Screening Units (59)

These are of two kinds: mobile and static. They are operated on regular schedules and the services are free of charge.

3.1.1.3.11 Polyclinics and District Clinics

In recent years, the Ministry of Health has endeavored to develop groupings of specialized services or clinics in urban areas. They are designed to decrease the patient loads on Hospital Outpatient Departments. They provide varying specialty care on an ambulatory and outpatient basis. Their staffing is being standardized and their equipment up-graded to accord with modern requirements for diagnostic and therapeutic care.

3.1.1.3.12 District Hospitals (173 - Number not Differentiated by District or General)

One of these has been established at each District headquarters town. Such towns have populations of 50,000 to 100,000.

The hospitals average about 120 beds in size, and most have special nursing care units and wards for special disease categories.

At the minimum, these hospitals are supposed to provide specialty services in:

- General surgery
- General medicine
- Obstetrics and Gynecology
- Pediatrics
- Anesthesiology
- Urology
- Ophthalmology

Many have other specialties also; but, as a general rule, the specialties of E.N.T., Dermatology, Psychiatry, and Neurology, Neuro-surgery, etc., are located another tier up - at the University Governorate Hospitals. Staffing varies with the size of the establishment and its functions.

Each District Hospital operates an Outpatient Department; and - as noted in subsequent sections of this paper as well as other reports - those departments are heavily used by the populace which tends to by-pass more peripheral health care facilities.

The HSA Report on Emergency Medical Services explains how those services are linked into the District Hospital system.

3.1.1.3.13 Central (Governorate) Hospitals

One of these has been established in each Governorate capital; in cases like Cairo there may be more than one. They are, in general, supposed to cater to populations varying in size from 150,000 to 450,000 and averaging about 250,000. They contain about 300-500 beds and provide almost a full spectrum of specialty medical care. Their staffs vary in size, depending upon specialties provided and on total bed-capacity of the institution.

A detailed description of one of these hospitals, located in Alexandria, is attached as ANNEX A; it presents a mixed picture, with staff members working under great pressure in small, out-of-date, facilities. ANNEX B reports on Consumption of Patient-Days by Cause in District and General Hospitals. Where special disease hospitals are present duplicative beds are not located in the central hospitals. The most obvious case, of this kind concerns the chest disease facilities. As remarked below, in some Governorates there are special disease clinics and hospitals; and they are supposed to handle this kind of load - rather than the General Hospitals.

The General Hospitals also operate Outpatient Departments. Like those at the District Hospital level, these are heavily used by patients who by-pass facilities lower down the line.

The HSA Report on Emergency Medical Services explains how those services are linked into the General Hospital system.

From a policy-control point of view, it should be noted here that there are certain characteristics about the District and General Hospitals, as well as the Specialized Hospitals mentioned below. Each level of hospital has its own governing board, with a membership that is prescribed by law. The Hospital Directors in the Governorate, District, and Special Diseases Hospitals are accountable to the Health Director of the Governorate (either of Under-secretary or Director General Status). They meet at least monthly in order to coordinate their affairs, resolve mutual problems, and plan for ways to improve hospital effectiveness.

3.1.1.3.14 Other Specialized Hospitals and Clinics:

As indicated under (1) above, the Ministry of Health also operates a wide range of specialized hospitals and clinics. These comprise

varying standards, targets, and staffing. They could be the subject of a special study because of their extent, important duties, and possible redundancy in terms of emergence of new therapeutic techniques for some diseases in recent years. An example would be the diagnosis and care of tuberculosis.

3.1.2 Non-MOH Facilities Under Direct MOH Influence:

A number of non-MOH institutions are affected by the Minister of Health, in terms of his powers of appointment and veto. They are not under the same control or subject to the same supervision as the Ministry of Health can exercise with or through the Governorates in the cases of the entities described under 3.1.1.3 above. They include:

3.1.2.1. The General Organization of Educational Hospitals and Institutes (28)

This is a group of Teaching Hospitals and Research Institutes which are engaged in the advanced training of professional medical staff. They include entities such as:

- Elsayhel Teaching Hospital
- Ahmed Maher Teaching Hospital
- Matereya Teaching Hospital
- Elgalaa Teaching Hospital
- Damanhour Teaching Hospital
- Shabia El Kom Teaching Hospital
- Benha Teaching Hospital
- Sohag Teaching Hospital
- Research Institute for Tropical Medicine
- Heart and Chest Surgery Institute
- Hearing and Speech Institute
- Poliomyelitis Institute
- Medical Insects Research Institute
- Memorial Ophthalmology Research Institute
- Nutrition Research Institute
- Diabetes Research Institute

Collectively, those hospitals provide 3,443 inpatient beds and employ 7,682 persons (944 are professional, 1,993 specialized, and 2,329 technical). They provided 1,354,657 outpatient treatment visits in 1981, and treated to 108,467 inpatients in that year. (If the outpatient visits of the eight institutes are added, the total increases to approximately 2.6 million in 1981.)

These hospitals offer the whole range of primary secondary and tertiary medical care services. Because they are known to be of high quality and to have access to medical faculty and sophisticated equipment, the bulk of their patients are self-referrals (walk-ins). The fact that no strictly enforced referral mechanism exists reduces their efficiency of operations in some ways since they must accept all patients and cannot concentrate

exclusively on secondary or tertiary care. Some people travel 100-200 km. to refer themselves to these institutions. These patients have to be admitted since they are usually very ill and cannot be sent back. They must also be held for longer periods of occupancy, since adequate follow-up is otherwise not possible.

3.1.2.2 The Curative Organizations of Cairo and Alexandria (12)

During the mid-1960's there was a strong effort to nationalize all hospitals. This was resisted by a number of the major hospital organizations that had been established through private gifts. As a compromise, it was agreed that in the two metropolitan areas these groups of hospitals would be granted the right to continue operations under the ownership and policy control of two special organizations. It was agreed, also, that these hospitals would operate as fee-for-service institutions serving private, paying patients. They continue to so operate today, with the Minister of Health reviewing and approving/denying their Board of Directors' decisions.

The Curative Organization establishments operate as profit-making institutions with profits reinvested for upgrading and extending services. They tend to have less extensive outpatient facilities because of private practice in separate physician office facilities; but they do provide a full spectrum of specialty care, particularly in the larger ones.

Currently, there are 12 Cairo and Alexandria Curative Care Organization hospitals. Bed capacity is 3,000, collectively. These hospitals provided care for 65,000 inpatients in 1981.

Physicians are hired on a contract basis, in the interests of maintaining control over quality of practice. Approximately 1.0 million outpatient clinic visits were provided by physicians on contract in 1981. Physicians also admit patients from these clinics to the hospital.

The Organization operates with a set fee schedule, half of which goes to the hospitals and half to the physician. The Chairman of the Cairo Curative Organization stated that in the year 1980, after splitting 50/50 with physicians, the Organization retained L.E. 2.0 million which was then reinvested to upgrade quality of service, expand facilities, and add equipment.

The Organization attempts to offer a high quality of care for a reasonable price. It believes that it is favorably competing with the private sector, which it perceives as charging excessive and continuously rising fees.

3.1.2.3 The Government Health Insurance Organization (GHIO)

Another kind of "public" organization engaged in health care is the Government Health Insurance Organization (GHIO). This was established in

1964. It is comprised, basically, of hospitals transferred to the Organization from the Ministry of Health. The various policy dimensions of this organization are treated in the HSA Health Policy Review Report; they will not be repeated here.

The GHIO began operations in 1964 in Alexandria, where the great majority of beneficiaries are still located. The GHIO has branches throughout Egypt, in regions divided as follows: Alexandria and the north and southwest Delta; Canal Zone and the east Delta; Tanta and the center Delta; Cairo, Giza and Upper Egypt; and Assiut and Upper Egypt.

At its creation in 1964, the GHIO was a public sector enterprise, subject to control and management by the Ministry of Health. However, in 1979, the law was modified and it was converted to an "open enterprise", specifically, to an Economic Authority (or Economic Organization, according to some translations). As a health sector economic authority, the GHIO has considerable autonomy over management decisions, is able to set rates of remuneration to salaried and contract employees at levels exceeding those admissible for public service government employees, and is able to finance investment projects from operating surpluses or from foreign donors. Yet the GHIO is a government "creature". As such, its activities are monitored by government. Directives are frequently issued by the Minister of Health which are compelling to the organization, such as the directive ordering the GHIO to periodically expand its coverage. All medical posts in the GHIO must be authorized by the Minister of Health, and financing of the organization is administered by government under a network of government-authorized social security schemes. Thus the GHIO is neither wholly private, nor wholly government. It is one of the unique creations of Egyptian law that grew out of the "Open Door Policy" of 1974, designed to give greater flexibility to economic and service organizations and authorities in order to facilitate achieving the goals of the State.

3.1.3 Ministry of Education - University Hospital Complexes (21)

There are 21 of these facilities and they provide the training venues for the large number of young people who aspire to be physicians in Egypt. They operate under the control of the Ministry of Education. Each University Hospital may have several complexes; all are under the policy direction, within each University, of a Governing Board chaired by the Dean of the Medical School, with the hospital directors and other involved University staff as members, appointed by the University presidents. The boards, in turn, appoint hospital directors.

The HSA reports on Training and Health Education also deal with these hospitals. They have over 10,000 beds and they are regarded by most Egyptians as providing the best hospital care of any publicly supported facilities in Egypt. Their outpatient departments are crowded with patients who are by-passing other facilities in search of specialized care. Various studies, however, indicate that most patients going to these entities do not simply

self-refer themselves. At least 75%, on the average, seek medical care elsewhere first. However, more than 65% of in-patients enter these hospitals after first attending their outpatient Departments.

These hospitals are located in the larger urban concentrations; but they are gradually being established in a pattern which also serves the Lower, Middle, and Upper Regions of Egypt. In some cases, because University Hospitals are not yet created, the Medical Faculties are set up using elements of the General Organization of Educational Hospitals and Institutes, described above. Thus, the general distribution is (complexes not listed):

- Cairo University
- Ain Ahams University - Cairo
- Azhar - Cairo
- Alexandria
- Tanta - Middle Egypt (Gharbia Governorate)
- Mansoura - Lower Egypt (Daklayia Governorate)
- Zagazig - Middle Egypt (Sharqiya Governorate)
- Assiut - Upper Egypt (Assiut Governorate)
- Suez Canal - Lower Egypt, comprised of Ministry of Health-related hospital for Ismailia, Port Said, and Suez
- Minia - Upper Egypt (Minia Governorate), comprised of Ministry of Health-related Hospital at Minia
- Benha - Middle Egypt (Kalyoubia Governorate), Comprised of Ministry of Health-related Hospital at Benha.

3.1.4 Other Ministry and Agency Hospitals/Clinics:

Several Ministries and special organizations operate their own hospital and clinic systems for their employees. These include the Ministries of the Interior and of Defense, the Railway Organization, and a number of others. No detailed attention was devoted to a study of these entities.

3.1.5 Ministry of Social Affairs:

This Ministry is responsible for the registration of various kinds of Egyptian private voluntary organizations which may provide certain types of health care.

The Ministry of Social Affairs does not exercise any technical supervisory authority over such facilities, and neither does the Ministry of Health. The subject is described further under the section on PRIVATE below.

3.2 Private Sector Health Services Systems

3.2.1 Traditional Sources of Health Care

These are comprised mainly of the Daya's (midwives) and the Halaa el Saha (health barbers).

The exact magnitude of services provided by Daya's (midwives), health barbers, and other traditional sources of care continues, to be a matter of anecdote. Some studies indicate that about 80% to 90% of popular villager needs related to midwifery, minor surgery, etc., were still met from traditional sources until very recent years.

What the magnitude of those services may be in 1982 continues to be a matter of speculation and study. Some information indicates that the same high rates of usage remain. In this connection, the government is now considering licensing Daya's in the expectation that this might provide opportunities to train them as well as to coordinate their activities with those of Rural Health Unit teams. However, an increasing amount of anecdotal information indicates that the magnitude of usage of the traditional services is declining somewhat because of alterations in consumer behavior and an increased supply of private professional health services.

3.2.2 Egyptian Private Voluntary Organizations (PVO)

The formally organized, national, regional, or Governorate-wide private voluntary organizations of Egypt operate at least several hundred clinics and a few small hospitals scattered around various parts of the country. Many are located in larger towns and urban areas. The dimensions, content, and distribution of these activities are not easily discernible. The HSA Report on Egyptian Voluntary Associations and the Health Sector, Annex C, describes this source of care. That paper notes "it is likely that voluntary associations are very significant actors in the health sector in Egypt..." However, the same paper cautiously observes that, "...there is not enough accessible evidence to make this determination with any authority..." and leaves the matter to be determined through further study.

In any case, it is known that there are more than 9,000 Egyptian voluntary organizations. It is also known that a number of these deal directly with family care, mother and child care, and family planning. All voluntary organizations are required to operate under legislation which is administered by the Ministry of Social Affairs. That same Ministry provides subsidization to those associations, and they, in turn, often generate their own revenues.

What proportions of the voluntary association activities are addressed only to health care, and at what levels, is unknown at this time. At the Ministry of Social Affairs, responsible officials suggest that as many as 14 million Egyptians receive health care annually through programs operated by the voluntary associations. Survey results to be published later this year by the Ministry of Social Affairs are expected to add greatly to knowledge of Egyptian PVOs and their activities.

3.2.3 Mostawsaf

These are local voluntary, charitable or work-group related entities that may be organized as single physician practices or multiple specialty clinics. They are financed out of local neighborhood resources, plus fees for

services. Physicians and other staff employed in such facilities receive either a salary or a portion of the fee charged. They are supposed to be registered at the Ministry of Social Affairs. Their numbers appear large. In the Helwan District alone 39 such entities exist. Some have some bed capacity; but most are clinics which are open in the evenings and offer their services on a more flexible schedule than government facilities.

Some officials, particularly in the Ministry of Social Affairs, aver that there are several thousands of these entities - particularly in lower income urban areas and larger villages.

3.2.4 Private Physicians

There has been a rapid expansion in the numbers of physicians setting up practice in urban areas. However, the same phenomenon is now occurring in the rural areas. The Ministry of Health estimates that approximately 12,000 private physician practices now deliver primary care in Egypt. This growth in private practice arises out of alterations in the law as it affects young government-employed physicians serving in rural areas as well as out of changed economic circumstances. Now, government-employed physicians in the Rural Health Units and Rural Health Centers are permitted to carry on a part-time private practice. Improved economic conditions in many rural areas are reflected in increased consumer demand for private medical services. At the same time, higher costs accompanying the start-up of practices in urban areas cause an increasing number of the government-employed primary health care delivery physicians to opt for remaining in rural areas. Each year more than 50% of those young physicians completing their one year of compulsory Rural Health Service (or about 1,000) are now said to choose to remain in the rural systems.

Some fragmentary data suggests that established rural medical practices now exceed 4,000 physicians. These are individuals who are government-employed and operate part-time private practices. They are distributed in response to local effective consumer demand as well as to amenities in living and working conditions. They thus tend to be only in larger villages or in areas adjacent to larger towns and cities.

All physicians must be registered with the Medical Syndicate. This is the most prestigious and well-established professional association in Egypt. It maintains a Cairo headquarters and Governorate branches, which are social and professional centers for members. It operates programs of medical education, promotes the professional interests of physicians, and enforces the ethics of the profession.

There has also been an expansion of private pharmacies in many villages and smaller rural towns. In addition to providing drugs, these pharmacists supply medical advice and some offer simple medical care for less complex injuries or illness.

3.2.6 Private Clinics and Polyclinics

The rural area private practice expansion described in the preceding section has been accompanied by the establishment of numerous clinics among the larger villages and nearby towns. There are varying figures, cited by different observers, concerning the numbers, specialties, and distribution of these facilities; but, judging by all indicators (pharmaceutical sales, medical supply sales, registration figures, etc.) they are expanding at an accelerating rate.

At the urban level, the numbers and specialties of private facilities have always been of some magnitude; but in recent years the proliferation has been extraordinary. Again, it is very difficult to obtain precise figures - though it is possible, given adequate time and study, to establish reliable approximations.

The development does not seem confined only to the growing low middle class and middle-middle class elements of the population. In some urban areas, it is taking place among factory-level and services industry personnel on an expanding scale. This is quite evident in the June, 1981 ECTOR Helwan Zone Study. There, in an area of approximately 600,000 people with ceiling income (with few exceptions) of L.E. 50 for families of 5, 309 physicians are now carrying on private practices.

Organizationally, the Ministry of Health (centrally) and each Governorate health establishment are responsible for registration and licensure of these secondary care entities. The General Directorate of Non-Governmental Curative Establishments at the Ministry of health has a number of special functions related to this subject. It is supposed to prepare studies and research concerning national requirements for private services (outpatient clinics and polyclinics), participate with the Governorates in licensing such services, and monitor the application and enforcement of relevant regulations. It is this Directorate which estimates that the current number of private clinics also includes private hospitals of varying capacities. Such hospitals are distributed throughout Egypt, but the very large majority tend to be located in the wealthier neighborhoods of Cairo, Alexandria, and the larger towns.

3.2.7 Private Hospitals

Some very specialized intensive-care type private hospitals have been established in the past few years. Again, these are concentrated in the Cairo and Alexandria areas. These are also licensed by the MOH General Directorate of Non-Government Curative Establishments.

4. Organization and Mandate -- Health Services Delivery Systems

This section describes only four aspects of this complex subject. Its focus is upon providing perspectives on critical issues of mandate and organization which persistently characterize public sector performance internally as well as vis-a-vis the private sector. The four aspects are: remuneration of Egyptian health services delivery personnel in the public sector; decentralization, primary health care delivery, and secondary health care delivery.

Because remuneration of personnel is basic to performance on all mandates about authority for health delivery and for the organization of effective delivery structures, it is presented first.

4.1 Salaries, Allowances, and Incentives

When contrasted to the GNP per capita and to general income levels, Egyptian medical personnel employed in the public sector appear to have adequate salary and allowance provisions. This is a misleading comparison for a number of reasons specifically associated with their levels of training and with alternative compensation levels for other employment of their skills.

Within Egypt, trained medical personnel do have some basis for comparison of incomes. A trained Egyptian physician or medical technician employed only in the private sector will earn three to five times the amount of income obtained by comparably skilled personnel working only in the public sector. Private sector personnel also enjoy the possibility of boosting those levels, over time, to as much as ten times the levels of their public sector colleagues.

By contrast, those employed in the public sector cannot look forward to significant increases in salaries or allowances based upon superior performance. All are compensated within a relatively narrow range, with prospective levels of increase based only upon seniority, training, responsibilities, etc.

In this public system, service to society at low levels of compensation is mandated. While in the short term - for patriotic or social responsibility reasons - such a mandate may be acceptable to trained personnel, it cannot be effective over a span of many years. This is particularly true, during a time of rising prices and when there is a growing consumer demand for a professional-based service. There will be a response to that demand. As a consequence the service-at-low-pay mandate will provide low value service.

No other single aspect of Egypt's publicly operated health services delivery system is so critical when examining key performance characteristics. Adequate compensatory devices sufficient to provide substantive incentives for high performance by the medically trained staff of the public system are urgently required. This urgency increases if the intent persists to provide adequate free care to the most economically disadvantaged portions of the population.

4.2 Decentralization and the Ministry of Health

4.2.1 Background

Since 1952, successive Egyptian policy phases have always placed emphasis upon getting the government out to the people and getting the people involved. Sometimes the emphasis has waxed and sometimes waned.

For example, the late President Nasser first sought to break through the "central inertia of French style administration" by establishing field units of central ministries. This was essential, at the time, because some of the great social reforms that marked the early Nasser years were in process. Land reform was at the forefront of these changes, and deconcentrated central ministry activities were essential in order to support those reforms. However, by 1960 it was clear that very little was changing in terms of central attitudes and capacities. Therefore, in that year, by Presidential Decree the Governorates were established and certain local powers were delegated to them. At the same time, special procedures were established by which the Ministry of Local Administration could create towns and Governors could create villages. As part of these beginnings, a Ministerial Committee was established charged with responsibility to:

- Transfer the civil servants required by the local authorities
- Transfer the functions performed by the central ministries to localities
- Provide the local authorities with required funds and transfer them to their budgets

While these processes continued to evolve during the 1960's, it was not until the 1970's that the late President Sadat began to exert very much pressure on speeding decentralization. In several speeches in the National Assembly he reiterated the point that political, social, and economic development could not be effectively promoted in contemporary Egypt without decentralizing power and thereby mobilizing local resources of energy, brains, and enthusiasm.

During his time as President, Sadat initiated four different local government laws, each one of which transferred more responsibilities to Governorates, to elected local People's Councils, and to Districts (Markazes). He watched over these changes personally and constantly moved about the country so that he could be in contact with the Governors whom he had appointed.

It was a centrally initiated process that Nasser and Sadat devised and, as such, it was and is subject to all of the countervailing attitudes and policies of powerfully entrenched central bureaucracies. Nevertheless, during the twenty-two years of the initiative the roles and authority of a number of the central ministries have been radically redefined.

Presently, the number of local government units in the country exceeds 1,100. Figure 4 shows their distribution. The powers and staffing of these various units impinge deeply upon many of the former functions of central ministries

FIGURE 4

NUMBER AND DISTRIBUTION OF LOCAL GOVERNMENT UNITS

<u>Governorate Name</u>	<u>Governorate</u>	<u>Dis-</u>	<u>Towns</u>	<u>Quarters</u>	<u>Villages</u>	<u>Total</u>
	<u>rate</u>	<u>tricts</u>				
Cairo	1	-	-	7	-	8
Alexandria	1	-	-	4	-	5
Port Said	1	-	-	4	-	5
Ismailia	1	4	5	2 (Ismail)	10	22
Suez	1	-	-	3	-	4
Kalyoubia	1	7	9	-	37	54
Sharkeya	1	12	13	-	71	97
Dakahleya	1	10	12	2 (Mansoura)	72	97
Damietta	1	4	6	-	24	35
Menoufia	1	8	9	-	64	82
Gharbeya	1	8	8	-	53	70
Kafr El Sheikh	1	9	9	-	43	62
Beheira	1	12	14	-	67	94
Giza	1	5	8	3 (Giza)	39	56
El Fayoum	1	5	5	-	37	48
Beni Suef	1	7	7	-	38	53
Menya	1	9	9	-	57	76
Assuit	1	10	10	-	49	70
Suhag	1	11	11	-	57	74
Quena	1	11	11	-	48	71
Aswan	1	4	6	-	22	33
Matruh	1	3	6	-	10	20
New Valley	1	2	2	-	10	15
Red Sea	1	-	4	-	-	5
North Sinai		4	4	-	6	15
South Sinai	1	5	5	-	-	11
TOTALS	26	150	173	25	808	1,182

Source: Secretariat General of Local Government - 1981

such as Education and Health. Each local unit has elected Local People's Councils. These exist at the Village, District, and Governorate levels. They exercise supervisory and policy-making authority at their levels, subject to control by the Governor. The latter, since 1979, has Ministerial rank and is directly appointed by the President.

Additionally, since 1979 eight Regional Planning Commissions have been established. While still lightly staffed and as yet unable to exercise much influence upon the planning process they are supposed to:

- Coordinate the planning of the Governorates in the region, and determine developmental priorities
- Review periodic reports about plan performance
- Conduct research concerning the development of regional capabilities and resources
- Propose appropriate projects for the economic and social development of the region

4.2.2 Revenues and Decentralization

It must be noted that as decentralizing changes have occurred they have not been accompanied by the commensurate growth of revenue resource availabilities that Presidents Nasser and Sadat envisaged for the local units. Today, central grants-in-aid still provide 73% of all local financial resources. This large amount in fact dictates that the central government can exert much influence upon local development and plans through the power of the purse. However, as described below, the proportions are changing.

A number of taxes and special revenue provisions promise some financial future autonomy for the local units. One of the most significant of these, and one that is being exploited by USAID in some of its programming in Egypt, is Law 52/1975. This stipulates that Local People's Councils at Village, District, and Governorate levels may establish accounts for "local services and development". Such accounts are separate from the government's central budget, and its contents do not return annually to the central treasury in Cairo if they are not spent; instead, they can accumulate and be invested. Sources of revenue for such local accounts are:

- Special local duties for the purposes of the account
- Profits which may come from the development projects financed by this "Special Fund"
- Donations, contributions, and supports (loans or grants) from local, national, and international agencies
- 50% of the increase in the gross yield of the local revenues over that estimated in the budget

In Figure 5 it may be perceived how the financial resources situation is altering. The percentage of central grants-in-aid as compared to locally raised revenues has dropped from 83% in 1975 to 73% in 1979. At the same time, while overall central grants-in-aid have increased by 98%, those funds that are locally raised have increased by 276%.

FIGURE 5

COMPARISON OF INCREASE IN THE CENTRAL GRANTS
AND LOCALLY RAISED FUNDS
(1975 - 1979)

<u>Governorate</u>	CENTRAL GRANTS			LOCALLY RAISED FUNDS		
	1975 (000)	1979 (000)	%Increase	1975 (000)	1979 (000)	%Increase
<u>Urban Governorates:</u>						
Cairo	36,343	55,324	52.2	18,536	37,770	103.8
Alexandria	10,603	23,280	119.6	11,139	22,479	101.8
Port Said	4,091	8,320	103.3	588	6,903	1,074.0
Ismailia	2,827	5,370	89.9	489	5,910	1,108.6
Suez	2,354	3,420	45.3	639	4,339	579.0
<u>Rural Governorates:</u>						
Kalyoubia	11,517	24,465	112.4	1,931	6,795	251.9
Sharkeya	17,810	34,696	94.8	1,407	7,754	451.1
Dakhahlia	15,698	40,266	156.5	4,462	11,399	155.5
Damietta	7,575	10,907	44.0	640	5,935	827.3
Menoufia	13,981	30,792	120.2	972	6,393	537.7
Gharbeya	16,743	37,110	121.6	1,573	8,665	450.9
Kafr El Sheikh	9,232	18,403	99.3	861	8,709	911.5
Beheira	13,408	27,353	104.0	1,599	7,171	348.5
Giza	15,345	23,738	54.7	1,480	15,298	933.6
El Fayum	7,854	17,924	128.2	710	3,997	457.3
Beni Suef	8,428	18,244	116.5	703	4,934	601.8
Menya	11,685	24,839	112.6	1,224	5,859	378.7
Assuit	10,834	22,898	111.3	837	6,122	631.4
Suhag	12,520	27,746	121.6	951	5,128	439.2
Quena	12,694	24,464	92.7	827	5,206	529.5
Aswan	8,695	18,029	107.3	569	8,079	1,319.8
Matruh	2,029	3,234	59.9	463	3,461	647.5
New Valley	2,605	4,924	89.0	297	2,441	721.9
Red Sea	1,771	2,659	55.4	694	2,112	204.3
Sinai	1,752	3,723	112.5	210	5	-97
Total	258,334	512,137	98.3%	53,801	202,824	276.9%

Source: Budget 1979

One possible conclusion in relation to the foregoing is that the once all-powerful financial leverage exerted by the central ministries through the power of the purse is declining. What effects that may have in the future upon the developmental capacities of some central ministries, such as health, is a matter for further study.

4.2.3 Ministry of Health Organization and Decentralization

In the Introduction, Figure 1 shows the current services and functions of the Ministry of Health. It should be noted that there are forty-two General Directorates and Directorates, organized into eight major sectors.

Many of the former technical and administrative functions performed by the various elements are being decentralized. All administrative responsibilities now rest with the Governorates. In recent years, many of the technical responsibilities have likewise been transferred. In turn, some of these responsibilities have been transferred from the Governorates to the Districts (Markaz).

In the Introduction, Figure 2, shows how the system generally functions.

In this connection, the Ministry of Health has undergone recent reorganizations so that the following general activities characterize all operations of any Ministry of Health Sector, General Directorate or Directorate:

- Planning
- Organization of information
- Studying and specifying levels of performance
- Surveillance and evaluation
- Planning and execution of research and training programs
- Health education and development
- Development and issuance of health laws and degrees following National Assembly and Presidential approval
- Execution of health programs of national or emergency importance
- Management of "projectized" donor and developmental assistance

Certain elements within the Ministry assume specific responsibility for carrying on some of the above functions; but all elements are expected to participate in these functions within their realm of responsibility.

It should be most carefully noted that none of the new Ministerial responsibilities are enforceable in the same way as in the pre-decentralization period. Governorates can be brought into compliance because the Ministry of Health still has some power of the purse on matters concerning new health care investments. That is quite different, though, from a time when Ministry officials could directly discipline errant officials at Governorate or lower levels.

An example of what this all means in practice is supplied by the planning functions of the Ministry of Health. Plans originate at Village, District, and Governorate levels. At the Governorate level they are grouped and adjusted. Those elements of an annual health plan calling for investments are supposed to be discussed with the Regional Planning Offices. Then they are passed to the Directorate General of Health Planning at the Ministry of Health. That is a lightly staffed office comprised of 5 Physicians, 1 Architect, 1 Engineer, 1 Social Worker, and 2 Commerce Graduates, plus the Director General. This office has two responsibilities. On the one hand, it is to act as a support facility for all of the Directorate Generals as they work up annual plans for their functions. It is also to coordinate such planning within the Ministry and adjust Governorate investment plans to the plans and priorities which emerge as a result of reconciling the various plans of each Directorate. Finally, all must be brought into harmony with what the Minister of Health may wish to adopt as policy and with the overall developmental policies adopted by the Ministry of Economy, Ministry of Finance, and Ministry of Planning. Once these various adjustments are achieved, then the Governorates are informed about the status of the plans and they are asked to proceed with implementation.

4.2.4 Decentralized Health Functions at Governorate level

As mentioned earlier, Figure 2, in the Introduction provides an overview of how the system functions between the Ministry of Health and the Governorates and Districts. A number of differing organizational layouts reflect how the Governorates try to carry out their responsibilities. Figure 6 shows the current Beni Suef organizational plan, which is representative of the Rural Governorates; those for large Rural Governorates and Urban Governorates are more complex.

The deployment of facilities in Beni Suef, by District, is shown in Figure 7. There are 193 publicly operated health services delivery entities in that Governorate. They serve a population of 1.3 million. The entities, including the administrative support functions at Beni Suef Governorate and in the Districts, are staffed by a total of 3,473 professional, technical, and clerical staff. All of these individuals are under the control of the Director General of the Health Directorate for Beni Suef.

The Director General has a staff, drawn from the above figures, of 372 physicians which he must disperse and supervise among the 193 entities mentioned above. Similarly, there are 1,688 medical and health technicians (nurses, laboratory technicians, sanitarians, school health visitors, etc.) who must be distributed among the entities and supervised. The Health Directorate's primary aim is to ensure that health services are available throughout the Governorate for all citizens and that these services are immediately accessible even in the most remote areas.

As can be noted when comparing Figure 4 with Figure 7, there are 7 Districts and 38 villages in Beni Suef. Each of the Districts is covered by a District Hospital, with the exception of Beni Suef itself, where a General Hospital is

FIGURE 6

BENI SUEF
GOVERNORATE ORGANIZATIONAL LAY-OUT
(1981)

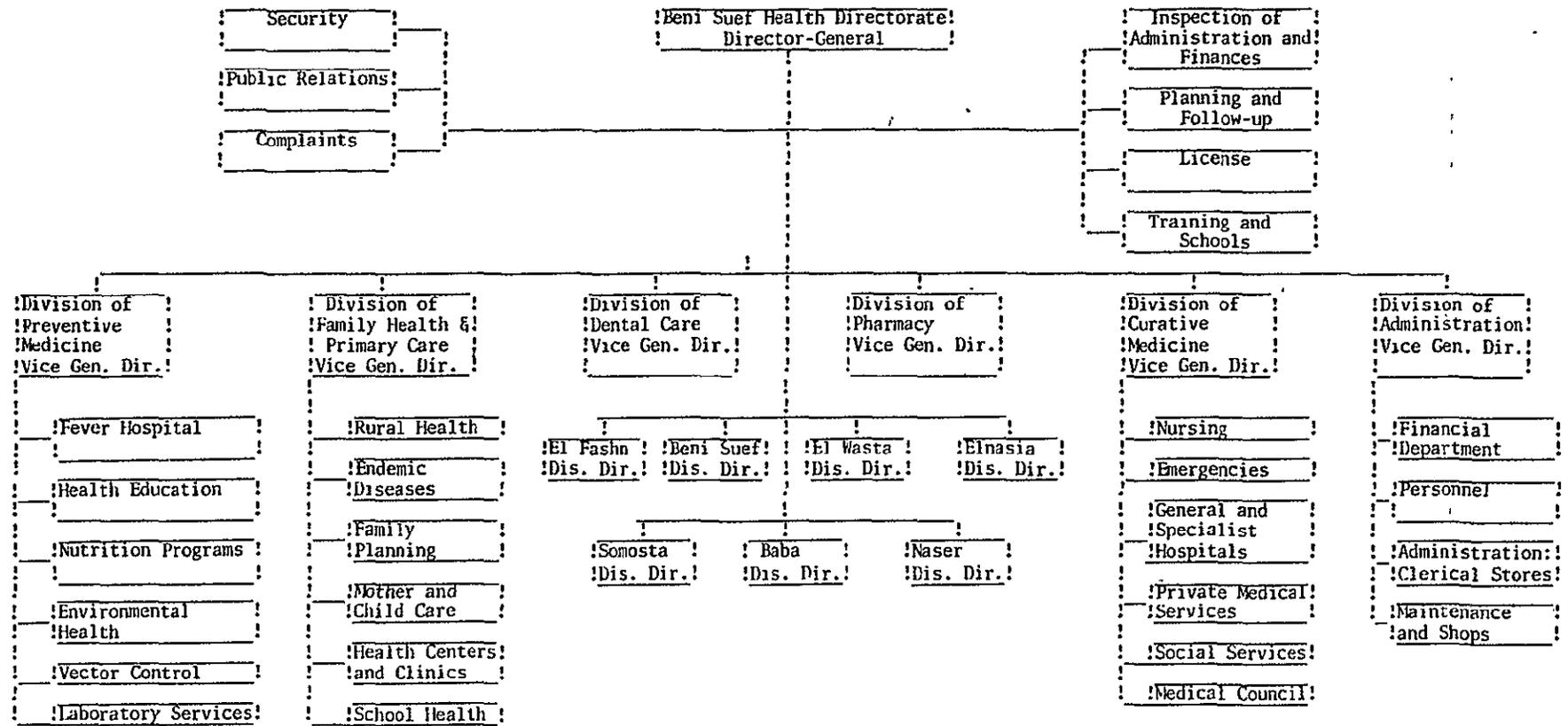


FIGURE 7

DISTRICT ORGANIZATION
BENI SUEF HEALTH DIRECTORATE
(1981)

Facilities by Type and Number Located in Each District:	Beni Suef Health Directorate Director General							Total
	Districts			Districts				
	Beni Suef (Director)	El Fashn (Director)	El Wasta (Director)	Ehnaasia (Director)	Somosta (Director)	Baba (Director)	Naser (Director)	
* General Hospital	1	-	-	-	-	-	-	1
* District Hospital	-	1	1	1	1	1	1	6
* Chest Hospital	1	-	-	-	1	-	-	2
* Eye Hospital	1	-	-	-	-	-	-	1
* Fever Hospital	1	1	-	-	-	-	-	2
* Rural Hospital	1	-	-	-	-	-	1	2
* Medical Center	1	-	-	-	-	-	-	1
* Outpatient Clinic	1	-	-	-	-	-	-	1
* Endemic Disease Center or Unit	1	1	2	1	1	1	1	8
* Health Center	4	4	5	5	3	4	2	27
* Health Office	3	1	1	1	1	1	1	9
* MCH Center	2	1	1	-	1	1	1	7
* School Health Unit	3	1	1	1	1	1	1	9
* Rural Health Unit	10	16	9	14	8	14	10	81
* City Health Unit	-	1	1	-	-	1	-	3
* Health Ed. Office	2	1	1	1	1	1	1	8
* Ambulance Centers	2	1	1	1	1	1	1	8
* Malaria Lab.	1	-	-	-	-	-	-	1
* Bilharzia Center	2	1	1	1	1	1	1	8
* Malaria Unit	-	1	1	1	1	1	1	6
* Chest Dispensary	-	1	1	-	-	-	-	2
						TOTAL		193

located. There are 81 Rural Health Units. Thus, it appears that there are about 2.1 of these entities per large village or 1 for every 10,600 people.

Some of the management and resources deployment problems associated with decentralization are discussed further in subsequent pages. It suffices here to observe that the dimensions of the shift in responsibilities from the central Ministry of Health to the Governorates and Districts appears to be of very large proportions.

4.3 Primary Health Care Delivery Services (Rural and Urban)

4.3.1 Public Primary Health Care Delivery Services

The history of the present system begins in 1942. With a strong rural bias that has persisted, the administration of that time developed a very ambitious comprehensive plan. A Department of Rural Health, founded in 1943, planned the development of 860 Rural Health Centers. Each was to cover a target population of 15,000 villagers. They would serve 4-5 villages each.

At the time of the 1952 Revolution a total of 270 of these facilities had been built. Records show that with a rural population of about 17,000,000 at that time the total number of Rural Health Centers comprised one for every 61,000 population. Their geographical distribution as well as their staffing was both badly skewed and deficient.

Following the 1952 Revolution, successive Egyptian governments have consistently tried to implement policies first asserted in Egypt's Permanent Constitution of 1962. There, it is stated that each Egyptian citizen - as a matter of constituent membership in the body politic - has a right to social advantages including health care.

As organized in Egypt, the basic components adjudged necessary to attain that objective at a peripheral level of health facilities include: education about diseases, health problems and their control; safe water and basic sanitation; maternal and child health care and family planning; immunization against major infectious diseases; appropriate treatment of common or uncomplicated diseases and injuries; provision of essential drugs; screening the population for endemic diseases; dental care; and emergency medical services.

Implementation of these components, in both the public and private sectors, is shaped by the underlying fact that present Egyptian health care personnel are trained in a hospital-based, curative-care-focussed, and technologically-oriented environment.

At the rural primary level care is comprehensive, and the intent is to provide integrated promotive, preventive, and curative services on a health team basis with a physician in charge. Services are free and they are supposed to be within reach of all members of the community. Communities are to participate in operating the system both through village community organizations and under Local Administration laws and procedures.

In 1982, the government-owned rural primary health care delivery system has numerous points of access for the public. There is one unit per 2,000 families in the rural areas of the country. There is a referral system from rural health units upward, but that system is often not followed.

Three indicators signal the organizational superiority of the present public rural primary care system.

- It is organized, at the Rural Health Units and Rural Health Centers, to deliver a number of services on an integrated basis. These, specifically, include maternal and child health care, communicable disease control, endemic and parasitic disease control, environmental sanitation, family planning, dental care, and (when assigned) Tuberculosis control, as well as Malaria and Filariasis control.
- It has a superior supervisory staffing format. Unlike any other service, it has provision for an Assistant Director for Rural Health at each Markaz (District). Additionally, in order to support this emphasis, positions for a senior nurse-midwife, senior sanitarian, and a senior laboratory technician have been created at each Markaz. They are to assist in supervising the integrated rural care efforts.
- It is tightly linked to the decentralization Laws of 1975 and 1981 (Nos. 72, 50). One key mechanism for accomplishing this is through the supervisory and local policy-making authority of the Village Local People's Councils. Decisions of those councils are transmitted through the Head Executive officer (HEC) of the Executive Council in each Village, and the Rural Health Unit or Rural Health Center physician is a member of that Executive Council.

Through the Village Local People's Councils, the Units and Centers become eligible as possible candidates for receipt of funding from Local Services and Development resources administered by the Councils. Under the law, such resources can be utilized by the Village Councils to establish profit-making enterprises. As yet, there are no instances recorded showing Village Council interest in financing fee-for-service health care programs based on Rural Health Units and Centers. Nonetheless, depending upon economic feasibility factors and the availability of credit, development of future investments of this kind remains a possibility in certain situations.

Additionally, the Units and Centers are linked to the Village Council's through the organization and operation of local Boards of Health. These are chaired by the physician in the Unit or Center and members of the Village Council, appointed by the Council, share positions on the Board together with members of the health team. Similarly, there is a local Health Education Committee with ties to each village Local People's Council and to the Rural Health Units or Centers.

These organizational advantages of the public rural primary health services delivery system are affected, however, by the processes of decentralization as those continue in Egypt.

Unlike the other services, rural health at the Ministry of Health has command each year over the new physicians who must serve a compulsory first year in rural health services. These people are assigned where the Under-Secretary for Basic Health Care and Family Health chooses, to place them. While responsible, administratively and technically, to Rural Basic Services supervisors in the Governorate where they are assigned, such personnel may also be transferred by the Under-Secretary. This responsibility places a burden on the Ministry of Health, in matters concerning the rural services, which does not arise in other cases.

The same process of decentralization has now been applied to another area of primary health services delivery. That area concerns potable water and sanitary drainage. Other than establishing various standards concerning environmental sanitation and enforcing regulations in food handling, etc. the Ministry of Health has never been responsible for potable water supplies and sanitary drainage. Each Governorate now handles these subjects. In particular, the Governorate is responsible for operations, maintenance, and expansion of existing systems. It is assisted in expanding systems by the Organization of the Reconstruction and Development of the Egyptian Village (ORDEV). That agency, in turn, is assisted by USAID/Cairo (utilizing Public Law III funds). Design and installation of new systems for villages, towns, etc., is a responsibility of the National Organization for Potable Water and Sanitary Drainage. The latter is a subsidiary of the Ministry of Housing, Construction and Land Development.

Whatever the problems confronted by the publicly operated rural health delivery system, it is unique and has benefited from considerable special attention by successive Egyptian Governments. By contrast, the publicly operated urban primary health care delivery system has a different and difficult history. It has never been given the same developmental priorities as the rural system. Governmental resources addressed to it have been modest by comparison to the rural system. Organizationally, it has not enjoyed the same status and authority as the rural services within the Ministry. It did not become a General Directorate at the Ministry of Health level until recent years. By contrast, rural services have been shifted from one time to another as a Department or a General Directorate, but always possessed a distinct organizational character. This is true, likewise, for rural services at the Governorate and Markaz levels. In the case of the urban services, with the exception of the large cities such as Cairo and Alexandria, urban health care functions are organizationally subsumed under other functions. As a result, the number of units and the kinds of activities carried on in urban primary health delivery services are distinctly limited. In 1982, the MOH system provides relatively few points of access to the urban population: there appears to be one unit per 16,000 families in the urban areas.

Although, efforts have begun to increase attention to expansion and alteration of MOH urban health care functions, these urban facilities have been poorly housed and equipped and highly fractionated. A full-scale integrated team approach comparable to that followed in the rural primary health care delivery services does not exist. Presently, however, experimental and test efforts at

Cairo and the at Suez Canal University are attempting to develop models that might meet particular future urban primary health care needs in Egypt.

4.3.2 Private Primary Health Care Services

By contrast to public efforts to address the serious preventive and distributional aspects of primary health care through rural and urban organized systems, there is nothing comparable in the private sector. Sections above describe the principal private sector actors in relation to the delivery of all health services at any level of care. Private activities are curative and, in some cases, they are quite extensive. This is particularly true for the traditional sector and pharmacies.

Organizationally, means are available by which the private sector can be influenced to up-grade quality or to redistribute some of its attention away from the more wealthy and comfortable neighborhoods of urban Egypt. These exist, primarily, in the registration and licensure powers of the Ministry of Health. Exercise of these powers, together with some kinds of incentives for paying attention to disadvantaged rural and urban areas, may offer opportunities for engaging the private sector. The complexities surrounding such possibilities, however, appear to be considerable.

4.4 Secondary Health Care Delivery Services (Public and Private)

As explained in Section 3, the Ministry of Health has very specific views about the kinds of facilities which it regards as providing secondary services. These range from hospitals, through specialized clinics, and polyclinics, and the facilities appear to be spread widely throughout the country.

As remarked in some studies, Egyptian health consumer behavior seems to affect the demand for secondary care in two ways. On the one hand, those who are ill wait much too long, in general, before seeking medical care. They then need more specialized care, since their maladies have advanced in severity. On the other hand, they go directly to the specialists and specialized clinics without first seeking guidance from General Practitioners. This behavior has led to two suggestions: the public must be better informed about the importance of early health care, and post-graduate programs in General Practice should be established so that physicians with that kind of training will be perceived as specialists.

In any case, the current types of Egyptian health consumer utilization seems to be curative and stabilizing for somewhat complicated and diagnostically demanding medical care. Patients are seeking more personalized care, accompanied by the presence and use of improved equipment and facilities, with stress on the ambulatory aspects. In response to this growing demand, the public sector seems to be augmenting specialist staffing at hospital outpatient clinics, establishing special clinics, and developing a network of polyclinics.

The private sector, at certain economic levels of the population, seems even more vigorous in expanding resources and organizational coverage for a secondary system. This is particularly the case in larger and more middle class urban settings, but it is also said to be occurring in high volume specialized clinics in poorer neighborhoods.

As this time, and perhaps for many years to come, it is the urban-based private and public secondary health services delivery systems which actually handle most of the secondary care needs of the rural population.

Urban publicly supported secondary health services are varied in distribution, content, and organization. As in the case of the urban primary services, they tend to be fractionated by specialty and function. The specialized clinics of District and General Hospitals appear to be increasing in numbers, and there is increasing stress upon developing urban polyclinics.

Again, this entire system is undergoing the decentralization process, and the speed as well as content of development of the secondary establishment seems to vary from one Governorate to another.

5. Resources by Level of Care (Primary, Secondary, Tertiary)

This section does not contain details about several important subjects which are essential parts of the "resources" situation, but are covered in other assessment papers. They include:

- * Emergency Medical Services
- * Health Manpower
- * Training and Health Education
- * Users' Perspectives on Health
- * Pharmacies
- * Environmental Health
- * Health Status and Categorical Diseases
- * Population Assessment
- * Health Policy Review
- * Other Donor Activities
- * Review of USAID Programs

Two papers are annexed to this paper because their content is of immediate importance when contemplating the "resources" situation. These include:

- * Egyptian Voluntary Associations and the Health Sector (Annex C)
- * Equipment and Vehicles (Annex D).

The University of Michigan paper on Health Sector Finances was not available in time for use in preparation of this report.

5.1 Introduction

A number of chronological incongruities in data sets available to us affect comparisons of public sector resources across-the-board. This observation applies in particular to finances, personnel, facilities, and equipment. Nonetheless, given reservation regarding time frame differences (such as between 1979 manpower data and 1981 facilities data), it is possible to obtain a fairly consistent overview of resource commitments and deployment. This is particularly true of data about the facilities, personnel, equipment, and finances of the Ministry of Health operations. In general, these were adequate and ministry personnel were most helpful in providing information.

Similarly, because of the good record-keeping and distinct character of the particular establishments, it was relatively easy to distinguish the resources characteristics of two other elements in the public sector. These include the Government Health Insurance Organization and the Curative Organizations of the Governorate of Cairo and the Governorate of Alexandria.

Difficulties begin when seeking to classify similar data about the university hospital complexes or the various hospitals operated by the particular ministries and departments. The data, of course, are available; time and cross-checking are required to make certain that they are properly aggregated (as in all other public sector reporting) and that double-counting is minimized.

Private sector resource commitments and deployment are the real mystery in the Egyptian health sector. The Ministry of Health is now endeavoring to obtain an up-dated and realistic perspective concerning the non-traditional elements of this sector. As yet, however, the data are hazy and so the team has tried to handle them with caution. However, it is evident that the private, non-traditional, medical care sector has grown vigorously during the past decade. This cannot be asserted, so confidently, in three other private sector areas. There is some information as to what has been happening in the practice of traditionally-based private medical care, but the evidence is not clear. With reference to those clinics and other facilities assisted by the private voluntary organizations there is even less evidence. Finally, there is no information about the allegedly widespread operations of Mostawsafs or local, charitable, and neighborhood group organizations delivering health care.

Another area of uncertainty surrounds an assessment of the real magnitudes and characteristics of need for health care by the Egyptian population at all levels. Many aspects of this situation are treated in the HSA paper on Health Status and Categorical Diseases. Again, Egyptian authorities are trying to clarify this situation in various ways.

Finally, there are the organizational resource deployments occasioned by the process of decentralization. These result in new configurations of staff and responsibilities at Governorate levels, and, as such, affect mobilizing and dispersal characteristics as these pertain to personnel resources.

5.2 Overall Resources - Public and Private Systems

There are approximately 5,700 publicly operated health care facilities in Egypt. That figure does not include specialized laboratories, entities associated with the Bio-medicine Organization, etc.

The facilities vary in size. They include large hospital complexes and the range extends to Rural Health Units, Health Bureaus, and other rural and urban primary care facilities. Some employ several hundred physicians and other medical staff; others may include only a School Health Physician and some Health Visitors.

This panoply of public facilities is manned by professional, semi-professional, technical and clerical staff, as stated in the HSA report on Health Manpower (See Tables 5.1 to 5.3 of that report) and in Section 3 of the present report.

There are about 2,600 Egyptians to every physician employed in the public systems. Similarly, there are about 1,190 Egyptians to every nurse employed (combining, in this figure, nurses trained for three years and nurse assistants trained for one and a half years). When distributed against the total number of facilities there appear to be about three doctors and seven nurses for each facility. It also appears that there is about one middle level medical technician per facility (excluding sanitarians and pharmaceutical specialists).

The equipment and vehicle resource situation of the Ministry of Health is outlined in the Equipment and Vehicles Report prepared for the HSA (Annex D). According to that report, by one pattern of vehicle assignment (without regard for the reasonableness or feasibility of that pattern), the MOH system now needs at least 3,320 vehicles in the rural and urban areas. (That figure does not include the Emergency Medical Services vehicle needs developed in the HSA report on Emergency Medical Services.) The Equipment and Vehicles report notes the earnest and steady efforts of the Ministry of Health to improve its medical equipment maintenance capabilities: "...the results achieved in a very short period of time are encouraging and give reason to be optimistic that future investments in medical equipment will not be wasted..."

Organizationally the public resources being deployed for health care must now be understood in the context of decentralization. That subject, as well as charts showing how the process is taking place, was presented in Section 4. As governorates build up their capacities they will reorganize and expand functions. It is also probable that as governorates obtain additional resources, they may develop their own health facilities besides those supported by central ministry grants-in-aid. As yet, however, there is little evidence showing that such a trend is developing in a serious manner.

A particular kind of resource which seems to be of growing consequence in the public area is the Government Health Insurance Organization (GHIO). Established in 1964 in Alexandria, the system has grown from an initial membership of about 140,000 beneficiaries to over 2,250,000 now. The Organization and its plans/potentials are described in the HSA Health Policy Review, so there is no need to repeat that treatment here. While, as that review indicates, there are some serious issues related to plans for further expansion of the GHIO, there is growing Egyptian interest in various kinds of group sharing of risk in matters pertaining to curative medical care.

The total capital value of the existing publicly owned health establishment and equipment is somewhat difficult to determine, because of the pronounced age of over 60% of the facilities and lack of maintenance in the entire system. There are, however, some indicative data. Ministry of Finance tabulations for the past twenty years indicate that there was a long period from 1962-1972 in which an average of L.E. 3,000,000 per year was expended on capital investment and equipment. Since that time, and as part of the Five Year Plan for 1978-1982, the annual projected figures are L.E. 26,000,000 per year. Overall, during the entire twenty year period from 1962 it appears that the total planned and invested sums are less than L.E. 200,000,000.

The foregoing figures, when taken against the physical size and age of the entire capital and equipment establishment, signal a serious situation. While, as indicated in the HSA Reports on Health Manpower and on Training, the human resources for health care have been expanded in quantity, there is much doubt that the same can be said for the physical and equipment establishment.

As described elsewhere (Section 8, Management Support Systems), there is also cause for concern that adequate resources in the form of trained staff and

adequate management systems are not in place or under development. This condition probably contributes to the severity of the capital and equipment establishment situation.

In any case, it is difficult to evaluate the relative value of the past investment figures. During much of the 1962-72 period prices were very low for construction work. Also, much of the medical equipment, steel, and other supplies were acquired from the Soviet Union and Eastern Europe under very special price and trade conditions. Since 1973, this situation has changed entirely in terms of both trade connections and rising prices.

Presently, the Ministry of Health is endeavoring to develop further capital plant and equipment annually. The current annual funding level for the entire establishment is about L.E. 138,000,000. It is distributed in a pattern of expenditures such that approximately 65% is annually allocated to salaries, 23% to supplies, and 12% to investment in MOH facilities and equipment at central or Governorate levels. Thus, the current average expenditure of the government in the publicly supported sector of health delivery is about L.E. 4.00/Egyptian annually, about 3.8% of all public expenditures.

The average annual increase in health personnel salary and allowances expenditures over the decade from 1966 to 1976 shows a very large jump in Governorate figures--as the size of staff has expanded. Similar increases for the Governorates do not show in categories concerning supplies and investment. This signals a possible problem in resources distribution for continuing operations, since large amounts of Ministry of Health budget continue to be reserved for the development and operation of centrally located hospitals, research institutions, etc.

However, the nature and magnitude of that problem is indeterminate at this juncture because of lack of data accessible in this study concerning how each Governorate is using its own financial resources in support of health care activities. As described in Section 4, those financial resources are limited; nevertheless, they are present. Furthermore, new tax powers added to the Governorates in 1975 and 1979 are now producing income. These revenue sources include: motor-vehicle licenses, land taxes, building taxes, entertainment taxes, and joint revenues. The gross increases of local income, as compared between 1975 and 1979, are considerable. When compared to the increase in grants-in-aid from the central government over the same period, they show a spectacular gain. Thus, locally raised funds have increased by 276.9% over the period, while centrally provided grants-in-aid to Governorates have only increased by 98.3%. Of course, the latter started from a much larger initial base but the alterations occurring in the local finance levels indicate a need for further review of this entire subject.

Finally, as described in Section 4, another kind of resource is emerging in the form of the Regional Planning Commissions which are being established in the eight economic regions of Egypt. While as yet inadequately staffed, organized, and empowered, these Commissions will probably exert influence in the future upon ascertaining regional resources, proposing appropriate programs, and fixing priorities.

The private sector has more than twice as many points of entry for health consumers as the public sector. There are more than 13,000 such points of private sector physician-attended entry recorded; it is alleged that there may be as many as another 5,000. Thousands of these entry points cannot be regarded as facilities, in the same (organized and equipped) sense as the publicly supported Health Units, Hospitals, etc. They are often nothing more than waiting rooms and an examination room for the physician, and sometimes less than that. On the other hand, many of them are newly equipped polyclinics, specialized clinics, and hospitals.

There is no assembled data about staffing, equipment, working conditions, rates of pay, etc., concerning the private sector. It is estimated in some quarters that the rate of private investment in new facilities, "key" money for renting space, acquisition of modern equipment, etc., is at a point where more than LE 50,000,000 per year is being expended. If so, this would be almost double the rate of public investment in the whole sector per year.

Traditional private sector health care is not detailed in this paper; but, as has been mentioned earlier, the practices associated with traditional care are still widely accepted in Egypt. It comprises a resource of some magnitude, particularly since it is estimated in some quarters that more than 20,000 dayas, health barbers and other practitioners are still active and accepted in many Egyptian villages and urban areas. Similarly, pharmacies are not dealt with in this report because they are treated in another HSA report.

Finally, another important subject not dealt with in this report involves something that has been emerging in recent years: These are the small, informally cooperative, and joint sponsorship arrangements which have arisen between groups of neighbors or members of a company or a profession and selected local physicians. Certain fixed fees for service are established, and the physicians are retained by the group on a salaried basis. These arrangements are said to be a growing resource in some urban areas. Certainly, the entire subject needs further investigation.

5.3 Resource Distribution and Utilization

Section 6, the next section of this Report, presents various charts and tables containing a complete inventory of facilities in the public and private sector. That section also analyzes the facilities and their distribution in terms of geographic area coverage, population served, etc.; hence that entire subject is not presented here.

5.4 Resource Constraints or Limitations Observed

A review of all the various papers cited, along with the contents of Section 6 and observations in the field by this team, results in identifying a few very critical constraints or limitations affecting both the public and private resources. These include the following:

5.4.1 The Arab Republic of Egypt is not committing adequate levels of funding annually sufficient to maintain and operate an essentially obsolescent physical establishment which is not large enough, initially, to provide minimal levels of services to an expanding population. The evidence is quite clear and can be presented in varying ways. Here, only two are described:

5.4.1.1 Of the L.E. 10 billion that was to be expended on improvements of the Egyptian public sector during the 1978-1982 Five-Year Plan, less than 1% went to improvements in the Health Sector. This figure drops even further in the 1980-84 Plan. When the numbers are adjusted for inflation, the Health Sector investment ratio to other investments drops to .85%.

It is not sufficient to observe, at this juncture, that Egyptian economic policy makers have deliberately decided to forego significant improvements in their publicly supported health services delivery system. It may be that the dimensions of the need have been obscured by the many accomplishments of the Ministry of Health in dealing with disease problems and expanding the system, as best they could, during recent years. Yet the magnitudes of need are enormous and rising, and in some instances the Egyptian economic and policy planning personnel seem to recognize this. However, there is a quality of unrealism in their assumptions. For example, in the 1978-82 Five-Year Plan it is asserted that it will be necessary to add 1,775 bed capacity/year to the system. A sum of L.E. 40,000,000 is allocated to accomplish this. At a time when construction costs in Egypt are spiralling rapidly upwards and medical equipment prices have multiplied ten-fold, it is evident that what can be obtained from such a planned sum will be 1,500 beds over five years, or about 16% of the projected need per year.

5.4.1.2 Every day the net population of Egypt increases by 3,333 persons. This sums to an annual total of 1,200,000. Aside from raising serious questions about the efficacy of the family planning efforts of the Egyptian government, the constantly expanding population is not matched by comparable rates of deployment in publicly operated health care facilities or with rising rates of efficiency in the deployed facilities.

As has been mentioned earlier, Egypt's efforts to expand and improve its publicly supported rural primary health care delivery services are serious. From 1970 until 1980, for example, they have resulted in instituting a spread of facilities that formerly were at a ratio of about 1 to 26,000 rural population. Now, the ratio is at approximately 1 to 10,300 rural population. While this is a commendable improvement, the ratios are still large and there are questions as to whether the services provided by the rural facilities are properly manned, managed, and utilized by the populace.

5.4.2 The secondary care efficiencies within the public sector are much impeded by the resources-mobilization situation described in (a) above. This is manifested in a number of ways. In this paper, mention is made only of: the extended pipeline in facilities development; diagnostic and technical support services; and mobilization of effective training resources.

5.4.2.1 Presently, there are more than 20 Ministry of Health Hospitals in varying stages of construction and equipping. A number of these have been in this phase since 1972, and though they are operational, they are not functioning as originally planned. Estimates vary about the amount of funds that would be required to properly complete all of these facilities; but, at the minimum, it is said to be at least ten times as large as all of the funds proposed for Ministry of Health improvements in the 1978-82 Five-Year Plan. Whether all of the proposed facilities are needed if existing facilities could be reprogrammed is a moot point. There is evidence showing very high rates of bed utilization in University Hospital Complexes and MOH General Hospitals, but much lower rates in some District Hospitals, Specialty Hospitals, and Rural Health Hospitals.

This situation should be carefully investigated, nation-wide. This is of particular importance for the less economically advantaged Egyptian in rural and urban areas, because the private sector of secondary care, no matter how encouraged or coerced, will never provide the same numbers of facilities. Yet, given the fact (reported elsewhere in this paper and other papers) that Egyptian health consumer behavior places great pressure on secondary facilities, this stretch-out in providing viable public hospitals has serious long-term implications for care of the population.

5.4.2.2 Severe limitations in the availability of certain laboratory services and problems in the repair and maintenance of medical equipment have been noted in numerous reports.

However, in these two cases, it appears that, despite the overall constraints confronting the Ministry of Health, very serious efforts are being exerted to overcome some of these problems. These are areas in which some progress has started; and it would appear that further encouragement in training, organization, and provision of essential equipment should be fostered.

Recent reporting on Egyptian efforts assisted by the Laboratory Improvement Program Office of the Centers for Disease Control, Atlanta, Georgia, conveys a sense of some of the problems addressed in this area.

4.2.3 Training facilities are available in Egypt which could impact much more decisively upon some aspects of the secondary care system than is now the case. The constraint or limitation, in this case, does not appear to be lack of qualified personnel, but rather insufficient exploitation of resources that already exist. One of the most outstanding insufficiently utilized facilities of this kind is the Hospital Administration training program of the High Institute of Public Health at Alexandria. This facility, its programs, and some of its potentials are described in Annex F. It suffices to point out that this institution is qualified to provide the kinds of training needed if there is to be a significant upgrading in the utilization of existing secondary hospital facilities in Egypt. Further development and exploitation of this resource is essential if the major constraints of secondary hospital utilization, realigned targets, and extended construction/equipment pipelines are to be handled effectively.

5.4.3 The need for revision of training systems for medical personnel is treated in the HSA reports on Training and on Health Education. However, one parenthetical comment must be added to these observations. A critical behavioral constraint exists inside the entire Egyptian set of training systems. Unless addressed, it militates against attaining significant success in any training activity. The behavior is twofold and it grows, in large degree, out of the same limitations imposed in Section 4.1 above. Grossly inadequate funds are programmed year after year for the development, employment, and full-time assignment of professionally trained trainers. Furthermore, the systems of public medical personnel compensation are such that those obtaining any training other than "saleable" specialities in the private market do not find sufficiently substantive rewards for acquiring additional training. This results in two kinds of behavior. On the one hand, training institutions are looked upon as "short-term money-earning" opportunities by teaching staff who are not professionally trained and recompensed trainers. The teachers are hourly lecturers, skilled in some specialty, and allowed to teach their subjects as they see fit.

On the other hand, trainees (potential and actual) do not perceive substantive future rewards in compensation, reassignment opportunities, status improvement, etc., for training in various subjects. Hence, either they do not enroll or they participate indifferently in training activities. These attitudes and patterns of conduct can be changed but they require constant attention backed by Arab Republic of Egypt determination to thoroughly upgrade and reward properly trained health personnel.

5.4.4 Both public and private medical personnel in Egypt are very urban-oriented. This is a function of urban comfort, availability of school facilities, amenities, etc. It remains as a constant even though the quality of life in many parts of rural Egypt is altering for the better, particularly, when compared to the vast, overcrowded agglomerations of urban Cairo and Alexandria.

Through the process of decentralization, as well as the expansion of physician, nursing, and medical technician training facilities to many parts of the country, local sources of personnel are being tapped. This results in a different type of staffing of governorates and districts than in the past. In many parts of the country, now well over 60% of trained medical personnel come from the local areas. Yet, such an alternation does not break the urban orientation of these personnel. They prefer to work in the larger towns. When they develop private medical care activities, those are generally town-centered or cater to areas close by the towns. This continuing condition limns the importance of trying to deal with the rural areas in a number of ways. Currently, government policies are fixed upon providing physician-based and statically located Rural Health Care facilities. There appears to be a need to design and test other approaches which might supplement or augment an improved current rural primary care system. Thus, restricted conceptual formulations should be avoided when looking at the future of the rural system. This is particularly true in Egypt, because the process of decentralization (if it continues to be fostered) and the inevitable expanding

processes of urbanization will alter both the meaning and content of rural needs. At the same time, it should not be assumed that the private sector (nontraditional) will exercise any significant effect upon the rural sector. There might be special incentives and targeted types of activities which it could perform, but these would need to be specially designed and constantly monitored.

5.4.5 Finally, there remain two generally untapped potentials: the traditional sector and the voluntary, charitable, neighborhood or group-oriented entities comprising the Mostwasafs. Both are extensive in range throughout the country and both are woven into the cultural fabric of the urban and rural societies. They both comprise resources of unknown magnitude and each requires very careful evaluation before their relative value and potentials can be determined.

6. Coverage and Utilization*

6.1 Overview of Section

Two questions frame this analysis:

- How are Egypt's public and private health services delivery systems addressing the health needs of the population?
- To what extent are these health needs being met?

Studies of health services delivery systems generally define "coverage" as ratios of facilities to geographic areas or to population units. In other applications, the term "coverage" refers services-specific outputs or accomplishments against specific services targets. For purposes of this assessment, "coverage" refers to ratios of facilities to geographic areas and to population. Where the GOE has targeted specific services to populations (e.g., Maternal and Child Health or School Health), the term "coverage" will be used to describe the ratio of specific services activities to the specific target population. Measurement of coverage on either level requires a population (or area) denominator and, for interpretation, some standard. In one sense, "coverage" is an output measure of performance on the part of the service providers.

Utilization is defined here as the ratio of numbers ("volumes") of services to population. In a loose sense, "utilization" measures consumer behavior which is one aspect of services coverage. Since they are two aspects of the same phenomenon, one may approximate the other. In the absence of appropriate denominators for defining target or high risk groups, utilization may be used as a crude proxy measure for coverage of specific target groups by specific services.

To establish a framework for analysis of Egypt's health services delivery (HSD) system, it is helpful to recapitulate salient features of the health services sectors and of health policy which determine inputs and outputs of these systems.

As described in previous sections, Egypt's public and private HSD sectors are comprised of subsystems with varying degrees of autonomy, differing also in organizational mandates, services structures, and reporting systems. An overview of the services delivery sectors and their estimated numbers of patients/consumers is presented in Table 6/1. Utilization and coverage analysis of these sectors follows later. Present focus is on defining the complexity of the system, identifying the target populations or estimated denominators for services delivery, and clarifying the reporting mechanisms which yield the data used in this analysis. Excluding the Ministries of Defense and Interior (for which information was not accessible), less than 10 percent of the total population is enrolled in a services plan which gives an actual coverage denominator.

TABLE 6/1
Overview of Services Volumes by Services Delivery Sector, 1980

	No. of Facilities Reporting	No. of Beds	Estimated No. Out- patient Visits	No. In- patient Admissions	Ratio Out- patient to Inpt.	Target Population	Outpatient Visits Per Person	Inpatient Admissions Per 100 Pop.	Comments
A. MOH									
Primary Care	4780		30,511,600						Central Reporting of services statistics
Secondary Care	839		21,100,600						
TOTAL		55,971	51,610,200	978,700	52.7	40,620,000	1.27	24.0	
B. University*									
<u>Hospitals</u>									
1. Cairo	3	2,748	900,000	76,190	11.8#	No denominator	NA	NA	99% Self Referral
2. Ain Shams	3	1,529	499,000	Est. 42,300	11.8	"	"	"	95-100% Self Referral
3. Azhar		1,685	550,700	Est. 46,000	11.18	"	"	"	60 + Rural
4. Alexandria	3	2,475	808,800	Est. 68,500	11.8	"	"	"	Separate Reporting of services statistics
5. Tanta	1	520	169,900	Est. 14,400	11.8	"	"	"	
6. Mansoura	1	719	235,000	Est. 19,900	11.8	"	"	"	
7. Zagazig	1	423	138,200	Est. 11,700	11.8	"	"	"	
8. Assiut	1	487	159,100	Est. 13,500	11.8	"	"	"	
Est. Total			3,460,700	293,200					
C. Other									
<u>Ministries Gov't Authorities</u>									
1. Railways	3 hosp. 17 clinics	600 (+ rental beds from MOH)	+ 180,000 Est. 100,000 280,000	Est. 29,000 (stated 10% admissions)	Est. 10.0	Est. 210,000+ (60,000 insured families)	1.3		Separate reporting of services statistics
2. MSA subsidies to Egyptian Voluntary ** Associations	unknown	unknown	Est. 2,000,000	unknown if any	-	No denominator	-	-	See V.Elliott Paper on E.V.A.'s, 3/82
<u>3. MOInt.</u>									
a. Prison	25	1591	NA	NA	NA	NA	NA	NA	Separate reporting of services (Ministry not included)
b. Police	NA	NA	NA	NA	NA	NA	NA	NA	
4. MDef.	NA	NA	NA	NA	NA	NA	NA	NA	Separate reporting of services statistics
5. MOAgr. employees	NA	NA	NA	NA	NA	168,000 + (40,000 insured families)	NA	NA	Private Sector Con- tracts, Private Hospitals; 1 Hospital (Cairo) under construction

<u>6. Educational Hospitals + Institutes</u>										
a. Hospitals	8	3488	2,342,500						No denominator	Separate reporting only to Minister of MOH
b. Institutes	8		339,700	108,467	24.7					
			2,682,200							
<u>D. Other Public Sectors</u>										
1. HIO Hospital	20	3018	Est. 7,820,000	81,690 (?)	95.7	2,000,000 (insured)	3.1	40.8 (?)		Separate reporting of service statistics
2. Curative Organization	12	3000	860,000 + 1,000,000 contracted & clinic visits 1,860,000	65,000	13.6	1,000,000 contracted + private patients	NA	NA		Separate reporting of service statistics (Only to Minister of MOH); Contracts with private physicians & clinics
<u>E: Private Sector</u>										
1. Hospitals	280		NA	NA	NA	NA	NA	NA	NA	Registered + licensed by MOH. No reporting
2. Polyclinics	478	4996 licensed	NA	NA	NA	NA	NA	NA	NA	
3. Private Clinics	Est. 12,210 +		NA	NA	NA	NA	NA	NA	NA	Not registered yet. Not licensed; no reporting
4. Convalescent Facilities	NA	NA	NA	NA	NA	NA	NA	NA	NA	"
F. Other Egyptian Voluntary Associations (including Tessein Saha) Local Voluntary Association	Est. 350	NA	Est. 4,000,000 (?) 500,000	"	"	"	"	"	"	No reporting, no documentation, See V.Elliott Paper on EVA's, 3/982

N.A. = Not available to Health Sector Assessment.

* Not all Medical Schools have hospitals at present.

Cairo University experience was used to estimate inpatient and outpatient volume from bed capacity with 122% utilization and 22.7 days average length of stay.

** It is likely that this volume of visits is generated through Private Sector clinics.

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Though organizationally and structurally distinct, the various services delivery organizations in both the private and public sectors are interdependent, because they share resources--e.g., manpower, facilities, beds--and they are linked, importantly, through patient flow. Ranges and levels of services provided by these sectors are partly complementary and mostly parallel. Patients move freely back and forth among providers, barred only from certain services (GHIO, Curative Organizations, etc.) by eligibility requirements or by economic and geographic factors. Unrestricted patient flow through and among the systems compounds the above-mentioned denominator problems, which complicate assessments of coverage and utilization.

Egypt's present health policy as described by informants at MOH, and as outlined in The Health Profile of Egypt (H.P.E.) (Gomaa, 1982) stresses goals of:

- a. Strengthening the present range of community preventive services;
- b. Equitable distribution and financial access to curative services provided by physicians through health insurance coverage;
- c. Expansion of its present capacity to deliver high technology curative services in accordance with "international standards of excellence".

6.2' Definitions of Coverage in the Egyptian Health Services Systems: Indicators and Limitations

These policy goals also describe the current thrust of health care delivery and serve as the basis for the organizational mandates of the various delivery sectors. The MOH continues to serve as the main regulatory authority and provider of the largest volume of health services. Health policy has evolved a broad operational definition of health services coverage by setting standards and implementing mechanisms to create access to and distribute resources for the MOH and public sector services. Private sector services follow patterns of services delivery defined by market mechanisms, without regard to standards of coverage. The GOE has set the following definitions (standards) of coverage, which subsequently will be analyzed on the basis of available information.

6.2.1 Geographic and Population Coverage Through Distribution of Facilities and Associated Resources Within the MOH Services System

Location and distribution of facilities follow standards for geographic and population coverage. The design subsumes a referral model within each political administrative unit, from primary care facilities to the General and District Hospitals located in the administrative centers.

Primary care facilities, particularly in rural areas, are established and located to meet standards for population coverage of units per population, per village, and per hamlet.

Specialized secondary facilities (Fever Hospitals, TB curative units, etc.) were also established in accordance with standards of population coverage, as well as defined need. These past standards seem unclear now, and the resulting distribution of facilities may now no longer be in accord with either needs or changed population distributions.

Because the MOH offers no tertiary care (as defined by the GOE) in its own facilities, and because public tertiary care facilities are administered by other governmental authorities, there are no MOH standards for population coverage by tertiary care services. Tertiary care institutions are either University Teaching Hospitals (under the MOE) or Educational Hospitals (under a separate authority, affiliated functionally with Teaching Hospitals). There are now 11 medical schools, with associated hospitals, located in 11 of the 26 governorates. (1) While there is evident effort to distribute tertiary care facilities on a geographic basis, these facilities are concentrated in a few urban areas. Since two of the medical schools utilize MOH secondary care facilities for training purposes in four governorates and one educational hospital in another, the analysis of tertiary care coverage is difficult.

Bed capacities and manpower standards are set against total and governorate level populations to insure, as much as possible, geographic equity in access to facilities and services. However, it is difficult to analyze bed ratios against aggregate population standards on either national or governorate level, because beds in general facilities are either (a) allocated among a variety of different service authorities (e.g., Infectious Diseases, and TB control) or (b) are rented out to public services organizations or to government authorities such as the Railway Employees Organization.

Manpower standards and coverage are discussed in a separate HSA report and will not be analyzed here. It is important to note, however, that manpower standards are calculated on the basis of assignments, rather than on an actual "on-duty" basis. This fact tends to make some measures of manpower coverage deceptive.

Distribution of other resources (i.e., drugs, supplies, equipment, etc.) theoretically follows standards defined in terms of facilities and patient volumes, but these are not discussed here. (See HSA Reports on Pharmacies and on Equipment and Vehicles).

6.2.2 Coverage Through Delivery of Specified Curative and Preventive Services to Identified High Risk and General Target Populations

Sanitation, food control, and health education services are mandated for the entire population. Standards for delivering these services are set

within specific activities programs; and since reporting constitutes activities profiles against aggregate populations, these community services are not analyzed here. The reader is referred to Health Sector Assessment reports on Environmental Sanitation and Health Education.

A large complement of health services is targeted at women of reproductive age and at children, with service activities specified to cover the risks attendant to childbearing and child survival. Urban and rural MCH services are administered separately. Estimated denominators for urban and rural populations are updated annually according to certain assumptions and a projection model unknown to the writer. Attempts are made to adjust service capacities accordingly to insure hypothetical population coverage. Assuming that these denominators are reasonably accurate, a major problem confronts attempts to assess coverage directly or through proxy measures of utilization: the definitions used to determine "urban" and "rural" residence and the variable and unspecified degrees of rural population movement in and out of urban areas take place with marketing activities, trade, etc. This phenomenon is said to be particularly pronounced among populations living within a 50 kilometer radius of major urban centers. Hence, assessments of service coverage for target populations on a rural/urban geographic basis can only be tentative. The section on utilization analysis will further describe this phenomenon.

Norms and standards for preventive antenatal care, partum and postpartum care through home visits, supervision of deliveries, postnatal care, and child immunization are generally defined as ideal standards. On a functional level, however, available estimates of MOH target population denominators for these risk groups are incomplete and consist either of women registered for antenatal care or of registered births. The former denominator, as will be seen in subsequent utilization analysis, is quite low and when used as denominator for antenatal coverage not very meaningful. Recorded visits represent numbers of visits rather than numbers of pregnant women. Further, birth registration is varyingly incomplete, as indicated by the disproportionately low rates of recorded perinatal mortality. In the absence of better denominators, maternal services coverage may be analyzed by using proxy measures of utilization against estimated births. This mode of analysis will be used here to examine utilization.

Registered births of living children are estimated by various sources as 95% complete and constitute one reasonably solid denominator for analyzing immunization against the specified standard of complete coverage.

Curative and preventive young child (ages 0-6) care services are provided through home visits and clinic facilities. Reporting of services is separate for rural and urban services, and the data represent numbers of services rather than numbers of children. An artificial denominator for services utilization may be constructed by estimating the number of

children, rural and urban, according to the total proportion of children ages 0-6 in Egypt, using an assumption of homogeneity across governorate and location.

School health offers one of the few actual denominators against which to assess services coverage. Since primary schooling is compulsory, reasonably accurate registration of lower grade children is available. School Health authorities state that even children not attending schools are registered and covered by services. Insofar as School Health Services are accorded a priority status within the MOH, it is reassuring that services coverage for the younger children can be determined. For children beyond primary school age the extent of the registration system is not clear.

6.2.3 Coverage Defined for Special Identified Health Status Needs

Another mechanism used to mandate coverage is through vertically funded programs addressed to specific health needs. These are integrated into existing services programs and facilities on the primary and secondary care level and have mandated separate reporting--i.e.. Malaria, Schistosomiasis, Filariasis, TB control, Dental Services, Emergency Services and Family Planning. For all but Family Planning, services reporting is comprised of visits specified by initial/first visits, total revisits, and types of interventions. Vertical programs cut across rural and urban populations and all facilities in the MOH services. Only very involved epidemiological methods utilizing prevalence estimates could identify geographically target population by specific health problems. The reader is referred to the Health Sector Assessment reports on Epidemiology and Health Status and on Emergency Services; these indicate extensive case underreporting of emergencies, as well as fragmentation of reporting by services sectors, so that case denominators necessary for coverage analysis are not available.

Analysis of vertical programs' services data can show neither coverage nor patterns of utilization, but rather only service activities profiles. For Family Planning services, however, some user-specific reporting has been instituted, and utilization measures are possible. These are not analyzed here; the reader is referred to the Population Sector Assessment Report.

6.2.4 Statutory Financial Mechanisms to Promote Stipulated Services Coverage for Identified Population Groups

Through two insurance laws, Egypt has extended work injury and health services coverage to industrial workers, government employees, and pensioners. These services are offered by the public sector on the basis of contractual agreements for specified service coverage (Gomaa, 1982). Population denominators are readily identifiable, and coverage is continually calculated as a routine part of the actuarial process. Services reporting is comprehensive, so that analysis of both coverage

and utilization of those public sector services is possible. Though technically covered by services, these populations, however, move freely into other sectors and contribute to the gross utilization of private and governmental sectors services as well. A case in point is that of road accidents: most commonly the injured, irrespective of contracted services coverage, are taken to MOH emergency facilities.

6.2.5 Services Coverage Provided Through Other Governmental Delivery Systems

Commensurate with the policy goal of expanding high curative technology and research, the GOE supports complexes of University Teaching Hospitals, Educational Hospitals and Institutes which contribute also a large volume of personal curative services. In the absence of a controlled referral system, these are available to all who have geographic access. The enormous volume of services militates against record keeping and reporting patient revisits. Services volume statistics are available, but can be used only to describe average theoretical utilization against a hypothetical population denominator as an indicator of demand.

6.2.6 Other Mechanisms of Coverage Promoted by Health Policy and Law

Government policy permits private practice for government-employed physicians. In rural areas doctors are encouraged to charge "tax-free" fees for home visits. (Gomaa, 1982)

6.2.7 Private Sector Services

The GOE permits private practice by government-employed physicians during off-duty hours. Private sector coverage is the most difficult to assess. Providers are difficult to identify, and neither services volumes nor denominators are available. Gross utilization estimates could possibly be made on the basis of aggregate drug expenditure data, through household surveys, or through models based on manpower and facilities.

Private sector coverage can be described, however, in terms of physical distribution of facilities. However as with analysis of the Governmental Tertiary Care facilities, gross volumes of inpatient and outpatient services, can only be measured against hypothetical denominators for comparative purposes. This analysis will present private sector contribution by level of care in comparison with public sector contributions for total populations.

6.2.8 Summary of Coverage Definitions and Reporting in Egypt

In summation, the useful assessments that can be made of services reporting according to the definitions of coverage are:

- a. Geographic Coverage: Aggregate, regional and governorate level distribution of service facilities; bed capacity and manpower; contribution of facilities by various service sectors by level of care, to give a gross overview of equity in geographic access; services activity profiles of the major services sectors.
- b. Utilization and Coverage of Specified Services on the Aggregate, Regional and Governorate Levels: MCH, Young Child Care, immunizations and School Health, since these comprise the major thrusts of primary preventive and curative services with the MOH system.
- c. Identified Health Status Needs can be viewed through examples of workloads/services volumes by aggregate, regional and governorate level. Hospital services profiles can be used to illustrate volumes of patient load by gross diagnostic categories.
- d. Statutory Coverage Mechanisms can be analyzed for populations covered by the public sector insured services. These can illustrate services profiles of general practitioner and specialist utilization, outpatient and inpatient coverage proportions.
- e. Surveys and studies can provide supplementary information which can be used to help interpret or clarify patterns of utilization and coverage identified from services reporting.

Before proceeding with this analysis, as outlined above, the nature of the information system must be explained briefly.

6.3 Sources, Availability and Limitations of Services Utilization Data

By far the most serious impediment to coverage assessment is the problem of access to data. Egyptian efforts to design and implement a centralized functional computerized information system are documented by a variety of proposals, none of which have come to fruition. Although the Government's Central Agency for Mobilization and Statistics (CAPMAS) serves as a form of central data repository, it is equally limited in its ability to access data directly from the complex array of autonomous reporting authorities. As the process of moving services statistics and resource enumeration into and out of these authorities is exceedingly slow, available data in English are out of date.

Following the outline of services sectors and authorities in Table 6/1, one can appreciate the extent of the data access problem. As the system continues to undergo substantial expansion, with changes occurring in all sectors, this assessment is using the most current available information to insure relevance for policy formulation.

The MOH is an enormous repository of aggregate and variously disaggregated services data from each of its reporting sectors. (See MOH Organization, Figure 1 in the first pages of this Report.) 1980 data are available in Arabic, but require assistance in translation and interpretation of the enumerating formats. While the MOH Statistics Department receives these data, they are sometimes more easily accessible directly from the services departments, although there are some differences between the versions of the "same" data obtained from the MOH Statistics Department and from the services departments; those differences are noted in areas where they arose. A major difficulty experienced by the MOH is slow and irregular data flow from some of the governorates and from some of the individual service facilities. Service departments as well as the Statistics Department continually send staff into the field to train reporting personnel and to complete the reporting process. Enumerations tend to suffer from incorrect additions, inappropriate classifications (e.g., differentiation between First Visits and Return Visits, and double-counting). (This problem will become evident from the analysis of utilization data tables.) As raw data are manually tabulated a common error is the loss of zeros (represented by a dot in Arabic).

The MOH collects services statistics only from MOH services. It does, however collect facilities and bed enumerations from all other services sectors, both public and private.

University Teaching Hospitals do not regularly report services data to any authority. Data must be accessed directly from each university. For purposes of this assignment for example, gross services volumes for each Teaching Hospital had to be estimated on basis of Cairo University Hospitals' well-documented services ratios in relation to bed capacity, length of stay and bed utilization. Service statistics for this facility are up-to-date, comprehensive, well-presented and include even cost calculations. No judgment could be made about the quality of reporting and data from the other university institutions.

Among Other Ministries and Government Authorities, equally comprehensive information may be obtained directly from the Railway Employees Organization. The Ministry of Social Affairs subsidizes a range of Egyptian Voluntary Associations on national and local levels to provide what are most likely general practice services through the private sector. It has not become clear what if any data are collected as part of the assumed supervisory process. A study of this services sector suggests itself as a potentially fruitful research activity. Ministry of Interior is accessible but could not be included in this scope of work. The Ministry of Defense is said to deliver a large volume of services but, for obvious reasons, data regarding those services are not accessible.

Since the Ministry of Agriculture Insurance scheme for its employees is principally a private sector activity, no information could be obtained.

The General Organization for Educational Hospitals and Institutes maintains fairly detailed services statistics and cost data. These, however, reflect the research orientation of this tertiary care system and they are only marginally useful for utilization purposes. Access to this information is through the Organization's General Director, First Under Secretary of State for Health, Dr. Ramsis Gomaa. Recent data and reports on the organization are available only in Arabic.

Among the public sector organizations, GHIO has the most detailed comprehensive services data available in Arabic. They are analyzed in accordance with its own sub-regional classifications, which cut across governorates. Thus, comparisons with other services delivery systems on governorate level becomes an involved process which could not be attempted in this analysis. Services reporting is principally on a costing basis against the two insurance laws that determine coverage. Quality of data appears excellent and the system could produce any coverage data required, given sufficient time. Family coverage is presently only a minor pilot project to determine family coverage cost factors. Coverage and utilization data reflect a preferred risk employed male population with predetermined coverage stipulations. Hence these data have marginal utility for comparative purposes with other population utilization and coverage patterns. Access to information is through the General Director (Dr. Hassan Awad) in Cairo and through the Organization's Executive in Alexandria. Numerous research studies of HIO have been commissioned through the High Institute of Public Health in Alexandria, which is very involved in the management development of HIO.

Curative Organization Services data obtainable from the Organization itself were minimal. This organization reports only to the Minister of Health directly. No assessment could be made either about the amount or quality of services data collected within the organization.

Private sector services delivery data are virtually inaccessible, if not unavailable. The MOH Department for Non-Governmental Health Institutions maintains records of registered and licensed facilities with hospital bed capacities (with more than 3.0 beds). (2) Until the recently passed (10/81) registration law is implemented no specific information will be available on the large numbers of small private clinics. Current estimates on the number of these facilities, as used for this assessment, are said (Director General of Non-Governmental Health Institutions) to be estimated from the Health Profile of Egypt Utilization Survey. Data from this survey are as yet not publicly available.

A myriad of other private sector services facilities exist under the auspices of non-subsidized Voluntary Organizations and Local Associations. No data on these are available. For reference the reader should consult the HSA report on Egyptian Private Voluntary Organizations and the Health Sector.

Services data, in summation, are of questionable accuracy, lack denominators, are in general neither age nor sex specific, and lack mechanisms to indicate continuity of care and patient flow. Outpatient data give limited information on diagnosed cases of certain reportable infectious diseases, but do not permit analysis of utilization patterns by types of complaint or presenting symptoms.

Complementing the paucity of useful services statistics on utilization, there are a number of surveys and small-scale in-depth studies. Some were generated either through international donor involvement or as theses and research studies by universities and by the High Institute of Public Health in Alexandria. While these studies have limited generalizability and are convenience studies using pragmatic research methodology, they provide useful additional information. A preliminary literature review is appended to this report and findings from these studies are brought into the discussion of utilization patterns.

6.4 Coverage and Utilization Analysis

GOE directives for creating access to health resources coverage have been outlined above and currently feasible modes of analysis have been identified.

The present analysis begins with an overview of the total estimated number of services generated through the various services sectors. Geographic access will then be examined as ratios per population for selected resources, level of services and services/sector contributions. The volume of outpatient visits will be described in relation to geographic distribution of selected resources. Utilization and coverage patterns will be analyzed for selected priority services and by types of facilities. Supplementary information gleaned from studies will be used to illustrate utilization patterns as a function of estimated accessibility, availability and acceptability of formal institutionalized health services. While the informal traditional services system is not described in this paper, findings from studies of consumer behavior will be added to assist interpretation of utilization patterns.

6.4.1 Geographic Classification of the Population

Egypt's 25 governorates fall into three major geographic regions: Lower, Middle and Upper Egypt. Lower Egypt includes the five predominantly urban governorates--Cairo, Alexandria, Port Said, Suez and Ismailia. Only two governorates in this region are predominately rural. The rest of the governorates in Middle and Upper Egypt are classified as rural, although each contains some urban concentrations. Five governorates, including Sinai, etc., are classed as Frontier Governorates, which are relatively sparsely populated and have their own distinct characteristics. (Moharram and Gorvine, 1981)

Health status varies dramatically by region, reflecting geography, climate, general environment, agricultural and industrial patterns. For purposes of this paper it suffices to point up that the most dramatic differentials in life expectancy and child mortality are between Upper and Lower Egypt. Upper Egypt has a life expectancy 11 years less than Lower Egypt, and a child mortality twice that of the urban governorates. (World Bank, 1981) The prevalence of diseases is covered in the HSA Report on Epidemiology and will not be discussed here. Important to the present analysis is the fact that illness burden increases as one moves from Lower through Middle into Upper Egypt. Concomitantly, school enrollment and literacy decrease.

For regional health coverage and utilization analysis, governorates are here grouped into three similar regions according to the Physical Quality of Life Index (P.Q.L.I.). This scalar measure is an average score of literacy, infant mortality and household access to potable water for each governorate. P.Q.L.I. indices reflect the decreasing health and education status toward Upper Egypt. Groupings followed here are those presented by Khalid Ikram. (Ikram, 1979) Throughout this analysis tables follow this regional grouping format (originally used by the HSA Health Manpower Consultant).

6.4.1 Service Volume Distributions in the Formal Health Sector

In the preceding discussion reference to Table 6/1 pointed up the organizational complexity of the services sector and the small proportion of specific quantifiable consumer target groups. Estimated outpatient volume from this table is summarized further in Summary Table 6/2. Earlier the point was made that a substantial proportion of governmental and private facilities are accessible to the population at large on a self-referral basis. Total volume of combined private and public sector outpatient visits is estimated over a range extending from a low of 99.2 million patient visits through a medium estimate of 112.2 million patient visits, to a high estimate of 134.0 million patient visits for an estimated population of 40.6 millions per year. Dividing the three estimates of patient visits by the estimated population yields estimates of average numbers of patient visits per year of 2.44, 2.77 and 3.3 per year, respectively.

All of these calculations incorporate a constant number of patient visits of 51.0 million officially reported by the MOH. This compares with the official figure of 54.00 million MOH patient visits reported in the IOM report for the year 1976.

However, there is considerable reason to believe that even the 51.0 million patient visits reported by the MOH for 1981 is rather high. Considerable effort was expended to determine exactly what the MOH defined as patient visit activities in order to assess the potential double-counting and variation in level and content of service provided. In this connection it should be noted that patient visits data are

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TABLE 6/2
SUMMARY TABLE
ESTIMATED VOLUME OF OPD VISITS BY SECTOR

<u>GOVT Sector</u>	<u>No. Outpatient Visits</u> <u>In Millions</u>	<u>% of Total</u>
(All facilities)	51.0	51.5
Universities (tertiary care)	3.5	3.6
Educational Hospitals (tertiary care)	2.7	2.7
<u>Other GOVT</u>		
MSA (Est.)	1.0	1.0
MDI/Defense (Est.)	<u>1.0</u>	<u>1.0</u>
Subtotal	59.2	59.8
<u>Public Sector</u>		
HIO + Curative Organization	10.0	10.0
<u>Private Sector</u>		
(questionable*)	<u>30.0</u>	<u>30.0</u>
TOTAL	99.2 **	99.8

* Private Sector Estimate:
18,000 on-duty physicians (D. Storms, HSA Health Manpower Report;
HPE Manpower Survey Data).
80 % in private practice (R. Gomaa, Health in Egypt, HPE)
X 300 working days @ X rural/urban average of 7 patients per day.
(A preliminary estimate was made on 10 patients per day, totalling
43.2 million private sector visits per year. This volume of private
sector visits was judged by a senior MDH official to be excessively
high. Based on his recommendation the average No. of visits was cut
by 30% to weight better for the rural sector.)

** This gives an average of 2.4 visits/person/year.

reported by health facilities to a variety of MOH headquarters units using various overlapping classifications, thus the potential for double-counting of aggregate data is rather large. Also in some cases, contacts consist of registrations of children by mothers in the interests of establishing a record in order to facilitate subsequent treatment and service. Such an activity hardly is comparable to a visit in which substantive treatment service is provided. However, efforts to refine MOH estimates of patient visits were not as successful as would be desired and the 51.0 million was accepted as an "official" figure.

Difficulties of a different order were encountered in attempting to estimate the number of annual private sector patient visits, since no agencies monitor private sector activities. Interviews with numerous MOH officials and health services providers offered "guesstimates" of private sector volume, most of which were close to the level of government service volume. Annual patient visits provided by universities, educational hospitals, public health sector organizations and visits provided in other sectors are estimated to be 18.2 million.

MOH officials estimate that about 70 percent of private sector outpatient visits involve General Practice Services, though the majority of physicians may have specialist training.

Two aspects of private sector volume are of importance at this point of the analysis--a) the overview of estimated primary care service volume and, b) the indication of out-of-pocket health expenditure. Geographic distribution of private sector services is described later.

Two broad approaches to estimating the volume of private sector estimates were utilized. The first is based on the existing number of private facilities with varying assumptions made concerning the number of patients seen per day and the number of annual working days uniformly assumed to be 300. The results of these calculations are presented as follows:

	<u>Number</u>		<u>Patients per day</u>		<u>Number Working Days</u>		<u>Volume</u>
<u>Private Clinics</u>	12,200	x	7	x	300	=	25,620,000
<u>Private Polyclinics</u>	285	x	20	x	300	=	2,868,000
<u>Private Hospitals</u>	280	x	15	x	300	=	1,260,000
						Total =	29,748,000

A second manpower and facilities-based estimate of annual private sector patient visits was made based on an assumption of 10 patients per physician and per private clinic per day and 15 patients per private hospital. The results are presented below:

	<u>Number</u>		<u>Patients per day</u>		<u>Number Working Days</u>		<u>Volume</u>
<u>Private Clinics</u>	12,000	x	10	x	300	=	36,000,000
<u>Private Polyclinic</u>	478	x	10	x	300	=	4,302,000
<u>Private Hospitals</u>	280	x	15	x	300	=	1,260,000
						Total =	41,562,000

However, this second estimate closely approximates the estimate obtained by using an alternative approach to estimating private patient annual visits discussed immediately below.

A second broad approach utilized to estimating private sector annual patient visits consists of multiplying the estimated number of practicing physicians by the estimated number of patients seen per working day times 300 annual working days. Assuming each of the estimated 14,400 private practitioners sees 10 patients per day, yields approximately 43.0 million as the estimated number of private patient visits annually. An assumed maximum of number of patient visits per day of 15 yields 64.8 million private sector patients visits annually.

Thus estimates of private sector patient visits range from 30.0 million, through a medium range of 43.0 million to a maximum of 65.0 million patient visits annually. As is evident from these calculations the critical factor causing estimates to vary is the number of daily patient visits rendered by facilities or individual providers, as the case may be.

Given that the range of total patient visits ranges from a low of 99.2 million, through a medium range of 112.2 million, to a high of 134.0 million patient visits annually, and that MOH patients visits are consistently estimated at 51.0 million annually, yields a range of the percentage of annual patient visits provided by the MOH from a low of 38.0 percent, through a medium range of 45.5 percent to a high of 51.4 percent. These estimates however lump patient registrations, outreach contacts and other types of service activities together with physician service activities. Note that estimates of private sector visits consists almost entirely of physician contacts.

When these estimates were discussed with a senior health official, a strong judgemental preference was expressed for an estimated number of annual patient visits of 99.2, which was used for subsequent calculations. Adoption of 99.2 million patient visits suggests that 51.4 percent of outpatient visits are contributed by MOH facilities, and 18.3 percent by the parastatal services delivery organizations termed "Public Sector", with the remaining 30.2 percent of the estimated number of visits generated by the private sector. However these estimates are based on the low estimate of 30.0 million private sector physician outpatient visits that were suggested by an MOH official.

If assumptions leading to the next higher estimates of private sector outpatient visits, 43 million, were used, then the total estimated visits would have been 112.4 million, with percentage distributions as follows: 45.5% MOH; 16% Public Sector; and 38.3% Private Sector. Finally, using the highest estimates of the number of annual private patient visits, 65.0 million, the percentage distribution of visits would be 38.0% MOH; 13.6% Public Sector and 48.5% Private Sector. None of these calculations include visits directly to private pharmacies, unofficially estimated by Medical Syndicate and Pharmacy Syndicate officials to constitute from 40% to 60% of visits for "modern" care for illnesses. Visits to traditional healers are also not included.

For purposes of subsequent analysis based on MOH data, the estimated volume of 99.2 million visits is used. Table 6/16 at the end of this section breaks down this volume by the clinic-type, i.e., an hospital OPD facility or a primary health care facility/free-standing clinic. For this presentation these assumptions had to be made: that free-standing clinics of governmental secondary care facilities are relatively few in number, since these for the most part are attached to an OPD department; that the Public Sector Organizations, as noted on the bottom of Table 6/16, provide about one-half of their services through free-standing clinics; that the MSA clinics are free-standing. One million visits estimated for the Ministries of Interior and Defense were excluded from this presentation for lack of information.

Table 6/16 shows that an estimated two-thirds of the total outpatient visits are provided through "free-standing" clinics or primary care facilities, and that about one-third comes from hospital outpatient departments. If private sector estimates are increased, then the relative proportion of hospital-based clinic visits would decrease.

6.4.2.2 Government Sectors

A lower estimate of volume of visits was included in Summary Table 6/2 under the Ministry of Social Affairs (MSA) than indicated in Table 6/1 since virtually nothing is known about these services and it is likely that the major portion of that volume is already included in the private sector estimate.

A "guesstimate" of a total of one million visits was included for the Ministry of Interior (MOI) (Police Services, Prison Services) and the Ministry of Defense (MOD), so that the contribution of these closed services providers to total services volume not be overlooked.

6.4.2.2.1 University Hospitals

The eight University Hospital complexes, of which Cairo, Ain Shams and Azhar are all located in Cairo City, provide a large volume of curative outpatient and inpatient services (See Table 6/1). Patients are almost entirely self-referred, and more than one-half are said to travel between

40 and 100 kilometers to come from rural areas to University Hospitals. Cairo and Ain Shams experience indicates that this volume of OPD visits seriously taxes hospital capacities and resources, affects quality of care, and militates against services planning. Rural patients must be accommodated as inpatients if seriously ill and kept until full recovery. Thus self-referral also lengthens stay and creates an excessively high utilization rate of beds. MOH officials have indicated that this phenomenon holds true for most all of the University Teaching Hospitals. A study of the Pediatric Teaching Hospital of Alexandria University documents a high self-referral rate to the OPD department with a relatively high admission rate of 27 percent (El Waraf, et. al., 1978).

6.4.2.2.2 Educational Hospitals with a contribution of 2.7 million visits show an even greater ratio of OPD visit to inpatient admission (Table 6/1), which accounts for their relatively large contribution to total OPD volume. After University Hospitals, they are the preferred source of popularly perceived "best" care. Services, again, are essentially curative.

6.4.2.2.3 MOH total estimated 1980 outpatient volume stands at about 51 million visits. Table 6/3 shows that about 60 percent of this volume is provided by MOH primary health care facilities (including rural hospitals with up to 20 beds) and that 40 percent is obtained through MOH hospital OPD and clinics, giving an estimated 1.2 visits per person per year. The outpatient visit inpatient admission ratio for all MOH services combined is about 52.7/1.

The Institute of Medicine Study (IOM) (op. cit.) presented a 1976 MOH outpatient volume of over 54 million patient visits, which suggests that MOH outpatient visits have substantially decreased over the interium four years. While there may have been some decreased utilization or leveling off, the difference in volumes presented here is a function also of data presentation. Whereas the IOM incorporated MOH data as given, this analysis has reviewed the reporting formats and has attempted to minimize double-counting.

Official aggregate services volume reporting consists of total activities by facility. ("Activities" are said by MOH officials to include visits to MOH facilities, whether the patient saw a physician or not, but most "activities" are said to include physician contacts. An unknown amount of double-reporting is included.) Especially in those facilities where different types of services are offered (e.g., general hospitals and primary health care facilities) there appears to be some double-counting of actual patient visits. It is essential therefore, that derivation of patient volume figures be described before presentation of summary tables.

Table 6/17 at the end of this section is an MOH table, giving total activities by facility/services units. These do not represent volumes of patient per se. Table 6/18 at the end of this section organizes these data by services reporting sector and adjusts patient volume for the

TABLE 6/3

SUMMARY, ESTIMATED VOLUME OF OUTPATIENT VISITS
BY LEVEL OF MOH CARE, 1980*

<u>Primary Health Care</u> <u>Facilities</u>	<u>Outpatient</u> <u>Visits</u>	<u>Percent of</u> <u>Total MOH</u>
School Health Units	3,442,710	6.7
Maternity and Child Health Centers (Urban)	2,471,122	4.8
Rural Health Hospitals, Centers and Units	21,785,315	42.2
Dental Units	2,812,434	5.4
Sub Total	<u>30,511,581</u>	<u>59.1</u>
<u>Secondary Care</u> <u>Facilities</u>		
General & District Hospitals	9,119,621	17.7
Speciality Hospitals	7,160,338	13.8
Infectious (Fever) Hospitals	2,035,145	3.9
Endemic Disease Hospitals	2,783,426	5.4
Sub Total	<u>21,098,530</u>	<u>40.8</u>
TOTAL	<u>51,610,111</u>	<u>100.0</u>

Curative and Treatment Services Sector, based on statistics obtained directly from that department. Reporting of Mental, Eye and Chest facilities services activities is subsumed under patient volume reporting for the General and District Hospitals.

A similar problem is encountered when one attempts to derive patient volume from services activities for the Basic Health Care and Family Health Sector facilities. MCH centers are urban, and while the volume probably consists of patient visits, this volume is about 400,000 visits less than that given by governorate-level disaggregated urban MCH data. Non-MCH urban health center visits are not included in the MOH aggregate statistics, nor were they available on the governorate level. On the other hand, total aggregate rural health facilities activities volume exceeds by about 8 million the patient volume obtained for rural MCH and general outpatient visits from that department by governorate level. It is likely that aggregate activities statistics double-count school health and other visits. Volume of MOH patient visits, then, as presented here remains tentative and possibly overstated.

Appended Table 6/18 also indicates the difficulty of analyzing volume of visits according to curative and preventive care. As noted previously, the MOH primary care facilities offer both types of service, but with the exception of immunization visits and school health examinations, it is not possible to make the preventive-curative distinction. It cannot be assumed that antenatal or postnatal visits are preventive, since it is likely that a portion of the women presenting themselves for antenatal care do so because they are already experiencing some difficulties.

Service designations in Table 6/18 at the end of this section may be somewhat misleading to the outsider. Though the Fever Hospitals are functionally curative, the treatment of infectious diseases (mostly hepatitis, meningitis, etc.) is defined as a preventive service. The bulk of preventive services volume is provided under the Basic Health Care and Family Health Sector, excluding Endemic Diseases and School Health Hospitals.

Services volumes of the Curative and Treatment Sector Hospitals and services provided under Basic Health Care will be discussed further in terms of coverage and utilization.

6.4.3 Resources Distribution in the Formal Health Sector

As health manpower is covered in a separate paper it will receive attention here only relative to services output volume of particular institutions.

6.4.3.1 Hospital Bed Capacity and Manpower

Table 6/4 gives an overview of the total current capacity by services sector and indicates classification changes and increase since 1976.

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TABLE 6/4
CURRENT HOSPITAL BED CAPACITY BY CONTROL SOURCE

<u>Control Source</u>	<u>1980*</u>		<u>1976#</u>	
	<u>No. of Beds</u>	<u>% of Total</u>	<u>No. of Beds</u>	<u>% of Total</u>
Ministry of Health	55,971	65.3	54,751	69.8
Universities, and Other Ministries	12,693	15.7	1,842	2.3
			12,773	16.3
Other Public Sectors	8,621	10.1	7,270	9.3
Private Sector	4,996	5.8	3,629	4.6
Educational Hospitals (Minister of Health)	3,468	4.0	-	-
Total	85,749	100.0	78,425	100.0

* Ministry of Health, Basic Statistical Information (7/81)

Institute of medicine Background Papers, 1979

Total bed capacity has increased by about 9 percent. Some of the Educational Hospitals beds (specialized Tertiary Care Facilities) were shifted from the MOH. But about a 10% growth within the MOH has offset this shift. Other increases were primarily in the public and private sectors. Trend analysis in hospital bed growth and shifting among the services sectors was not possible for this analysis, primarily because of data access difficulties.

Present geographic distribution of beds (Table 6/5 compared with Table 4/1 in Ikram (Ikram, 1980) shows that the public sector increase has taken place primarily in Cairo, Kaloubiya and Giza. Private sector bed capacity has increased substantially in the urban governorates of Cairo and Alexandria, with smaller increases in three governorates of Middle Egypt. Neither public nor private sector has increased in Upper Egypt.

MOH beds account for only 50 percent of total bed capacity in Lower Egypt, but account for fully 88% in Upper Egypt where other sector contribution is minimal. Private, public sector and University beds are concentrated in Lower Egypt. MOH beds become increasingly the predominant resource with geographic distance from the urban governorates. Table 6/6 shows that total bed ratio for all sectors is two per 1,000 population. Examination of MOH bed/population ratios in Middle (1.3 per 1,000) and Upper Egypt (1.2 per 1,000), where the MOH is the major provider of beds, shows some disparity in distribution among governorates (Table 6/6). Four governorates in Middle Egypt and one in Upper Egypt have a ratio of less than one MOH bed per 1,000 population. MOH beds, as those of other sectors, are more concentrated in two of the urban governorates of Lower Egypt.

Given Egypt's rate of population growth, concerted effort will be required to maintain the present level of bed/population ratios, which is unacceptable at present to some MOH officials. It should be noted that one proposed MOH strategy addressing this problem is the conversion all Rural Health Centers into Rural Health Hospitals over the next five-year period, while adding about 800 Rural Health Units. The addition of low level secondary care capacity in Rural Health Hospitals will help somewhat to balance the geographic maldistribution of beds in the rural governorates. Total increase in additional beds through this mechanism will be at most 10,000.

As Table 6/6 includes manpower ratios, it is appropriate to review them here in relation to geographic distribution of resources. Most generally available MOH manpower statistics and reports are calculated on the basis of assigned rather than on-duty personnel. (For other statistics and full analyses see HSA Report on Manpower). According to assigned manpower ratios, it is evident that maldistribution of physicians exists in some of the rural areas. More serious perhaps, are the low nurse/physician ratios particularly evident in portions of Upper Egypt. Nurses have major responsibility for community outreach in relation to priority MCH services. According to the P.Q.L.I. these governorates are

TABLE 6/5
DISTRIBUTION OF BEDS BY SERVICES SECTOR BY GOVERNORATE*
1981

Governorate (PQLI Grouping)	Total Beds	MOH %	Public Sector %	Private Sector %	Universities & Other Ministries %	Educational Hospitals %	Percent TOTAL
Port Said	1,279	87.0	08.0	04.0	00.6	-	100.0
Suez	825	84.0	16.0	-	-	-	100.0
Alexandria	8,225	46.0	20.0	02.0	32.0	-	100.0
Cairo	22,942	39.0	13.0	14.0	28.0	06.0	100.0
Ismailia	802	83.0	05.0	12.0	-	-	100.0
Damietta	1,411	91.0	05.0	05.0	-	-	100.0
Dakahlia	4,255	74.0	04.0	03.0	19.0	-	100.0
Subtotal	(39,739)	(50.0)	(13.0)	(09.0)	(25.0)	(03.0)	(100.0)
Sharkia	3,647	77.0	04.0	00.3	19.0	-	100.0
Kaloubiya	6,944	80.0	08.0	01.0	06.0	05.0	100.0
Kafr El Sheikh	1,583	98.0	-	02.0	-	-	100.0
Gharbiya	5,397	67.0	12.0	07.0	14.0	-	100.0
Menoufiya	2,652	70.0	03.0	04.0	04.0	19.0	100.0
Beheira	3,355	78.0	03.0	00.2	00.6	18.0	100.0
Giza	6,179	62.0	20.0	12.0	02.0	06.0	100.0
Subtotal	(29,757)	(73.0)	(09.0)	(04.0)	(07.0)	(06.0)	(100.0)
Beni Suef	1,892	93.0	03.0	01.0	03.0	-	100.0
Fayoum	1,782	97.0	01.0	02.0	-	-	100.0
Minia	2,522	92.0	06.0	00.1	02.0	-	100.0
Assiut	2,408	91.0	06.0	-	03.0	-	100.0
Sohag	3,169	70.0	02.0	-	16.0	13.0	100.0
Quena	2,177	93.0	02.0	02.0	03.0	-	100.0
Aswan	1,530	99.0	03.0	03.0	-	-	100.0
Subtotal	(15,480)	(88.0)	(03.0)	(01.0)	(05.0)	(03.0)	(100.0)
Frontier	776	86.0	11.0	03.0	-	-	100.0
TOTAL	(85,749)	(65.0)	(10.0)	(06.0)	(15.0)	(04.0)	(100.0)

* Updated version of Table 4.1 (1977 Data) in Khalid Ikram, Meeting Basic Needs in Egypt, IBRD, 1979.

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TABLE 6/6
SELECTED MEASURES OF HEALTH SERVICES*
1980 - 1981

Ministry of Health				
Governorate	Ratio # Nurses Per Doctor	Ratio # Doctor Per 10,000 POP.	M.O.H. Beds Per 1,000 POP.	M.O.H. Other Sector Total Beds Per 1,000 POP.
Port Said	3.0	6.7	3.8	4.3
Suez	2.2	7.3	3.1	3.8
Alexandria	1.3	6.0	1.4	3.1
Cairo	1.3	4.6	1.6	4.0
Ismailia	1.8	5.1	1.6	1.9
Damietta	2.0	6.3	1.9	2.1
Dakahliya	1.6	5.2	1.0	1.3
Sharqiya	1.8	3.5	0.9	1.2
Kalyoubiya	1.7	3.9	2.8	3.5
Kafr El Sheikh	2.0	4.1	0.9	0.9
Gharbiya	2.5	4.6	1.2	2.0
Menoufiya	1.9	4.1	0.9	1.3
Beheira	2.8	2.9	0.9	1.1
Giza	1.0	5.7	1.3	2.2
Beni Suef	3.0	4.1	1.3	1.4
Fayoum	2.3	4.0	1.3	1.3
Minia	1.9	3.2	0.9	1.0
Assiut	0.9	5.0	1.1	1.2
Sohag	0.7	4.6	1.5	1.4
Quena	1.1	2.7	1.5	1.1
Aswan	.7	7.1	2.0	2.1
Frontier	10.3	47.3	6.5	8.1
Total	1.6	4.60	1.3	2.0

* Source: Table from M.O.H., Department of Statistics, 3/82
Assigned manpower; does not reflect actual on-duty personnel

at the bottom of the ranking and hence tend to reflect the highest infant mortality rates. Assuming these manpower ratios are current and factual, the table suggests lowest capacity to provide preventive services in the region of highest child mortality.

6.4.3.2 Rural Health Services Facilities

Table 6/7, prepared by the MOH, represents a key document in the Rural Health Services Development Plan currently under MOH consideration. The total country ratio of all Rural Health Services Facilities is 1:9,622 population or 1:1.7 villages. Rural population coverage shown is lowest in the predominantly urban governorates of Lower Egypt and in some of the least well-off governorates of Upper Egypt. While the village/facility ratio on the whole appears more favorable in Upper Egypt than in Middle Egypt, for example, this overview does not reflect geographic coverage in relation to the more dispersed satellite villages and hamlets scattered around the larger villages--particularly in Upper Egypt. Middle Egypt is said to consist of more compact large villages.

In a comprehensive study, using 1979 data, the MOH in collaboration with WHO analyzed hamlet and satellite village population coverage (Mobarak, et. al., 1980). According to these findings 70 percent of populations living in hamlets reside within three kilometers distance from a rural facility; 20 percent are located between three and five kilometers, and nine percent are more than five kilometers distant. The last group represents about 1.5% of the total estimated rural population, located principally in Dakahliya, Sharqiya, Kafr El Sheikh and Quena. A review of Table 6/6 indicates that these governorates also have some of the lower MOH and total bed/population ratios.

A different survey (EMRO/WHO) of facilities and services in seven governorates (90% of facilities studied were rural) concluded that about 36 percent of these units served 2-3 villages and that 30% served 4-6 or more villages (Hassouna, 1981). Less than one-half covered populations up to 10,000 and the remainder served populations from 10,000 to 25,000 or more. Nearly half of these units were four or more kilometers distant from one or more of the villages they served. This survey also documented that walking is the most common mode of transport to the facilities--pointing out the difference between theoretical population coverage or access and actual accessibility.

The MOH study (Mobarak, et. al., 1980) included services coverage and concluded that the degree of coverage and effectiveness of rural health services represents an accessible delivery system that shows a high degree of equity between different rural areas and that the underserved sector is very limited.

The ultimate judgment about accessibility can only be made after reviewing patient contacts, and the extent to which this system makes efforts to reach out into the community. If services coverage is

TABLE 6/7
M.O.H. RURAL HEALTH SERVICES, UNITS, DISTRIBUTION AND COVERAGE *
1980

Governorates	Rural Population Estimate 1980	No. of Villages	NO. SERVICES UNITS IN RURAL AREAS **				Ratio of Villages Per Unit	Ratio of Rural Population Per Unit
			Total	Rural Health Units	Rural Health Centers	Rural Health Hospitals		
Port Said	67,919	3	3	3	-	-	1.0	22,639
Suez	30,408	6	6	6	-	-	1.0	5,076
Alexandria	172,336	64	16	14	2	-	4.0	10,771
Cairo	140,529	14	5	3	2	-	2.9	28,105
Ismailia	204,065	26	18	17	-	1	1.4	11,336
Damietta	454,072	52	48	38	6	4	1.1	9,459
Dakahlia	2,276,922	449	241	179	60	2	1.8	9,447
Sharkia	2,291,575	476	236	184	52	1	2.0	6,710
Kalyubia	1,084,404	194	100	69	30	1	1.9	10,844
Kafr El Sheikh	1,218,323	215	125	99	24	2	1.7	9,746
Gharbia	1,674,650	312	160	120	37	3	1.9	10,466
Menufia	1,506,222	312	159	114	43	2	1.9	9,473
Beheira	2,042,762	461	215	169	44	3	2.1	9,501
Giza	1,139,807	166	118	91	26	1	1.4	9,659
Beni Suef	912,334	200	110	81	27	2	1.8	8,293
Fayoum	946,743	161	99	72	23	4	1.6	9,562
Minya	1,780,900	341	189	142	45	2	1.6	9,422
Assiut	1,346,972	207	125	90	33	2	1.6	10,743
Sohag	1,665,557	271	148	105	42	1	1.8	11,253
Quena	1,439,220	196	138	97	39	2	1.4	10,420
Aswan	427,741	95	78	60	18	-	1.2	5,483
Frontier	261,107	74	62	56	3	2	3.1	3,528
TOTAL	(23,084,568)	(4,274)	(2,399)	(1,808)	(556)	(35)	(1.7)	(9,622)

Source: * Table from Department of Primary Health Care in Rural Areas, M.O.H., February 1980.

** Numbers not consistent with later data since M.O.H. is adding RHW annually and converting RHC's to RHH's

facility-centered rather than community outreach-centered, then the accessibility factor would tend to invalidate conclusions about effectiveness of geographic coverage based on facilities location. This will be taken up later in relation to services coverage.

The present analysis concurs that geographic coverage by Rural Health Services is good and gives recognition to the fact that the MOH is taking steps to continually improve equity in access. Two important issues emerge--i.e., given the rate of population growth and other population dynamics, how can the MOH maintain this present level of coverage? What other mechanisms are available to complement the efforts of the MOH?

Leaving the Rural Health Services temporarily, the discussion will focus once more on an overview, presenting population coverage by facilities in terms of the level of care provided, and the contributions by the various services sectors.

6.4.4 Distribution of Facilities by Levels of Care

Tables 6/1, 6/2, 6/3, 6/4, 6/5 and 6/6 displayed volumes of services outputs and service capacities in the various sectors of the formal health services system.

Summary Table 6/8 disaggregates coverage ratios of facilities per governorate by the level of care provided with contribution by each major services sector.

Classification of facilities follows the Egyptian definition of level of care. The reader should take note that this definition, particularly of secondary and tertiary care facilities, differs from that commonly used in the U.S. The reader is referred back to the Resources Description in a foregoing section of this HSA Report on Health Services Systems.

To interpret Summary Table 6/8 it is suggested that the reader first peruse Tables 6/19 on Primary Health Care Facilities, Table 6/20 on Secondary Care Facilities and Table 6/21 on Tertiary Care Facilities, all at the end of this section.

Each of these tables identifies and enumerates facilities classified under the respective level of care; it gives subtotals by services sector; it presents estimated population denominators used to calculate ratios; it then presents subtotal ratios of facilities per population for each contributing services sector and a total ratio of all facilities classified under the respective level of care by population.

The Summary Table 6/8 presents only the facilities ratios per population by each sector. This table is of particular interest for analysis of primary health care facilities. For this reason, ratios are given first per 5,000 population. In order to facilitate comparison with secondary and tertiary facilities, a second set of ratios is given per 100,000 population.

TABLE 6/8
SUMMARY TABLE*
POPULATION COVERAGE BY LEVEL OF SERVICE FACILITY, BY SECTOR, BY GOVERNORATE, 1981

Governorates (QLI Grouping)	PRIMARY CARE LEVEL				SUBTOTAL RATIOS PER 100,000 POP.			TOTAL RATIO	SECONDARY CARE LEVEL				TERTIARY CARE LEVEL		
	SUB-TOTAL RATIOS PER 5,000 POPULATION		MOH & Public Sector Facilities	Private MOH & Public Sector Facilities	Public Sector Facilities	Private Sector Facilities	All Facilities Est.		SUB-TOTAL RATIO	SUB-TOTAL RATIO	SUB-TOTAL RATIO	TOTAL RATIO	SUB-TOTAL RATIO	SUB-TOTAL RATIO	TOTAL RATIO
	Public Sector Facilities	Private Sector Facilities													
Estimated 5,000	Estimated 5,000	Estimated 5,000	Estimated 5,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	Estimated 100,000	
Port Said	.63	.02	1.75	.65	12.98	35.08	48.1	4.21	.70	4.91	9.82	-	-	-	
Suez	1.06	.02	2.13	1.08	17.05	46.08	67.7	4.61	.90	5.07	10.59	-	-	-	
Alexandria	.26	.04	3.97	.29	5.87	79.33	81.2	2.74	1.86	2.86	7.54	.19	.12	.32	
Cairo	.19	.01	4.79	.20	3.96	95.89	99.9	2.03	.50	5.68	8.17	.40	.36	.76	
Ismailia	.73	.01	1.85	.74	14.75	37.50	52.3	3.25	.50	.50	4.25	.25	-	.25	
Damietta	.88	-	1.57	.88	17.58	31.39	48.9	3.61	.32	.63	4.55	-	-	-	
Dakahlia	.64	.002	.99	.66	13.14	19.81	32.9	1.59	.23	1.29	3.10	.03	-	.03	
Sub-Total	(.41)	(.01)	(3.49)	(.42)	(8.09)	(66.48)	(75.1)	(2.28)	(.69)	(3.68)	(6.65)	(.23)	(.18)	(.41)	
Sharkia	.66	.002	.69	.66	13.17	13.79	26.9	2.10	.10	1.93	4.13	.03	-	.03	
Kalyubia	.62	.003	.40	.62	12.38	8.23	21.0	2.28	.58	.79	3.67	.05	-	.05	
Kafr El Sheik	.67	.003	.32	.68	13.50	6.39	19.9	1.22	-	.26	1.47	-	-	-	
Gharbia	.62	.006	.79	.63	12.57	15.90	28.5	2.35	.24	.39	2.98	.03	-	.08	
Menoufia	.69	.003	.39	.69	13.86	7.93	21.8	1.75	.21	.69	2.64	.11	-	.11	
Beheira	.70	.002	.73	.70	14.08	14.51	28.6	1.49	.40	.36	2.25	.11	-	.11	
Giza	.40	-	1.85	.40	8.04	36.90	44.9	1.37	.15	3.94	5.46	.26	-	.26	
Sub-Total	(.62)	(.002)	(.80)	(.62)	(12.39)	(16.03)	(28.4)	(1.80)	(.24)	(1.32)	(3.36)	(.10)	-	(.10)	
Beni Suef	.85	.004	.41	.85	17.02	8.10	25.1	2.76	.24	.73	3.72	-	-	-	
Fayoum	.68	.004	1.56	.68	13.65	31.20	44.9	1.72	.08	.78	2.57	-	-	-	
Minya	.65	.002	.32	.66	13.13	6.49	19.6	2.51	.13	.21	2.86	-	-	-	
Assiut	.66	.003	.39	.66	13.33	7.93	21.3	3.02	.11	.58	3.70	.05	-	.05	
Sohag	.66	.002	.23	.66	13.20	4.68	17.9	2.43	.05	.75	3.23	.05	-	.05	
Quena	.68	-	.26	.68	13.76	5.29	19.0	1.48	.16	.48	2.12	.05	-	.05	
Aswan	.97	-	.73	.97	19.44	14.61	34.1	1.90	.44	1.61	3.95	.15	-	.15	
Sub-Total	(.70)	(.002)	(.48)	(.70)	(14.58)	(9.93)	(15.7)	(2.38)	(.14)	(.54)	(3.06)	(.04)	-	(.04)	
Frontier	1.94	-	.66	1.94	49.72	16.85	66.5	7.58	1.12	1.68	10.39	-	-	-	
TOTAL	(.59)	(.005)	(1.52)	(.60)	(11.87)	(30.05)	(41.9)	(2.14)	(.36)	(1.87)	(4.37)	(.12)	(.18)	(.18)	

* Ratios from Tables 88834A, 88835A, 88836A

On the primary care level the ratios for the MOH show increasing availability from Lower to Middle and Upper Egypt, reflecting largely the contribution of the rural infrastructure coverage. Availability of MOH primary care facilities is lowest in the urban governorates with the exception of Suez. It is noteworthy that public sector coverage on this level is minimal. Private sector contributions predominate in the urban governorates and Lower Egypt, decreasing significantly toward Upper Egypt.

Secondary care facilities ratios also follow a decreasing public and private sector contribution toward Upper Egypt, with concentrations in the urban governorates. MOH ratios are roughly equal in Lower and Upper Egypt and somewhat lower in Middle Egypt.

Tertiary care facilities are contributed by other governmental sectors and the private sector. The latter are concentrated in the cities of Cairo and Alexandria alone. Governmental tertiary facilities are concentrated in the urban centers of Lower Egypt, and follow the familiar pattern of geographically decreasing distribution.

Public sector contribution, analyzed here on basis of available facilities enumerations, is predominantly on the secondary care level with only minimal contribution in primary care (largely GP practices) and none on the tertiary level, with limited geographic coverage.

A further step in the analysis combines governmental and public sector in comparison with private sector contribution (Table 6/9). This table was conceived principally for its policy implications and is discussed in the HSA report on Health Policy for which it was developed. For the present analysis it serves primarily as an overview of geographic coverage by sector. It illustrates the governmental effort to provide primary care facilities in response to geographic need and decreasing well-being status. It also documents the government's geographic coverage with secondary care facilities. Closer examination of hospital OPD population coverage ratios within regions, however, reveals considerable variability among governorates. It should be noted here that population denominators used for these calculations are estimates, and some of the variability may in fact be due to population dynamics such as shifts and variable rates of increase that were possibly not built into the MOH population projection model. Hence, caution must be exercised in attempting to interpret individual ratios. The utility of this mode of analysis is primarily as a comparative tool to show relative contributions by sector and region.

6.4.5 MOH Services Coverage and Utilization Patterns

Women of child-bearing age and children under age six comprise one of the major target groups for specific services coverage. The continuing strong role played by the daya, the traditional birth attendant, has been well-documented (Nadim, 1980; El Hamamsy, 1973). (See also HSA Report on Users' Perspectives. A continuing challenge to the basic health services

SUMMARY TABLE 6/9

Ratios Indicating Government and Private Sector Health Facilities Coverage
By Levels of Care (As Defined by GOE) By Governorate 1980 - 1981[#]

Governorate (P.Q.L.I. Groupings)	Primary Care Facilities			Secondary Care Facilities			Tertiary Care Facilities		
	No. Per 100,000 Population			No. Per 100,000 Population			No. Per 100,000 Population		
	Govt + Public	Private Sector*	Total	Govt + Public	Private Sector*	Total	Govt + Public	Private Sector*	Total
Port Said	12.9	35.1	48.1	4.9	4.9	9.8	-	-	-
Suez	17.1	46.1	67.7	5.6	5.1	10.5	-	-	-
Alexandria	5.9	79.3	81.2	4.6	2.8	7.5	.19	.12	.32
Cairo	3.9	95.9	99.9	2.5	5.7	8.1	.40	.36	.76
Ismailia	14.8	37.5	52.3	3.8	.5	4.2	.25	-	.25
Damietta	17.6	31.4	48.9	3.9	.6	4.5	-	-	-
Dakahlia	13.1	19.8	32.9	11.8	1.3	3.1	.03	-	-
Subtotal	(8.1)	(66.9)	(75.1)	(2.9)	(3.7)	(6.6)	(.23)	(.18)	(.41)
Sharqiya	13.2	13.8	26.9	2.2	1.9	4.1	.03	-	.03
Kaloubiya	12.4	8.2	21.0	2.8	.8	3.7	.05	-	.05
Kafr El Sheikh	13.5	6.3	19.9	1.3	.3	1.4	-	-	-
Gharbiya	12.6	15.9	28.5	2.6	.4	2.9	.08	-	.08
Menoufia	13.9	7.9	21.8	2.0	.7	2.6	.11	-	.11
Beheira	14.1	14.5	28.6	1.9	.3	2.2	.11	-	.11
Giza	8.0	36.9	44.9	1.5	3.9	5.4	.26	-	.26
Subtotal	(12.4)	(16.0)	(28.4)	(2.0)	(1.3)	(3.3)	(.10)	-	(.10)
Beni Suef	17.0	8.1	25.1	3.8	.7	3.7	-	-	-
Fayoum	13.6	31.2	44.9	1.8	.8	2.5	-	-	-
Minia	13.1	6.5	19.6	2.7	.2	2.8	-	-	-
Assiut	13.3	7.9	21.3	3.1	.6	3.7	.05	-	.05
Sohag	13.2	4.7	17.9	2.5	.7	3.2	.05	-	.05
Quena	13.8	5.3	19.0	1.6	.5	2.1	.05	-	.05
Aswan	19.4	14.6	34.1	2.4	1.6	3.9	.15	-	.15
Subtotal	(14.6)	(9.9)	(15.8)	(2.5)	(.5)	(3.0)	(.04)	-	(.04)
Frontier	49.7	16.8	66.5	8.7	1.7	10.3	-	-	-
TOTAL	(11.87)	(30.1)	(41.9)	(2.5)	(1.8)	(4.3)	(.12)	(.18)	(.12)

[#] Summarizes Tables 888 34A, 888 35C, 888 36A. Enumerations of Government and Public Sector Facilities from Dept. of Statistics, MOH (1980 Data). Private Sector Enumerations from Director General of Non-Governmental Health Institutions, MOH (1981 Data).

system, both rural and urban, is the provision of antenatal care, supervision of deliveries, postpartum and postnatal care for mother and child.

The MOH has stipulated six antenatal visits for pregnant women, which can either take place in the clinic facility or by home visit. Births are to be supervised in the clinic or in the home, or minimally the Home Visitor is to follow-up after the delivery. In reality, even if 100% consumer demand existed for these services, given present staffing levels and resources such coverage could not be achieved. Hence, to measure coverage against ideal standards would be unrealistic.

MOH antenatal visits, supervised deliveries and home visits are analyzed here by rural, urban and total estimated population using the estimated number of births as denominator. An assumed homogenous crude birth rate (CBR) of 40/1000 population was used for both urban and rural groups. It is recognized that this approach is demographically unsound, but time constraints prohibited refinement of estimates.

Table 6/10 gives the ratios which are presented graphically in Figures 6/1 and 6/2 at the end of this section. Rural and urban ratios were calculated from separate statistical data sets, using different estimated denominators. For total ratios, urban and rural numerators and denominators were merged so that the denominator represents the total number of estimated births for each governorate.

The reader's attention is directed to view each measure first by TOTAL, then by RURAL, URBAN breakdown by region.

6.4.5.1 Maternal and (Non-Immunization) Child Health Care Services

6.4.5.1.1 First Antenatal Visit (A.N.V.)

In Lower Egypt the ratio of First A.N.V. to total estimated births is .32, for Middle Egypt .52, and for Upper Egypt .58, with an average of .45 for the country. Within Egypt the lowest ratios for these MOH services are in Alexandria, Cairo and Damietta. This indicates that women outside of the urban governorates are more likely to utilize an MOH facility for antenatal care, and most likely reflects also limited availability of alternative resources. The Helwan Study in Cairo documented both low utilization of the MCH facility for antenatal care and lack of knowledge among women about the facilities' antenatal care function (Hassouna, 1981). Further, the relative shortage of such primary care facilities in urban areas, as documented in the previous section, may be a contributing factor.

While total, rural and urban ratios of First A.N.V. to estimated births are roughly equal in Lower Egypt, one sees strikingly higher utilization for the urban populations in Middle, Upper Egypt and the Frontier Governorates. Whether this phenomenon is an artifact created by low

Table 6/10
M.O.H. Reported First Antenatal Visits, Return Antenatal Visits, M.O.H. Supervised Deliveries, Child Visits and Home Visits
By Governorate, and by Estimated Rural and Urban Populations, Egypt 1980

ANTENATAL VISIT TO M.O.H. SERVICES

MOH SUPERVISED DELIVERIES

Governorate (P.Q.L.I. Grouping)	RATIO OF FIRST ANTENATAL VISITS (A.N.V.) TO ESTIMATED BIRTHS #			RATIO OF RETURN/REPEAT A.N.V. VISITS TO FIRST A.N.V.			RATIO OF M.O.H. SUPERVISED DELIVERIES TO ESTIMATED BIRTHS		
	Total Rural & Urban First A.N.V. PER/Est. No. Births	Rural First A.N.V. PER Est. Urban Births	Urban First A.N.V. PER EST Urban Births	Total (R+U) Repeat A.N.V. PER Total First A.N.V.	Rural Repeat A.N.V. PER Rural First A.N.V.	Urban Repeat A.N.V. PER Urban First A.N.V.	Total R.+U.D Reported Supervised Deliv. PER EST. Total Births	Urban Supervised Del. EST. PER No. of Rural Births	Urban Supervised Del. EST. PER No. of Urban Births
	Port Said	.66	.32	.77	1.69	.05	1.89	.36	.06
Suez	.60	.35	.64	.37	2.00	.22	.18	.29	.16
Alexandria	.15	.26	.15	1.40	1.22	1.42	.09	.26	.08
Cairo	.25	.26	.26	2.77	-	2.77	.19		.20
Ismailia	.44	.28	.60	1.07	1.96	.61	.21	.36	.16
Damietta	.23	.20	.44	1.73	1.74	1.72	.29	.26	.36
Dakahlia	.56	.35	1.18	1.09	1.45	.75	.29	.33	.16
Sub-Total	(.32)	(.30)	(.33)	(1.71)	(1.46)	(1.79)	(.20)	(.31)	(.17)
Sharkia	.58	.30	1.61	2.34	2.97	1.89	.25	.25	.24
Kalyubia	.67	.49	.92	1.13	1.63	.76	.26	.30	.19
Kafr El Sheikh	.42	.20	1.20	1.90	2.00	1.83	.20	.21	.17
Gharbiya	.51	.30	.93	1.10	1.56	.71	.28	.31	.22
Menufiya	.69	.37	1.97	1.46	2.25	.87	.33	.32	.32
Beheira	.48	.25	1.13	1.47	1.80	1.26	.17	.18	.16
Giza	.34	.42	.28	1.94	2.04	1.83	.25	.41	.13
Sub-Total	(.52)	(.32)	(.93)	(1.61)	(2.09)	(1.27)	(.25)	(.27)	(.19)
Beni Suef	.65	.26	1.76	.54	1.66	.02	.62	.61	.66
Fayoum	.84	.36	2.18	.35	.79	.14	.18	.15	.27
Minya	.77	.37	2.15	.66	1.19	.35	.41	.44	.33
Assiut	.71	.41	1.46	2.17	2.36	2.00	.14	.04	.39
Souhag	.29	.09	.97	1.78	1.38	1.92	.18	.14	.35
Qena	.29	1.44	.74	1.23	1.87	.82	.11	.09	.16
Aswan	.23	.13	.27	2.25	1.21	2.85	.54	.11	.23
Sub-Total	(.58)	(.25)	(1.41)	(1.10)	(1.54)	(.86)	(.27)	(.23)	(.34)
Frontier	.46	.17	1.26	1.41	1.43	1.39	.32	.24	.55
Total	(.45)	(.29)	(.70)	(1.46)	(1.81)	(1.26)	(.24)	(.26)	(.21)

Estimated numbers of rural and urban births for each governorate are based on an assumed homogenous CBR of 40/1000 population, and on Hospitals.
Total and rural population estimates provided by the M.O.H. (See Table 888R22)

* M.O.H. Facilities Reporting only
** Excludes 514 referrals to general or speciality

Sources: Department of Primary Health Care in Rural Areas and
Department of Urban MCH Services

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RATIO OF HOME VISITS ANTENATAL + POSTPARTUM
(P.P.) TO ESTIMATED BIRTHS

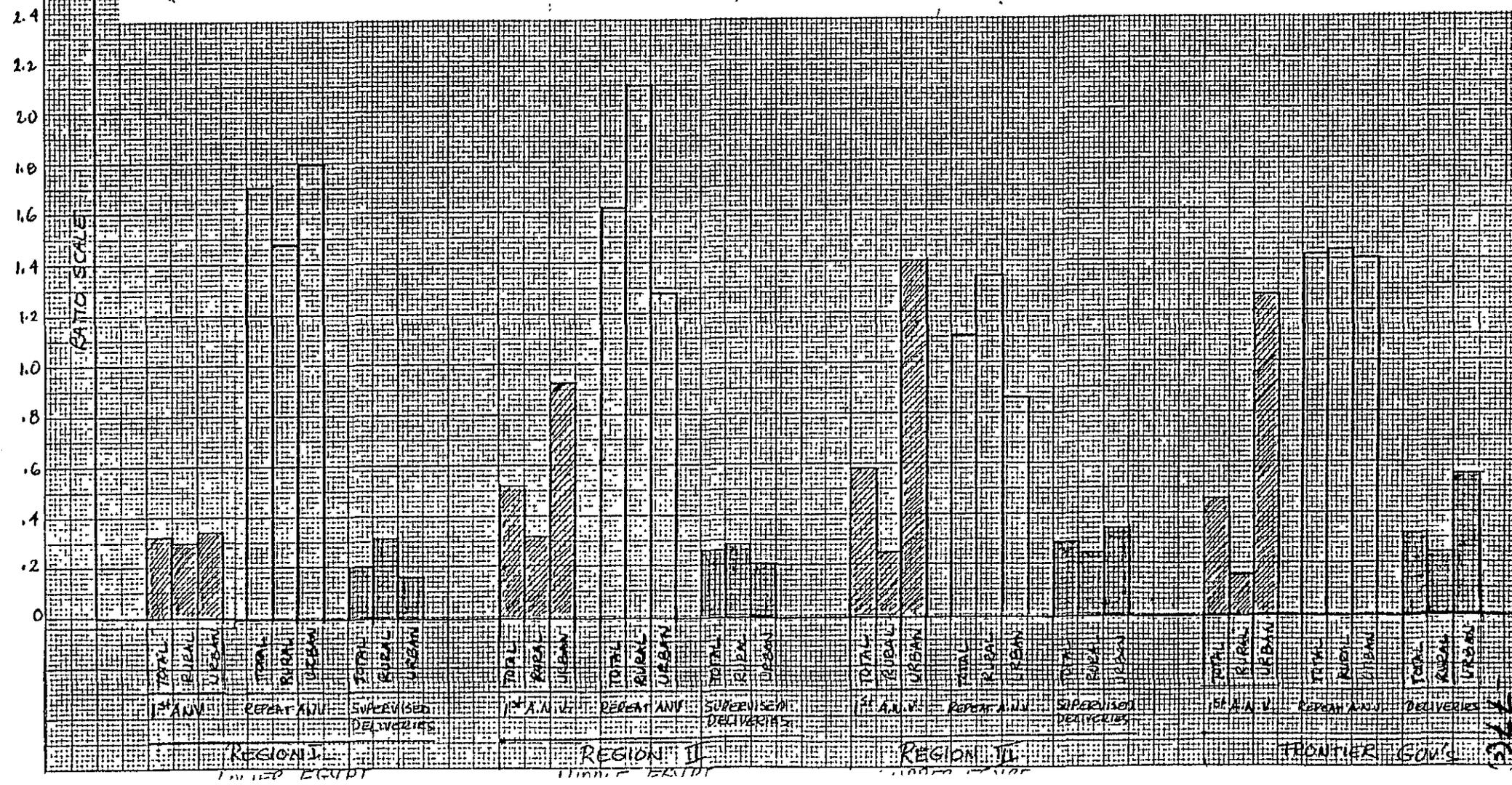
RATIO OF MCH VISITS BY CHILDREN (AGE-0-6) TO EST.
NO. CHILDREN AGE 0-6

	Total Antenatal + P.P. Home Visits Per (EST.) Total No. of Births	Rural Antenatal + P.P. Home Visits Per (EST.) No. of Rural Births	Urban Antenatal + P.P. Home Visits Per (EST.) No. of Urban Births	Total Child Visits (Age 0-6) to MCH Facility Per (EST.) Total No. Children	Rural Child Visits (Age 0-6) to MCH Facility Per (EST.) No. Children Rural Age 0-6	Urban Child Visits (Age 0-6) to MCH Facility Per (EST.) No. Urban Children Age 0-6
Port Said	1.07	.23	1.33	.12	--	6.00
Suez	.24	--	.28	.49	.30	.52
Alexandria	.23	1.40	.15	.25	.26	.24
Cairo	.53	--	.54	.55	--	.56
Ismailia	1.23	1.85	.59	.11	--	.21
Damietta	1.70	1.81	1.42	.52	.27	1.14
Dakahlia	.68	.69	.63	.36	.24	.73
Sub-Total	(.60)	(.96)	(.48)	(.42)	(.24)	(.49)
Sharkia	1.18	1.14	1.36	.62	.38	1.48
Kalyubiya	.37	--	1.28	.29	.31	.26
Kafr El Sheikh	1.09	1.12	.98	.19	.20	.18
Gharbiya	1.56	1.96	.78	.43	.34	.60
Menufiya	2.38	2.53	1.78	.55	.44	.98
Beheira	2.30	1.83	3.65	.51	.37	.93
Giza	1.53	2.88	.53	.24	.05	.04
	(1.52)	(1.82)	(1.26)	(.42)	(.32)	(.63)
Beni Suef	1.59	1.32	2.32	.64	.38	1.37
Fayoum	1.20	1.10	1.46	.25	.15	.53
Mirya	2.23	2.69	.64	.21	.28	--
Assiut	2.05	2.39	1.19	.24	.34	--
Souhag	.89	.69	1.74	.41	.06	1.64
Kena	.68	.64	.76	.22	.11	.53
Aswan	.27	.78	.91	.28	.11	.55
	(1.50)	(1.48)	(1.24)	(.31)	(.20)	(.86)
Frontier	1.89	1.44	3.13	.59	.34	1.27
	(.79)	(1.48)	(.86)	(.39)	(.26)	(.58)

* Home visits for newborn excluded
Because of overlap with postpartum visit

Fig. 4/1 Graphic Presentation of Table 6/10

MOH Reported First Antenatal Visit, Return Antenatal Visits and MOH Supervised Deliveries by Governorate and by Estimated Rural and Urban Populations, Egypt 1980



population estimates or an actual utilization pattern cannot be answered here. In fact, it may be a combination of both.

6.4.5.1.2 Return/Repeat Antenatal Visit is presented here as a ratio to first antenatal visit and hence is independent of the population denominator, but also shows differences between rural and urban utilization. Highest total ratio (1.72) is seen in Lower Egypt and lowest (1.10) in Upper Egypt. In both Middle and Upper Egypt the ratio for rural is considerably higher than for urban.

Considered together, the First A.N.V. and Repeat A.N.V. ratio patterns suggest higher utilization of MCH facilities for antenatal care and higher proportion of repeat visits in rural areas. This pattern of utilization has been documented in a World Bank paper (World Bank, 1978) which states that "on the average there is less than one prenatal visit per mother in urban areas and 1.7 such visits in rural areas."

The MOH Study on Coverage, Effectiveness and Efficiency of the Rural Health Services (Mobarak, et. al., 1980) in 16 rural governorates found somewhat higher ratios of utilization for antenatal coverage, by excluding the urban population component and the rural populations in the predominately urban governorates (1978 data).

One of the evident difficulties in the present analysis results from using two estimated denominators for rural and urban populations. It appears that the urban estimates used here may be too low, which implies that the rural estimate given by the MOH is too high. (For derivation of these estimates see Table 6/22 at the end of this section). Correspondingly, rural utilization ratios may be artificially low.

Antenatal coverage in the MOH study is as follows: An average ratio of (3.0) of repeat visits to first visits; a comparable ratio of (.37) for first visit (registration) antenatal care to registered births; an average of (.36) attended deliveries to registered births; and an average ratio of (5.3) postnatal visits to supervised deliveries. The latter two calculations are not made in this analysis since the focus is on coverage of the larger population at risk rather than on the coverage of those who have entered and are utilizing the system.

6.4.5.1.3 Supervised Deliveries

Total ratios vary somewhat among the regions--Lower Egypt (.20), Middle Egypt (.25) and Upper Egypt (.27) with a total of (.29) for the country. Rural-urban differences are seen in all three regions, but these again may reflect denominator problems.

6.4.5.1.4 Home Visits for Antenatal and Postpartum Care

These visits were combined in order to obtain a stronger measure of coverage. Postnatal visits for newborns were excluded to avoid overlap and double-counting.

The highest ratios of visits are in the rural populations of Middle (1.82) and Upper Egypt (1.48); Lower Egypt with (1.0) again has the lowest ratios in Cairo, Suez and Alexandria (.53, .23, .24 respectively).

These ratios indicate that Rural Health Services are providing on the average at least one pregnancy-birth related home visit; however, considerable variability is seen among governorates. Sohag, Quena and Aswan have ratios as low as the urban governorates of Lower Egypt. Table 6/6 showed very low nurse/physician ratios (0.9 to 1.1) for these particular three governorates. Hence, it stands to reason that home visit ratios should be very low. These three governorates have some of the lowest P.Q.L.I. rankings in Egypt.

Assuming that data and relationships presented here are factual, this finding would document an inequity in primary health services coverage.

6.4.5.1.5 MCH Visits by Children

Total nonimmunization clinic visits per year (1980) for children ages 0-6 as a proportion of total number of children in that age group follows no definitive pattern except that ratios are low (.42) for Upper and Middle Egypt and slightly lower still in Upper Egypt (31). Urban populations in every case show considerably higher ratios of utilization, but no interpretations can be made.

6.4.5.2. Immunization Coverage

Table 6/11 gives coverage ratios of reported immunizations to total estimated births. Here the problems inherent in estimated denominators become most obvious. Several of the governorates have ratios exceeding 1.0; the assumption made here is that the artifact is due to a faulty denominator, rather than to reporting errors. Most likely, closer scrutiny of statistics would reveal some of both.

Given a suspect data base for analysis, interpretations or generalizations pertaining to the actual level of coverage are difficult to make. General observations, nonetheless, can safely be made. For immunizations requiring repeated visits (i.e., Polio and DPT), the expected decrease of subsequent immunizations is evident, though not striking. Total country average ratios for Polio and Triple Vaccine (DPT) immunizations are equal (.79 and .80) for each series.

Lowest ratio levels for Polio and DPT series administered by the MOH are found in Lower Egypt, weighted by very low coverage ratios in the urban governorates of Cairo and Alexandria. It is unlikely that this low immunization level in urban governorates is a data artifact. It may reflect to some extent the documented shortage of appropriate primary health care facilities and the reported lack of knowledge, particularly among in-migrants, about the function of the myriad of health care establishments. While there is great utilization in urban areas of

Selected Immunization Coverage by Governorate
MOH Reported Immunizations (1980) by Estimated Target Populations

Governorate (PQLI Grouping)	DPT 1st Dose, Per Est. No. Births 40/1,000	DPT 2nd Dose, Per Est. No. Births 40/1,000	DPT Completed 3rd Dose, Per Est. No. Births 40/1,000	POLIO 1st Dose, Per Est. No. Births 40/1,000	POLIO 2nd Dose, Per Est. No. Births 40/1,000	POLIO Completed 3rd Dose, Per Est. No. Births 40/1,000	Measles, Per Est. No. Births 40/1,000	B.C.G. Per Est. No. Births 40/1,000
Port Said	.89	.79	.34	.89	.79	.69	.97	.75
Suez	1.16	1.16	.97	1.17	1.13	1.04	.61	1.06
Alexandria	.77	.73	.73	.77	.73	.73	.59	.79
Cairo	.70	.69	.66	.70	.69	.66	.52	.73
Ismailia	.99	.93	.86	1.33	1.16	.86	.67	.89
Damietta	.91	.86	.86	.86	.74	.73	.42	.61
Dakahliya	.81	.79	.79	1.05	1.03	.82	.56	.80
Subtotal	(.77)	(.75)	(.72)	(.84)	(.81)	(.73)	(.55)	(.76)
Sharqiya	.99	.95	.91	1.00	.98	.96	.78	.96
Kalyoubiya	1.08	1.01	.89	1.09	1.01	.98	.62	1.11
Kafr El Sheikh	1.19	.76	.75	.77	.75	.74	.44	.76
Gharbiya	.79	.74	.44	.79	.74	.73	.62	.72
Menoufiya	.94	.91	.91	.95	.91	.91	.84	.96
Beheira	.83	.78	.78	.83	.73	.78	.48	.83
Giza	.92	.91	.90	.92	.91	.89	.79	.95
Subtotal	(.93)	(.87)	(.79)	(.91)	(.86)	(.86)	(.66)	(.90)
Beni Suef	.94	.86	.82	1.56	1.38	.82	.73	1.08
Fayoum	.84	.83	.77	.85	.80	.73	.49	.80
Minia	.96	.91	.87	.99	.76	.73	.70	.81
Assiut	.82	.76	.76	.82	.76	.76	.45	.73
Sohag	.92	.90	.89	.92	.90	.89	.55	.84
Quena	.85	.82	.70	.85	.77	.72	.45	.22
Aswan	.93	.92	2.73	.94	.81	.77	.45	.65
Subtotal	(.89)	(.85)	(.92)	(.97)	(.86)	(.77)	(.56)	(.72)
Frontier	.85	.74	.68	.84	.62	.55	.57	.29
Total	(.88)	(.83)	(.80)	(.90)	(.84)	(.79)	(.597)	(.80)

N.B. Estimated No. of births for each governorate is based on assumed homogeneity of CBR of 40/1000 pop. and the population estimates for 1980 provided by the MOH (See Table ____).

secondary care OPD facilities and private practitioners for curative services, these generally do not provide immunizations.

The MOH study of 16 rural governorates (1978 data) reported a total average ratio of (.88) for completion of polio immunization; (.86) for completion of DPT: (.59) for measles and (.56) for BCG. If the present analysis were to focus on the same rural governorates, the present 1980 ratios would be very similar. As it stands, the inclusion in this analysis of urban populations results in somewhat lower ratios.

Coverage for BCG in this analysis (total population) is considerably higher (.80) than that found by the MOH study (.50) for rural populations, with the highest proportion contributed by Middle Egypt. This finding suggests that greater emphasis may have been placed on BCG immunizations between 1978 and 1980. The overall total ratio of measles immunization is roughly equal to those reported in the MOH Study.

Reliability of immunization reporting is not well studied. The MOH study concluded that sample examination of children for scars of smallpox and BCG vaccination against immunization records gave ratios of (1.0) and (.94) respectively. Another study (Mobarak, Nutting, et al, 1978) found sufficient discrepancy between health record and scar examination to question the reported immunization levels for polio and DPT in a rural implementation project.

Considerable variability in immunization ratios among governorates is documented in the MOH study and is shown in Table 6/11. Since the MOH is aware of the variability in coverage, governorate-specific, or even district-specific immunization targets can be established to further increase what appears to be a relatively good level of immunization coverage.

6.4.5.3 School Health Services Coverage

Only a very superficial analysis can be made of school health services coverage. Data became available only at the end of the assessment, and were incomplete.

According to the World Bank Document on Issues in Population and Human Resources (op. cit., 1981) enrollment rate in school (i.e., registration) averages 73-74 percent of total children ages 6-12. The range is from 60% in some of the rural areas to 87% in urban locations. And, there is a considerable gap between enrollment and actual attendance. Hence, coverage statistics concerning periodic medical examination of children automatically exclude about 25% of this target population. With dropout and other nonattendance, the population screened is further reduced. Although the School Health Program makes efforts to also examine non-attenders, there was no documentation of their success at this.

At present continuous examination is done for each cohort entering the first and fourth grades of primary school, and for those entering preparatory and secondary schools. Available statistics on the number of examinations completed during 1980 combine all of these children. The primary school group, of greatest interest to this analysis, could not be broken out.

Appended Table 6/12 indicates that about 25% of all school children (primary, preparatory and secondary) are examined each year and of those 27 to 40% are referred for some form of treatment (no details available). This figure could indicate considerable prevalence of health problems in the school age population. (See Appendix to HSA Epidemiology Report.) Table 6/12 is of further interest in that it shows the overcrowded condition of schools--if all those registered were attending.

Major problems in delivery of school health services are reported by the School Health Services Department. Predominant are: 1) Lack of transport to take an entire team from school to school. (Magnitude of coverage and quality of screening are directly affected. Team members arrive separately; there is no control to insure the physicians' actual visits, and the laboratory technician frequently works without supervision.) 2) Lack of the simplest diagnostic equipment, such as functioning microscopes, slides and test tubes.

Given the magnitude of increase with each cohort entering school age and school, delivery of School Health Services will require planned resource allocations in order to maintain the present level of coverage. While coverage among new school attenders is reported to be fairly high--(.81) reported for the rural governorates by the MOH study--it is low if one takes into consideration the entire eligible school-age target population.

6.4.5.4 Other Utilization of Health Services

6.4.5.4.1 Rural Health Services Outpatient Visits (Non-MCH)

As discussed earlier, the absence of population denominators prohibits coverage and utilization analysis in relation to specific identified health needs. Rural Health Services reporting, however, is quite comprehensive, and permits some examination of services activities related to schistosomiasis for the population over age six. Attempts were made to refine the population denominator further by removing the school-age population for each governorate, but this could not be done. Table 6/13 gives volume of first visits, repeat visits, schistosome positive patients, and ratios of services to population.

The ratio patterns of all "first visits" (not well-defined by MOH) to Rural Health Units, Centers and Hospitals over the total estimated rural population shows greatest utilization in Middle Egypt and lowest in Upper Egypt, with an average of (.56) for the rural population of the entire country. Total volume of rural non-MCH visits to primary care facilities

TABLE 6/12

SCHOOL HEALTH PERIODIC EXAMINATION RATES FOR REGISTERED* SCHOOL CHILDREN
(PRIMARY, SECONDARY AND PREPARATORY) BY SELECTED GOVERNORATES

Governorate (P.Q.L.I. Grouping)	Est. Total No. Children Ages 6 - 12*	No. Children Registered Primary School	No. of Primary Schools	Percent of Estimated Children Registered	Ratio: Avge. No. Registered Children Per No. of Schools	No. Periodic Examinations to Primary School Children	Ratio: No. of Examinations for Primary#, Secondary & Prep. School Children	Ratio: No. of Referrals to No. of Examinations
Port Said	-	-	-	-	-	-	-	-
Suez	-	-	-	-	-	-	-	-
Alexandria	374,898	324,560	351	86.6	706.0	N.A.	.23	.41
Cairo	762,726	672,752	1,191	88.2	564.9	N.A.	.26	.31
Ismailia	-	-	-	-	-	-	-	-
Damietta	-	-	-	-	-	-	-	-
Dakahlia	387,864	256,490	191	66.1	1,342.9	N.A.	.26	.35
Sharkiya	-	-	-	-	-	-	-	-
Kalyoubiya	259,716	243,091	143	93.6	1,699.9	N.A.	.26	.44
Kafr El Sheikh	-	-	-	-	-	-	-	-
Gharbiya	347,070	283,577	173	81.7	1,639.2	N.A.	.25	.28
Menoufiya	260,820	233,002	112	89.3	2,080.4	N.A.	.25	.46
Beheira	-	-	-	-	-	-	-	-
Giza	373,980	316,315	200	84.6	1,581.5	N.A.	.22	.31
Beni Suef	-	-	-	-	-	-	-	-
Fayoum	-	-	-	-	-	-	-	-
Minia	-	-	-	-	-	-	-	-
Assiut	-	-	-	-	-	-	-	-
Sohag	294,768	194,092	121	65.8	1,604.1	N.A.	.50	.44
Quena	-	-	-	-	-	-	-	-
Aswan	94,392	94,956	60	100.6	1,582.6	N.A.	.26	.43
Frontier	-	-	-	-	-	-	-	-
TOTAL	(5,604,318)	(4,548,058)	(4,591)	(81.2)	(960.6)	N.A.	N.A.	N.A.

* Estimate = (Est.) No. children 0-12 less (Est.) No. children 0-6.

#The breakdown for periodic examinations of primary school children was not available

** Registration does not indicate school attendance. Estimates of difference between attendance and registration was not available

Enumerations: From Department of School Health Services, and Department of Statistics, M.O.H., 4/82.

TABLE 6/13
 MOH RURAL HEALTH SERVICES (RHW, RHC, RHH) ACTIVITIES PROFILE
 (EXCLUDING CHILDREN UNDER AGE 6) 1980

	Ratio Visits to Est. Rural Pop. over Age 6	Ratio Repeat (All) Visits to First Visits*	Ratio All Lab Tests to Total Visits	Schistosoma Positives (All)		Volume Of Clinic Visit			Schisto. (All) Positives (First Visit)
				Ratio Positive to First Visits	Ratio Lab Re-exami- nations After Treatment	New First Visits	Repeat Vists	Total	
Port Said	.05	.48	1.21	.16	1.03	2,576	1,259	3,835	439
Suez	-	-	#	#	.36	#	-	#	2,272#
Alexandria	.78	.34	.37	.01	.11	110,967	38,791	149,758	1,263
Cairo	-	-	-	-	-	-	-	-	-
Ismailia	.18	1.54	1.23	.78	.20	29,378	45,290	74,668	22,844
Damietta	.88	.50	.23	.10	.37	330,633	166,966	497,559	33,557
Dakahliya	.53	.18	.89	.25	.20	985,532	181,469	1,167,001	247,494
	(.55)	(.29)	(.69)	(.22)	(.21)	(1,459,086)	(433,775)	(1,892,821)	(319,219)
Sharqiya	.53	-	1.21	.17	.28	1,009,587	-	1,009,587	174,681
Kalyoubiya	1.21	.04	.48	.05	.11	1,148,889	4,561	1,153,450	55,841
Kafr El-Sheikh	.91	.03	.88	.55	.09	914,576	22,960	937,536	505,916
Gharbiya	.78	.05	.50	.12	.07	1,082,755	46,165	1,128,920	127,133
Menoufiya	.74	.57	.84	.16	.29	910,946	52,125	963,071	149,690
Beheira	.68	.02	.76	.19	.13	1,136,537	24,841	1,161,378	218,315
Giza	.94	.01	.70	.12	.20	878,291	5,357	883,684	93,230
	(.78)	(.03)	(.88)	(.22)	(.10)	(6,071,994)	(156,009)	(6,228,003)	(1,324,806)
Beni Suef	.35	.71	1.10	.38	.25	262,737	187,106	449,843	99,674
Fayoum	.64	.25	.67	.18	.09	507,748	26,472	534,220	91,488
Minia	.50	.15	.98	.26	.18	727,328	107,798	835,126	191,354
Assiut	.55	.01	.71	.20	.09	608,895	1,398	610,239	119,710
Sohag	.38	.15	.86	.28	.17	521,296	47,907	569,203	148,074
Quena	.39	.15	1.16	.38	.06	458,985	8,546	467,531	174,458
Aswan	.69	.01	.75	.07	.07	242,382	784	243,166	16,436
	(.45)	(.15)	(.94)	(.27)	(.27)	(3,129,371)	(480,011)	(3,609,382)	(841,194)
Frontier	.62	.31	.27	.01	.12	132,447	40,393	172,840	957
	(.56)	(.15)	(.85)	(.23)	(.15)	(10,792,898)	(1,110,188)	(11,903,086)	(2,486,176)

* Treatment modalities are of various types, so that no assumption can be made that revisits are indicated.

Illustrates incomplete reporting problems: Reporting for Schistosoma treatment, but not for total volume of first and repeat visits.

Data Source: DEPARTMENT OF PRIMARY RURAL HEALTH SERVICES, MOH, 3/82.

comprises 53 percent of Rural Health Services volume and 22 percent of the MOH services volume. One may safely assume that different segments of the population utilize Rural Health Services to varying degrees and some not at all.

The Institute of Medicine Study (1979) reported that an MOH official estimated that 30 percent of the population uses the MOH system at least once during a year. MOH officials now suggest that so low an estimate is incorrect, and that perhaps 60-70 percent of the population may utilize an MOH facility at least once per year. No assumptions can be made here about the coverage of the non-MCH population by the Rural Health Services.

Ratios of laboratory examination to first visits follow the geographic pattern of parasite burden that has been identified, but the pattern of all schistosome positives to first visit is constant for Lower and Middle Egypt and slightly higher for Upper Egypt. To what extent this picture reflects utilization of alternative treatment facilities is not known.

The ratios of laboratory examination following treatment are low, but no judgments can be made in terms of utilization behavior or quality of services provided. MOH officials explained that treatment modalities are varied and therefore no assumptions about indications for revisit or reexamination should be made. Hence, a high ratio of return visits to first visits could either indicate ineffective initial treatment or appropriate utilization through compliance with indicated revisit for follow-up treatment.

Although no definite statement can be made about either utilization or coverage, Table 6/13 documents MOH efforts to provide services coverage--i.e., laboratory screening and treatment--for one of the major identified health problems.

6.4.5.4.2 Utilization of MOH Secondary Care Facilities for Outpatient Services

A final perspective on outpatient utilization patterns concerns the MOH's major secondary care facilities with outpatient department (OPD) clinics--General and District Hospitals, Fever Hospitals and Endemic Diseases Hospitals. These facilities contribute about 22 percent of the total outpatient volume of the MOH, as shown in Table 6/18 at the end of this section.

Governorate-level disaggregated reporting for these three types of facilities, used for Table 6/14, is about eight percent lower than the aggregate centrally reported volume for the same facilities seen in Table 6/18 at the end of this section.

OPD services volumes are equal to those of the non-MCH Rural Health Services, but utilization ratios for the hospital OPD's are considerably lower since their denominators are total governorate populations. In

TABLE 6.14

UTILIZATION AND WORKLOAD ESTIMATES OF SELECTED MDH
SECONDARY CARE FACILITIES, 1980*

Governorates (PQLI Grouping)	Total No. OPD Visits 1980	Inpatient Admissions 1980	No. of Hospitals	Ratio No. Hospital To Est. Population (100,000)	Ratio No. Inpatient Admissions To Est. Population	Ratio No. OPD Visits To Total EST. Population	Ratio Total Patient Volume To EST. No. Assigned Physician Workdays**
Port Said	239,782	46,533	5	1.75	163.3	.84	6.10
Suez	126,150	17,061	2	.92	78.6	.58	5.76
Alexandria	684,086	56,158	8	.32	22.3	.27	1.66
Cairo	1,352,408	92,819	16	.29	16.8	.24	3.29
Ismailia	163,724	12,235	6	1.50	30.6	.40	5.86
Damietta	166,321	29,292	10	1.57	46.0	.26	4.58
Dakahlia	672,649	52,238	17	.56	17.3	.22	4.77
Sub-Total	(3,369,120)	(305,765)	(64)	(.51)	(24.2)	(.26)	(3.79)
Sharkia	658,874	48,291	16	.55	16.7	.23	6.16
Kalyubia	774,454	37,789	17	.89	20.1	.41	8.87
Kafr El Sheikh	587,563	36,470	9	.58	23.3	.38	8.09
Gharbia	824,853	75,560	19	.76	30.0	.33	5.41
Menufia	867,748	51,135	12	.63	27.0	.46	18.54
Beheira	1,000,946	38,468	19	.69	14.0	.36	10.20
Giza	1,129,864	88,694	13	.48	32.7	.42	4.78
Sub-Total	(5,844,320)	(376,387)	(105)	(.65)	(23.2)	(.36)	(7.30)
Beni Suef	370,490	30,982	10	.81	25.1	.30	8.34
Fayoum	460,173	27,749	6	.47	21.6	.36	9.13
Minya	607,575	46,255	16	.69	20.0	.26	8.00
Assiut	591,335	44,982	17	.90	23.8	.31	4.01
Sohag	672,305	37,848	18	.84	17.7	.31	8.33
Quena	455,624	26,834	16	.85	14.2	.24	8.98
Aswan	274,199	23,285	9	1.32	34.0	.40	13.24
Sub-Total	(3,431,170)	(237,935)	(92)	(.83)	(21.0)	(.30)	(7.30)
Frontier	241,514	12,665	12	3.37	35.6	.68	11.18
TOTAL	(12,886,124)	(932,756)	(273)	(.67)	(22.9)	(.24)	(4.49)

* Includes General + District Hospitals, Infectious Diseases (Fever) Hospitals, Endemic Diseases Hospitals and their clinic facilities. Data were obtained from each of the MDH Services/Reporting Sectors (Curative Services, Preventive Services, and Endemic Diseases Services. OPD Visits Reporting from Fever Hospitals was estimated by that Department to be only 65-70% complete.)

** The helpful suggestion for this measure of comparison among Governorates and the enumerations of assigned physicians by type of facility came from the MDH, Department of Statistics, 3/82.

general, utilization of hospital OPD's roughly follows the same pattern as that of Rural Health Services--highest in Middle Egypt, lowest in Upper Egypt. MOH officials explain that lower utilization of these hospitals (for example Cairo, Alexandria, Dakahliya) can in many cases be related to the accessibility of a University Teaching Hospital or an Educational Hospital. These are the preferred services establishments for self-referral.

It appears that the volume of outpatient clinic visits is a result of the "by-pass syndrome," so-called because patients enter the health care system at the secondary and tertiary level, as noted in the discussion of Tertiary Care Facilities.

The high utilization in Port Said is said to be an aberrant phenomenon. As a Free Zone, Port Said receives large numbers of transients and immigrants who apparently avail themselves of services not available elsewhere.

6.4.6 Overview of Facilities Coverage and Services Utilization Patterns

As a sideline Table 6/14 illustrates an overview of the apparent relative inequity in physician workload. The individual ratios are not meaningful since they are calculated on the basis of the total number of assigned physicians and include medical staff not directly providing outpatient care.

Table 6/15 presents a summary overview of some utilization measures in relation to geographic facilities coverage. The distribution for each ratio was divided into three groups following natural breaks in the distribution to identify relatively high, medium and low ranges for each geographic region. Regional total ratios are given for each measure. Since multivariate analysis could not be undertaken in the limited time available, this table serves here to illustrate some noteworthy general patterns.

- a) MOH officials had pointed out an urban utilization pattern which is verified here. Cairo and Alexandria both have low geographic coverage by primary care facilities, and limited access to MOH secondary facilities, with relatively high access to governmental tertiary facilities,(i.e., University Teaching and Educational Hospitals). Thus, data indicate low utilization of primary and secondary facilities which complement the demonstrated high utilization of tertiary facilities concentrated in these areas.

Port Said and Suez, in contrast, where access to primary and secondary facilities is higher, show high utilization of secondary facilities. Port Said also has high use of primary care facilities for immunization and antenatal services, but suggests that women are seeking other MCH services elsewhere.

APPENDIX TABLE 6/15

SUMMARY TABLE SHOWING DISTRIBUTION OF GOVERNMENT FACILITIES AND UTILIZATION BY REGIONAL TOTAL RATIOS AND RATION RANGES BY GOVERNORATE

Regions and Governorates (P.Q.L.I. Grouping)	MCH SERVICES UTILIZATION												Rural Services OPD Visits (Non-MCH)	Selected Secondary Facilities OPD Visits	
	Open Access Public Facilities			MCH Services Utilization/Coverage				Immunization Coverage			BOG to Total No. Est. Births	First Visits to Total Est. Rural Population			Total OPD Visits to Total Est. Population (General & District Hosp., Fever & Endemic Hospitals & Clinics)
	MCH Primary Care Facilities Per 5,000 Population	MCH Secondary Care Facilities Per 100,000 Population	Govt. Tertiary Core Facilities Per 100,000 Population	First A.N.V. to Total No. Est. Births	Return A.N.V. to Total No. Est. Births	MCH Supervised Deliveries to Total No. Est. Births	Antenatal And Postpartum MCH Visits to Total No. Est. Births	Child (0-6) Visits to Total No. Est. Births	Completed D.P.T. to Total Est. No. Births	Completed Polio to Total Est. No. Births					
Region I															
Port Said		High	-	High	Low	High	Low	Low	Low	Low	High	High	Low	High	
Suez	High	High	-	High	Low	Low	Low	Low	High	High	High	High	-	High	
Alexandria	Low	High	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	-	High	
Cairo	Low	Low	High	Low	High	Low	Low	Low	High	Low	Low	Low	-	Low	
Ismailia									Low				Low	Low	
Damietta	High		-	Low					High		Low	Low	High	Low	
Dokkiya		Low		Low		Low					Low	Low	Low	Low	
Sub-total	(.42)	(2.14)	(.22)	(.32)	(1.71)	(.20)	(.60)	(.42)	(.72)	(.73)	(.55)	(.76)	(.55)	(.26)	
Region II															
Sharqiya					High			High	High	High	High	High	Low	Low	
Kalyoubiya				High			Low	Low	High	High	High	High	High	High	
Kaf El Sheikh		Low	-					Low	Low	Low	Low	Low	High	High	
Cherkiya								High	High	High	High	Low	Low	High	
Matrouh		Low		High		High	High	High	High	High	High	High	High	High	
Behira		Low		Low		Low	High	High	High	High	High	High	High	High	
Giza	Low	Low	High	Low	High			Low	High	High	High	High	High	High	
Sub-total	(.62)	(1.76)	(.10)	(.52)	(1.61)	(.25)	(1.52)	(.42)	(.79)	(.86)	(.66)	(.90)	(.78)	(.36)	
Region III															
Beni Suef	High		-	High	Low	High						High	Low		
Fayoum		Low		High	Low	Low				Low	Low		Low		
Minia				High	Low	High	High	Low		Low	Low		Low		
Assiut			Low	High	High	Low	High	Low			Low		Low		
Sohag			Low	Low	Low	Low	Low	Low			Low		Low		
Qena		Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Awan	High	Low		Low	High	High	Low	Low	High	Low	Low	Low	Low	Low	
Sub-total	(.70)	(2.31)	(.04)	(.58)	(1.10)	(.27)	(1.50)	(.31)	(.92)	(.77)	(.56)	(.72)	(.45)	(.20)	
Frontier															
Frontier	High	High	-			High		High	Low	Low		Low			
Total	(.59)	(1.79)	(.12)	(.45)	(1.46)	(.24)	(.79)	(.39)	(.80)	(.79)	(.59)	(.80)	(.56)	(.24)	
High Range	=(.75+)	High Range = (3.0+)	High Range = (.25+)	High Range = (.60+)	High Range = (1.9+)	High Range = (.30+)	High Range = (1.9+)	High Range = (.50+)	High Range = (.90+)	High Range = (.73+)	High Range = (.90+)	High Range = (.80+)	High Range = (.50+)	High Range = (.50+)	
Low Range	=(less than .50)	Low Range = (less than 2.0)	Low Range = (less than .1)	Low Range = (less than .40)	Low Range = (less than 1.1)	Low Range = (less than .20)	Low Range = (less than 1.0)	Low Range = (less than .25)	Low Range = (less than .75)	Low Range = (less than .50)	Low Range = (less than .75)	Low Range = (less than .60)	Low Range = (less than .50)	Low Range = (less than .30)	

Ratios for Facilities from Tables 88834A, 88835C, 88836A. Ratios for MCH Services from Table 88845A, Immunization from Table 88844A, Rural OPD Utilization Ratios from Table 88853B and Utilization of MCH Secondary Care Facilities from Table 88844B. High and low ranges were set by grouping each ratio distribution into 3 groups following natural breaks in the distribution. Since the ratios are based on estimated population denominators and on unreliable services reporting, these range groupings as well as the ratios must remain tentative.

- b) There appears to be great variability among regions and governorates in utilization which cannot be explained in terms of geographic coverage/access by facilities alone. Governorates with relatively high coverage by primary facilities show varying utilization patterns. Whereas Suez has high immunization and antenatal visit utilization, Damietta appears to have high primary facilities utilization for child and adult curative services through rural facilities. Preventive services are least represented.

Beni Suef and Aswan, both with high access to primary care, show no discernible patterns.

- c) Among governorates with medium access to primary care Menoufiya and Sharqiya appear to have relatively high utilization of preventive services. Other governorates - Kafr El Sheikh, Giza, Sohag, Quena and most of the Region III governorates (Upper Egypt) show consistently low utilization of child services and immunization coverage with varying levels of maternal services utilization. In this region, the relatively low use of basically curative primary care services (child visits and rural OPD) is particularly striking.

These varying utilization patterns indicate that geographic coverage, accessibility of services alone explains only one dimension of utilization behavior. For example, the relatively high home visiting for antenatal and postpartum care in Minia and Assiut testify to some degree of community outreach, that appears to be reflected in higher overall utilization of maternal care services, but is not reflected in higher child care and immunization behavior.

6.5 Summary Observations on Utilities and Coverage

In summation, this analysis essentially verifies what is already known. While, geographic/population coverage by primary care facilities is relatively good in rural areas, nonetheless, utilization of MCH services is relatively low.

Service facilities were found relatively accessible, with distances on the average of 1 to 4 kilometers. Availability of services, however, is difficult to assess. Survey data from the WHO/EMRO study (Hassouna, 1981) and from numerous anecdotal findings suggest that availability of services--i.e., clinic schedules and hours, staff availability, may be considerably less than required to motivate women to take a trek of even one kilometer, unless they have no alternative. Acceptability of the services, of staff, and perceived quality of services is most certainly an important factor in utilization, but cannot be included in this analysis. The reader is referred to the HSA Report on "Users' Perspectives".

Services are essentially clinic-based, and though the services delivery model provides for outreach activities, patients in effect are expected to come to the services. The WHO/EMRO survey found that for most part the units sampled did not provide a regular and comprehensive outreach program; three-fourths make home visits "on request." This relative absence of home visits was also documented by the baseline and follow-up surveys of the Strengthening Rural Health Services Project. Successful home visiting has been demonstrated in relation to the oral rehydration program in Egypt as an unquestionably successful mechanism for health behavior change and improved services delivery. The experience of many countries has shown that the clinic-based pattern of services delivery with negligible outreach generates minimal coverage of the population. Most countries faced with similar situations have found that coverage becomes effective when services are taken into the communities and when traditional "clinic days" are integrated into one integrated comprehensive service.

In view of the problems inherent in the services and data and of the tentative and crude population denominator estimates used in this assessment, further and more precise analyses of these data are not warranted without further verification of data quality. It is recommended here, however, that such analyses be undertaken with more scientifically determined population estimates, to the extent that the basic services data can be refined and verified. Such analyses would need to be complemented with a sample survey of facilities to assess services content and check the availability and suitability of services delivery to target population needs.

In summation, utilization and coverage, to the extent they can be analyzed, appear to vary considerably among regions and governorates. Staffing, services patterns, accessibility and acceptability of services are all contributing factors. Time constraints precluded further synthesis of utilization patterns and other findings as summary tables.

Self-referral to OPD clinics is clearly one of the major problems facing health services delivery. Conversely, the relatively low utilization of primary care services is rather discouraging. Both patterns have been seen here. Regretfully, what this analysis has not been able to document or explain is what transpires between the onset of a complaint and the patient's appearance at an OPD clinic and other facility. Three studies of self-referral to OPD facilities in Alexandria found that between 1/3 to 2/3 or more of patients had indeed sought prior care elsewhere (El Waraf, et al, 1978; Kamel, 1980; Kamel 1978).

The third of these studies addressed antenatal care and found that utilization of MCH facilities is related to low income. This study and the Helwan study (op. cit.) documented utilization of private practitioners. Taken together, these studies and the findings reported in the HSA Report on Users' Perspectives, suggest that the "by-pass" phenomenon is part of a broader and more complex pattern of utilizing

multiple sources of care for treatment of an illness, implying also considerable cumulative expenditures for an illness and duplication of services.

The writer concludes that while accessibility of services is a major factor in utilization of services, the content of services delivery (i.e. availability and acceptability in terms of quality and consumer expectations) is probably a stronger determinant of service choice. Geographic access to preventive and curative facilities is only the first step to achieving coverage and utilization. Content and form of these services must be tailored to better meet the needs of Egypt's health services consumers.

TABLE 6/16

ESTIMATED DISTRIBUTION OF CLINIC VISITS BY TYPE OF CLINIC
AND SERVICES SECTOR, 1980

<u>Sector</u>	<u>Outpatient Vistis</u>		<u>Total Visits</u>
	<u>Primary Care Facilities/ Free Standing Clinics</u>	<u>Hospital OPD Hospital Clinics</u>	
MOH	30.0	21.0	51.0
Universities	-	3.5	3.5
Educ. Hospitals	-	2.7	2.7
MSA	1.0	-	1.0
Public Sector*	5.0	5.0	10.0
Private Sector	28.7	1.3	30.0
	65.0	33.5	98.2**

* The actual numbers of free standing vs. OPD clinics could not readily be determined. GHIO has a large number of free standing clinics in industrial facilities, as well as clinics attached to their hospitals. The Curative Organizations also has both types. For purposes of this analysis an assumption of 50% for each type was made.

** 1 million estimated visits for the Ministries of Interior and Defense were excluded since no information was available.

Table 6/16

Distribution of Private Health Facilities by Governorate

Governorate (P.Q.I.L. Grouping)	Private Clinics (non-licensed; may include both G.P. and specialities)*	Private Group Clinics (licensed, registered primarily specialists **	Private Hospitals (licensed, registered) ***	Convalescent Institutes (non-licensed non registered)
Port Said	100	10	4	
Suez	100	7	4	
Alexandria	2,000	54	18	
Cairo	5,300	228	86	
Ismailia	150	-	2	
Damietta	200	2	2	
Dakahliya	600	29	10	
Sub-Total	8,450	330	126	
Sharkiya	400	1	55	
Kalyubiya	150	9	6	
Kafr El Sheikh	100	2	2	
Gharbiya	400	2	8	
Menufiya	150	8	5	
Beheira	400	2	8	N.A.
Sub-Total	2,600	86	129	
Beni Suef	100	4	5	
Fayoum	400	3	7	
Minya	150	2	3	
Assiut	150	11	-	
Souhag	100	15	1	
Kena	100	8	1	
Aswan	100	9	2	
Sub-Total	1,100	52	19	
Frontier	60	10	6	
Total	12,210	478	280	N.A.

Source: Director General of Non-Governmental Health Institutions. Estimate for Private Clinics is said to be based on the Health Profile of Egypt Survey (HPE).

* Defined by law as a "place where a doctor examines and treats patients". It is expected that with implementation of the Registration law this number will drop considerably.

** May have up to 5 beds.

*** 5 beds or more.

APPENDED TABLE 6/17MOH REPORTINGHEALTH ACTIVITIES*

1980

<u>Units</u>	<u>Outpatients</u>	<u>Inpatients</u>
General & District Hospitals	14 802 933	783 938
Chest disease hospitals & dispensaries	1 319 254	20 345
Mental & psychiatry	311 695	11 812
Eye disease hospitals	3 705 434	35 375
Infectious disease hospitals	1 175 554	193 912
Endemic disease hospitals	2 788 426	6 383
School health hospitals, polyclinics and units	3 442 710	11 124
Skin disease hospitals	1 824 000	451
Maternity & child health centers	2 471 122	20 672
Rural health hospitals and centers	7 689 866	17 924
Rural health units	12 652 503	-
	(52,113,467)	
Dental Units	2 812 434	-

Ministry of Health, General Department of Statistics and Research, Basic Statistical Information of Health Services, July 1981.

Volume of Activities double-counts volume of visits to an unknown extent. Urban health center activities is incomplete. Reporting of MCH centers overlaps with urban and rural facilities activities.

TABLE 6/18
ESTIMATED VOLUME OF PATIENT CARE PROVIDED BY
MINISTRY OF HEALTH SERVICES
1980

<u>Services Sector and Units</u>	<u>No. Outpatient Visits</u>	<u>No. In-Patient Admissions</u>
<u>1. Curative Care & Treatment Sector</u>		
- General & District Hospitals	9,119,621 *	NA
- Speciality Hospitals: Chest, Mental, Ophthalmic	5,336,338 *	NA
Subtotal	14,455,959 *	742,746 *
- Skin Disease Hospitals	1,824,000	457
Total	16,279,959	743,197
<u>2. Preventive Affairs Sector</u>		
Infectious (Fever) Hospitals	2,035,145 *#	179,388 *
<u>3. Basic Health Care and Family Health Sector</u>		
- Endemic Disease Hospitals	2,783,426	6,383
- School Health Hospitals, + Other Units	3,442,710	11,124
- Maternity and Child Health Centers	2,471,122	20,672
- Rural Health Hospitals, Centers, and Rural Health Units	21,785,315 *	17,924
<u>4. Dental Medical Sector</u>		
- Dental Units	2,812,434	-
Total	51,610,156	978,688

Note: (*) Indicates that statistics were obtained directly from the reporting services sector. All other figures are from the Department of Statistics and Research of the MOH. This table has eliminated some of the double counting and overlap in hospital volume reporting (See Source: Appended Table 888R11) Overlap in reporting of Maternity and Child Health Centers, Rural Health Facilities could not be eliminated. (#) centrally reported visits. Department of Fever Hospitals states that this figure represents incomplete reporting. If all OPD visits were reported, the total would be about 2,700,000 visits.

TABLE 6/19
DISTRIBUTION OF PRIMARY HEALTH CARE FACILITIES BY SECTOR (1981)(1)

Governorates (QLI Grouping)	MINISTRY OF HEALTH FACILITIES										Other	SUB-	SUB-	POPULATION DENOMINATORS		
	Rural Health Units	Rural Health Hospitals	Rural Health Centers	Urban Health Centers	Urban MCH Centers (8)	Urban School Health Units (8)	Dental Units (7)	Urban Health Bureaus	Health Education Centers (6)	TB Screening Units (5)	Ministries (MSA, MOD, MOI) (3)	Public Sector G.P. Clinics (2)	Private Sector Estimate (1)	Ministries and Public Sector	Est. Total in 5000's (4)	Population in 100,000
Port Said	3	-	-	1	3	5	16	5	1	2		1	100	37	57.0	2.85
Suez	6	-	-	1	6	6	16	8	1	2		1	100	47	43.4	2.17
Alexandria	17	-	2	3	11	14	50	26	6	2		17	2,000	48	504.2	25.21
Matruh	4	-	1	8	34	26	57	65	8	9		7	5,300	219	1105.4	55.27
Matruh	20	1	-	4	5	5	16	5	-	2		1	150	59	80.0	4.00
Matruh	37	4	6	6	8	10	31	8	1	1		-	200	112	127.4	6.37
Matruh	185	4	59	-	11	14	90	22	7	5		1	600	398	605.6	30.28
Sub-Total	(272)	(9)	(68)	(23)	(78)	(80)	(276)	(139)	(24)	(23)		(28)	(8,450)	(1,020)	(2,423.0)	(126.15)
Matruh	183	-	49	2	16	17	87	21	4	2		1	400	382	580.0	29.00
Matruh	75	2	29	11	9	11	74	14	5	2		1	150	233	376.4	18.22
Matruh	107	3	22	1	8	8	45	10	5	1		1	100	211	312.6	15.63
Matruh	131	3	37	1	13	10	97	15	5	1		3	400	316	503.0	25.15
Matruh	119	2	41	1	10	8	66	11	2	1		1	150	262	378.0	18.90
Matruh	182	2	44	2	21	16	95	19	4	2		1	400	388	551.2	27.56
Matruh	92	1	27	-	10	9	50	19	6	4		-	1,000	218	542.0	27.10
Sub-Total	(889)	(13)	(249)	(18)	(87)	(97)	(514)	(109)	(31)	(13)		(8)	(2,600)	(2,010)	(3,243.2)	(162.16)
Beni Suef	81	2	27	1	10	9	55	10	9	5		1	100	210	246.8	12.34
Fayoum	71	4	24	3	7	7	48	8	1	1		1	400	175	256.4	12.82
Matruh	145	3	44	5	10	11	65	15	2	2		1	150	303	461.6	23.08
Assuit	95	2	33	1	10	11	72	16	7	4		1	150	252	378.0	18.90
Sohag	120	1	42	1	12	10	70	16	6	3		1	100	282	427.2	21.36
Quena	111	2	38	6	10	11	64	11	2	5		-	100	260	378.0	18.90
Aswan	59	1	19	1	7	4	31	7	2	2		-	100	133	136.8	6.84
Sub-Total	(682)	(15)	(227)	(18)	(66)	(63)	(405)	(83)	(29)	(22)		(5)	(1,100)	(1,615)	(2,286.6)	(110.77)
Frontier	55	4	5	2	7	13	64	20	6	1		-	60	177	91.2	3.56
TOTAL	(1,898)	(41)	(549)	(61)	(238)	(235)	(1,259)	(351)	(90)	(59)		(41)	(12,210)	(4,822)	(8,044.0)	(406.2)

MOH Facili- ties	RATIOS PER 5,000 POPULATION			SUBTOTAL RATIOS PER 100,000 POP.		TOTAL RATIO	
	Public Sector Facili- ties E s t i m a t e d 5 , 0 0 0	Private Sector Facili- ties	MOH & Public Sector Facilities	Public Sector Facili- ties Est. 100,000	Private Sector Facili- ties 100,000		
	.63	.02	1.75	.65	12.98	35.08 ¹	48.1
	1.06	.02	2.13	1.08	17.05	46.08	67.7
	.26	.04	3.97	.29	5.87	79.33	81.2
	.19	.01	4.79	.20	3.96	95.89	99.9
	.73	.01	1.85	.74	14.75	37.50	52.3
	.88	-	1.57	.88	17.58	31.39	48.9
	.64	.002	.99	.66	13.14	19.81	32.9
	(.41)	(.01)	(3.49)	(.42)	(8.09)	(66.48)	(75.1)
	.66	.002	.69	.66	13.17	13.79	26.9
	.62	.003	.40	.62	12.38	8.23	21.0
	.67	.003	.32	.68	13.50	6.39	19.9
	.62	.006	.79	.63	12.57	15.90	28.5
	.69	.003	.39	.69	13.86	7.93	21.8
	.70	.002	.73	.70	14.08	14.51	28.6
	.40	-	1.85	.40	8.04	36.90	44.9
	(.62)	(.002)	(.80)	(.62)	(12.39)	(16.03)	(28.4)
	.85	.004	.41	.85	17.02	8.10	25.1
	.68	.004	1.56	.68	13.65	31.20	44.9
	.65	.002	.32	.66	13.13	6.49	19.6
	.66	.003	.39	.66	13.33	7.93	21.3
	.66	.002	.23	.66	13.20	4.68	17.9
	.68	-	.26	.68	13.76	5.29	19.0
	.97	-	.73	.97	19.44	14.61	34.1
	(.70)	(.002)	(.48)	(.70)	(14.58)	(9.93)	(15.7)
	1.94	-	.66	1.94	49.72	16.85	66.5
	(.59)	(.005)	(1.52)	(.60)	(11.87)	(30.05)	(41.9)

(1) All enumerations except private sector from MOH, Dept. of Statistics Private sector estimations taken from the Director General of Non-Governmental Health Institutions. It is estimated by MOH personnel that ca. 70% of private sector clinics is composed of G.P. clinics. Hence, 30% of private clinics may be specialty practices. Since data cannot be further disaggregated and assumptions about homogeneity of 30/70 distribution across governorates cannot be made, the private sector clinics were classed as primary health care facilities. (See Table 888R33). Since many M.O.H. units are functionally integrated into other facilities being enumerated, there is necessarily some double-counting. Further functional integration cuts across the defined levels of care. While they are functionally intergrated, they report activities/patient contacts separately.

(2) Public sector facilities exclude industrial/work injury clinics and may be under-counted.

(3) Clinics supervised by the Ministry of Social Affairs are possibly included among Private Sector Facilities enumerations.

(4) Unit per 5,000 persons was chosen because the MOH aims for eventual coverage of 1 primary care unit per 5,000 population.

(5) TB Screening units exist functionally within Chest Dispensaries. However, since they are partly mobile and serve preventively and curatively as first contact points they are here enumerated functionally under primary care. Chest Dispensaries are defined as Secondary Care Units.

(6) These are located either in health administrative units (Governmental Directorates) at the Governorate or district level, or within Health Bureaus.

(7) Health bureaus in rural areas are functionally located within Rural Health Units, Centers, and Hospitals.

(8) These units in rural areas are functionally located within Rural Health Facilities.

TABLE 6/20
(1) DISTRIBUTION OF SECONDARY HEALTH CARE FACILITIES BY SECTOR

Governorates (QLI Grouping)	M I N I S T R Y O F H E A L T H											OTHER MINISTRIES Govt. Authorities				
	General and District Hos- pitals	School Health Poly- clinics+ Branches	School Health Hos- pitals	Poly- Clinics & Reg- ional Clinics	Special- ized OPD of G.+D. Hos- pitals	Rabies Clinics (2)	Chest Dispen- saries	Chest Disease Hos- pitals	(Fever) Infect- ions Diseases Hos- pitals	Obst- etric & Pedia- tric Hos- pitals	Endemic Diseases Hos- pitals	Ophthal- mic Hos- pitals/ Clinics (3)	Lep- rosy Hos- pitals/ Clinics (4)	Skin & V.D. Clinics & Hos- pitals (4)	Mental/ Psych- iatric Hos- pitals & Hos- pitals (4)	Other Railways Hosp. & Poly- Clinics Affairs (5)
Port Said	3	-	-	-	3	1	-	1	1	-	1	1	-	-	-	1
Suez	1	2	1	1	1	1	-	1	1	-	-	-	-	-	-	1
Alexandria	6	3	1	28	7	1	6	2	1	-	1	1	2	3	1	6
Cairo	8	10	2	41	8	3	9	1	2	3	6	3	5	2	6	
Ismailia	4	-	-	-	2	-	1	2	2	-	-	-	1	-	1	
Damietta	6	-	-	7	1	1	1	1	2	-	2	1	1	-	-	
Dakahlia	10	-	1	7	1	8	7	3	7	-	-	1	1	-	1	1
Sub-Total (28)	(15)	(5)	(84)	(23)	(15)	(24)	(11)	(16)	(3)	(10)	(7)	(7)	(9)	(4)	(16)	
Sharkia	14	-	-	6	2	13	7	1	2	-	-	1	12	-	1	2
Kalyubia	7	-	-	4	2	7	2	2	5	-	5	2	5	-	1	1
Kafr El Sheikh	7	-	-	3	-	-	4	1	2	-	-	1	1	-	-	-
Gharbia	9	-	-	6	6	8	3	2	5	-	5	4	5	-	4	2
Menoufia	9	-	-	5	1	8	1	3	3	-	-	2	1	-	-	-
Beheira	15	-	-	7	-	-	5	2	4	-	-	1	5	1	-	1
Giza	9	4	-	2	6	3	4	1	2	-	2	2	1	1	-	-
Sub-Total (70)	(4)	-	(33)	(16)	(39)	(26)	(12)	(23)	-	(12)	(13)	(30)	(2)	(6)	(6)	
Beni Suef	7	1	-	5	5	6	3	1	2	-	1	1	1	-	-	1
Fayoum	5	-	-	4	-	5	2	1	1	-	-	1	1	2	-	-
Minya	9	-	-	4	9	9	5	2	5	-	2	5	5	1	-	2
Assiut	10	-	-	8	8	9	5	1	6	-	1	1	5	1	1	1
Sohag	11	11	-	4	-	6	2	2	6	-	1	2	5	-	1	1
Quena	9	-	-	-	1	-	4	2	7	-	-	2	1	-	-	2
Aswan	5	-	-	1	-	-	1	1	4	-	-	-	-	-	-	1
Sub-Total (56)	(12)	-	(26)	(23)	(35)	(22)	(10)	(31)	-	(5)	(12)	(18)	(4)	(2)	(8)	
Frontier	9	-	-	5	2	3	-	2	3	-	-	2	-	-	-	1
TOTAL	(173)	(31)	(5)	(148)	(64)	(92)	(72)	(35)	(73)	(3)	(27)	(34)	(55)	(15)	(12)	(31)

(1) All enumerations except private sector facilities obtained from M.O.H., Dept. of Statistics, 1981.
Private sector enumerations obtained from the Director General of Non-Governmental Health Institutions 3/82
Inclusions of secondary care facilities were made on basis of the M.O.H. definitions of levels of care.

(2) Generally are units either within General + District or Fever Hospitals

(3) Includes 4 ophthalmic clinic facilities.

(Table 6/20, continuation)

DOCUMENT # 0398D

AS DEFINED BY GOVERNMENT POLICY (1981)

OTHER PUBLIC SECTOR		PRIVATE SECTOR (1)			SUB-TOTAL	SUB-TOTAL	SUB-TOTAL	DENOMINATOR	SUB-TOTAL RATIO	SUB-TOTAL RATIO	SUB-TOTAL RATIO	TOTAL RATIO
HIO Poly-clinics	Other Poly-clinics	Hos-pitals	Poly-clinics (Spec.)	Hos-pitals (6)	MOH & Other Ministry Facilities	Public Sector Facilities	Private Sector Facilities	Estimated Total Population in 100,000s	MOH & Other Ministry Secondary Facilities Est.	Public Sector Secondary Facilities 100,000	Privates Sector Secondary Facilities POPULATION	Total # of Secondary Care Facilities
-	1	1	10	4	12	2	14	2.85	4.21 ^(2.85)	.70	4.91	9.82
-	1	1	7	4	10	2	11	2.17	4.61 ^{4.15}	.90	5.07	10.59
17	23	7	54	18	69	47	72	25.21	2.74 ^{2.50}	1.86	2.86	7.54
3	6	17	228	86	112	26	314	55.27	2.03 ^{1.92}	.50	5.68	8.17
-	1	1	-	2	13	2	2	4.00	3.25 ^{3.11}	.50	.50	4.25
-	1	1	2	2	23	2	4	6.37	3.61 ^{3.41}	.32	.63	4.55
-	3	4	29	10	48	7	39	30.28	1.59 ^{1.45}	.23	1.29	3.10
(20)	(36)	(32)	(330)	(134)	(287)	(88)	(464)	(126.15)	(2.28) ^{2.05}	(.69)	(3.68)	(6.65)
-	2	1	1	55	61	3	56	29.00	2.10 ^{2.02}	.10	1.93	4.13
3	1	7	9	6	43	11	15	18.82	2.28 ^{2.13}	.58	.79	3.67
-	-	-	2	2	19	-	4	15.63	1.22 ^{1.12}	-	.26	1.47
-	2	4	2	8	59	6	10	25.15	2.35 ^{2.20}	.24	.39	2.98
2	-	2	8	5	33	4	13	18.90	1.75 ^{1.65}	.21	.69	2.64
4	4	3	2	8	41	11	10	27.56	1.49 ^{1.45}	.40	.36	2.25
-	-	4	62	45	37	4	107	27.10	1.37 ^{1.37}	.15	3.94	5.46
(9)	(9)	(21)	(86)	(129)	(292)	(39)	(215)	(162.16)	(1.80) ^{1.76}	(.24)	(1.32)	(3.36)
-	2	1	4	5	34	3	9	12.34	2.76 ^{2.67}	.24	.73	3.72
-	-	1	3	7	22	1	10	12.82	1.72 ^{1.62}	.08	.78	2.57
-	2	1	2	3	58	3	5	23.08	2.51 ^{2.42}	.13	.21	2.86
-	1	1	11	-	57	2	11	18.90	3.02 ^{2.90}	.11	.58	3.70
-	-	1	15	1	52	1	16	21.36	2.43 ^{2.35}	.05	.75	3.23
-	2	1	8	1	28	3	9	18.90	1.48 ^{1.42}	.16	.48	2.12
-	1	2	9	2	13	3	11	6.84	1.90 ^{1.85}	.44	1.61	3.95
-	(8)	(8)	(52)	(8)	(264)	(16)	(60)	(110.77)	(2.38) ^{2.31}	(.14)	(.54)	(3.06)
-	1	3	-	6	27	4	6	3.56	7.58 ^{7.00}	1.12	1.68	10.39
(29)	(54)	(64)	(478)	(280)	(870)	(147)	(758)	(406.20)	(2.14) ^{2.07}	(.36)	(1.87)	(4.37)

4) Includes 1 Skin + VD Hospital facility.

5) Clinics supervised by the Ministry of Social Affairs are possibly included among Private Sector Facilities. The Non-Government subsidized facilities of the MOA Insurance scheme are also mostly included among the private sector establishments.

6) May include some highly specialized hospitals that would be classified as tertiary facilities, as well as some small hospitals that are closer to primary care centers but which could not be sorted out for this analysis.

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TABLE 6/21
DISTRIBUTION OF TERTIARY CARE FACILITIES BY SECTOR (1980)*

Governorate (POLI Groupings)	M.O.H.	OTHER MINISTRIES/GOV'T		OTHER SECTORS		SUB TOTAL No. of Ministries Gov't Tertiary Facilities	SUB TOTAL No. of Private Sector Tertiary Facilities	Denominator Estimated Total Population in 100,000's	SUB TOTAL RATIO	SUB TOTAL RATIO	TOTAL RATIO
		M.O.E. Univer- sity Teaching Hospitals (Complexes)	Educational Hospitals + Institutes (Autonomous Organiz.)	Public	Private				Ministries/ Other Gov't Tertiary Facilities E S T .	Private Sector Tertiary Facilities 1 0 0 , 0 0 0	Total No. of Tertiary Facilities P O P .
Port Said	-	-	-	-	-	-	2.85	-	-	-	
Suez	-	-	-	-	-	-	2.17	-	-	-	
Alexandria	4	1	-	3	5	3	25.21	.19	.12	.32	
Cairo	13	9	-	20	22	20	55.27	.40	.36	.72	
Ismailia	-	1	-	-	1	-	4.00	.25	-	.25	
Damietta	-	-	-	-	-	-	6.37	-	-	-	
Dakahlia	1	-	-	-	1	-	30.28	.03	-	.03	
Sub-Total	(18)	(11)	-	(23)	(29)	(23)	(126.15)	(.23)	(.18)	(.41)	
Sharkia	1	-	-	-	1	-	29.00	.03	-	.03	
Kalyubia	-	1	-	-	1	-	18.82	.05	-	.05	
Kafr El Sheikh	-	-	-	-	-	-	15.63	-	-	-	
Gharbia	1	1	-	-	2	-	25.15	.08	-	.08	
Menufia	-	2	-	-	2	-	18.90	.11	-	.11	
Beheira	-	3	-	-	3	-	27.46	.11	-	.11	
Giza	-	7	-	-	7	-	27.10	.26	-	.26	
Sub-Total	(2)	(14)	-	-	(16)	-	(162.16)	(.10)	-	(.10)	
Beni Suef	-	-	-	-	-	-	12.34	-	-	-	
Fayoum	-	-	-	-	-	-	12.82	-	-	-	
Minya	-	-	-	-	-	-	23.08	-	-	-	
Assiut	1	-	-	-	1	-	18.90	.05	-	.05	
Sohag	-	1	-	-	1	-	21.36	.05	-	.05	
Quena	-	1	-	-	1	-	18.90	.05	-	.05	
Aswan	-	1	-	-	1	-	6.84	.15	-	.15	
Sub-Total	(1)	(3)	-	-	(4)	-	(110.77)	(.04)	-	(.04)	
Frontier	-	-	-	-	-	-	3.56	-	-	-	
TOTAL	(21)	(28)	-	(23)	(49)	(23)	(406.20)	(.12)	(.18)	(.18)	

* Enumerations of Governmental + Public Facilities from Department of Statistics and Research, MOH, 1981. Private Sector enumerations from Director General of Non-Governmental Health Institutions, MOH, (1981 Data).

TABLE 6/22

POPULATION DENOMINATORS USED FOR UTILIZATION AND COVERAGE ANALYSIS

Governorate (Rank according to PQLI)	TOTAL POPULATION			ESTIMATED BIRTHS			ESTIMATED NO. OF CHILDREN AGE 0-6			ESTIMATED POPULATION OVER AGE 6	
	1980 Total Est. Population (M.O.H.)	1980 Rural Est. Population (M.O.H.)	1980 Urban Population Difference Between Total & Rural	1980 Total Estimated No. of Births (C B R	1980 Est. Rural Urban Estimated No. of Births 40 / 1,000)	1980 Est. Urban	1980 Total POPULATION AGES 0 - 6 EST. 17.88 % (M.O.H.)	1980 Urban POPULATION AGES 0 - 6 EST. 17.88 % (M.O.H.)	1980 Rural POPULATION AGES 0 - 6 EST. 17.88 % (M.O.H.)	1980 Total POPULATION OVER AGE 6 EST. 82.9 %	1980 Rural POPULATION OVER AGE 6 EST. 82.9 %
Port Said	285,000	67,919	217,081	11,400	2,717	8,683	50,730	12,089	38,814	234,270	55,110
Suez	217,000	30,408	186,592	8,600	1,216	7,463	38,626	5,413	33,363	178,374	24,995
Alexandria	2,521,000	172,336	2,348,664	100,840	6,893	93,946	448,738	30,676	419,941	2,072,262	141,660
Cairo	5,527,000	140,529	5,386,471	221,080	5,621	215,458	983,806	25,014	963,101	4,543,194	115,515
Ismailia	400,000	204,065	195,935	16,000	8,163	7,837	71,200	36,323	35,033	352,800	176,742
Damietta	637,000	454,072	182,928	250,480	18,162	7,317	113,386	80,825	32,708	593,586	374,047
Dakahlia	3,028,000	2,276,922	751,078	121,120	91,077	30,043	538,984	405,292	134,293	2,670,696	1,871,630
Subtotal	12,615,000	3,346,251	9,268,749	729,520	133,849	370,747	2,245,470	595,632	1,657,253	10,645,182	2,759,699
Sharkia	2,900,000	2,291,573	608,425	116,000	91,663	24,336	516,200	407,900	108,786	2,557,800	1,883,675
Kaloubia	1,882,000	1,084,404	797,596	75,280	43,376	31,904	334,996	193,023	142,610	1,659,924	945,381
Kafr El Sheikh	1,563,000	1,218,323	344,677	62,520	48,733	13,787	278,214	216,862	61,628	1,378,566	1,001,461
Gharbia	2,515,000	1,674,650	840,350	100,600	66,986	33,614	447,670	298,088	150,255	2,218,230	1,376,562
Menoufia	1,890,000	1,506,222	383,778	75,600	60,249	15,351	336,420	268,107	68,620	1,666,980	1,238,115
Beheira	2,756,000	2,042,762	713,238	110,240	81,710	28,530	490,568	363,611	127,527	2,430,792	1,679,151
Giza	2,710,000	1,139,807	1,570,193	108,400	45,592	62,808	482,380	202,885	280,751	2,390,220	936,922
Subtotal	16,216,000	10,957,741	5,258,257	648,640	438,309	210,330	2,886,448	1,950,476	940,177	14,302,512	9,061,267
Beni Suef	1,234,000	912,334	321,666	49,360	36,493	12,867	219,652	162,395	57,514	1,088,388	749,939
Fayoum	1,282,000	946,743	335,257	51,280	37,869	13,410	228,196	168,520	59,944	1,130,724	796,223
Minya	2,308,000	1,780,900	527,100	92,320	71,236	21,084	410,824	317,000	94,245	2,035,656	1,463,900
Assiut	1,890,000	1,346,972	543,028	75,600	53,879	21,721	336,420	239,761	97,093	1,666,980	1,107,211
Sohag	2,136,000	1,665,557	470,443	85,440	66,622	18,818	380,208	296,469	84,115	1,883,952	1,369,088
Quena	1,890,000	1,439,220	450,780	75,600	57,569	18,031	336,420	256,181	80,599	1,666,980	1,183,038
Aswan	684,000	427,741	256,259	2,730	17,110	10,250	121,752	76,138	45,819	603,288	351,603
Subtotal	11,424,000	8,519,467	2,904,533	432,330	340,778	116,181	2,033,472	1,516,464	519,329	10,075,968	7,021,002
Frontier	356,000	261,107	94,893	14,240	10,444	3,796	63,368	46,477	16,967	313,992	214,630
TOTAL	40,611,000	23,084,566	17,526,432	1,824,730	923,380	701,054	7,228,758	4,109,049	3,133,726	35,337,654	19,056,598

* Estimated numbers were obtained by subtracting total estimated School Age Children.

Estimated number of Total and Rural Populations by Governorate for 1980 were provided by the M.O.H., with an estimated proportion of children ages 0-6. An average CBR of 40/1,000 population was chosen in consultation with the M.O.H. For his analysis an assumption was made homogeneity in CBR and the proportion of children ages 0-6 across the Governorates.

7. Quality and Efficacy of Health Services Delivery Systems Care

7.1 Introduction

A number of studies completed during the past few years deal with many aspects of the quality and efficacy of health services. They display different technical perspectives including those of sociology, systems analysis, management, and medical diagnosis/treatment. Their diversity of views about quality of care arises in some degree because of the way that each discipline looks at the system. This begets caution when seeking to generalize from their observations.

Nonetheless, their views, when coupled to the evidence adduced by numerous qualified but non-Arabic speaking observers such as Dr. Benjamin, (See HSA Quality of Care Report in Annex F,), lead to discussion of indicators which may provide insight about how various components of the systems perform. A few are presented in this section. It should be understood that a number of others could have been used, but considerations of time and space dictated a limited treatment. Furthermore, they are selected and described in an Egyptian context. They might not be given the same value in an assessment of delivery systems in other countries.

It will be noted, also, that some of the indicators associated with utilization trends are described in more detail in Section 6 and in the Annex on Coverage and Utilization. These are the indicators discussed in the following portions:

- Referrals
- Clinic and Patient Flow
- Diagnostic Skills and Practices
- Treatment
- Private Rural Medicine Practitioners - Perceptions

7.2 Referrals

As described earlier, there is formal provision in the rural health public primary care system for referral upwards towards District Hospitals. This provision is not enforced and so there is a constant upward flow of patients past the Rural Health Units, Centers, and Hospitals towards the outpatient Clinics of the District, General and University Complex Hospitals. This so-called "bypass phenomenon" has many complex characteristics. Reasons given by patients for this behavior in rural areas generally dwell on their perceptions that the Rural Health Units, Centers, and Hospitals are not adequately staffed or equipped to handle their particular health problems.

By contrast, urban primary health care facilities operated by the public sector do not now have any provision for referrals. Data developed within the Greater Cairo area shows that patients are rather ambivalent about going upwards into higher or more distant levels of care. They only seem to seek assistance outside their areas of residence when (again, as in the case of the

rural patients) they perceive a lack of availability of services suited to their needs. In some cases, such as in Maternal and Child Centers, the mothers tend to very much identify with "good" or "sympathetic" facilities and they much prefer to remain with them. They only go elsewhere when complexities of care arise and the facilities cannot provide the necessary services.

Nonetheless, the "bypass phenomenon" looms ever larger in the behavior of both urban and rural patients. Among urban residents, the pattern of behaviour is to move first towards, pharmacists for advice, thence to physicians in private practice, followed by visits to Mostawsafs (private, charitable entities staffed with low-fee physicians) and then District, General or University Hospital Complex Out-patient Departments.

The reasons given for by-passing urban facilities include:

- * Carelessness in examination
- * Excessive length of waiting time
- * Bad treatment by physicians or staff
- * Insufficiency of drugs
- * Discontinuous attendance by working personnel
- * Unsuitable hours
- * Belief that "free treatment is of no value".

The Ministry of Health is now endeavoring to develop an urban primary care health delivery system which contains a referral procedure. This is being done in collaboration with the University of Suez and an Integrated Family Health Care approach is being developed.

Under the Port Said system, a neighborhood of 80,000 people is divided into sectors of 10,000, with medical/nurse teams assigned to care for each sector. Systems of patient-identification, recording, and care are operated in such a way that referral upwards from that area can only take place through that system. The system has been in place one year. If it proves successful it is to be expanded into other urban facilities.

Studies and observations at publicly operated urban polyclinics, as well as at the out-patient clinics of District and General Hospitals, indicate that two other factors are operational in the "bypass phenomenon". One concerns a theme constantly reiterated by patients: that they prefer to go to specialists because they believe that they will obtain "quick and satisfactory" results. They do not regard the physicians manning the rural or urban primary "first line" entities as specialized in caring for their particular ills.

The other factor concerns the widely held opinion that if one has an illness requiring hospital care, the best and quickest way of obtaining admission to the hospital is through that institution's outpatient clinic. That this is probably a widely held misconception (with regard to admission to publicly supported hospitals in general) is indicated by studies showing that only one out of ten individuals seeking direct admission to inpatient status encounters any difficulty.

Evidence about referral practices and trends within the private sector is not available except as isolated or anecdotal data. In general, it appears that the quality of care in this sector is perceived by the consumers as better than available through the public systems. These perceptions have to do with timeliness of hours of practice, responsiveness to needs, and treatment results.

7.3 Clinic and Patient Flow

How long does a patient have to wait for services? This is a question that will generate varying answers depending upon what kinds of services the patient needs, what hours of the day or night, locations, and a number of other factors. Basically, public primary rural and urban health delivery facilities are supposed to be operational from 8:00 AM to 2:00 PM, six days a week. On Fridays the facilities are scheduled to be open for emergency medical services only. In practice, these hours are somewhat constricted, with facilities generally closing down by noon or 1:00 PM at the latest. Recently, there has developed at some levels and facilities the use of "economic" practices. These are an additional two clinic hours per day, during which patients pay modest fees for care. The fees are then pooled to assist in supporting staff incentives and, perhaps, introducing local improvements.

Other facilities in the public system, (polyclinics, hospital outpatient clinics, etc.) operate basically under the same format. However, as Emergency Medical Service are better developed in the Hospitals and those stay open on a 24-hour basis, there is a tendency for such facilities to operate as round-the-clock outpatient clinics for acute curative care cases.

In general, study evidence and observation indicates the following usages and trends:*

- * Both rural and urban public primary health care delivery facilities have a waiting time that ranges between 30 minutes and four hours. A number of management factors enter into determining the reasons for the waiting. Examples are organization and operation of pharmacy facilities and laboratories, and the scheduling of work in relation to these, as well as "stopping points" for each patient.
- * Actual patient examination time in the rural and urban units averages (for about 90% of the patients) 1 minute or less with the remainder examined for longer periods of time.

* "Assessment and Evaluation of Rural Health Services in the Arab Republic of Egypt", Paul A. Nutting and Al-Motaz B.O. Mobarak, Oct. 1981. "Coverage Study, EMRO/WHO Countries, The Range of Health Care Services," Dr. Nahid M. Kamel, Dec. 1980.

- * Urban polyclinics have somewhat shorter waiting periods unless they are serving very large catchment areas, in which case the waiting period can be much longer than in the other relatively less crowded rural and urban clinics.
- * There is a greater spread of time in patient examinations at the hospital outpatient clinics and the polyclinics. This is because there are specialists who are operational. However, there are also many "short-time examinations because it appears that numbers of primary care level patients are self-referring to the polyclinics.
- * Public hospital inpatient handling in terms of times of bed occupancy, routine investigations, etc., vary considerably. The GHIO and Curative Organization of Cairo Hospitals are the most expeditious, with University hospital complexes somewhat behind and General and District Hospitals bringing up the rear.
- * Again, organized evidence on private sector operations is lacking. However, there is much anecdotal information about procedures in high-demand private facilities where those who pay a "premium" spend less waiting time and receive faster service.

7.4 Diagnostic Skills and Practices:

The HSA Quality of Care report (Annex F) places diagnostic skills and practices at the rural primary care levels as very low. This situation is attributed, in part, to a decline in the quality of medical education for the young physician's now graduating from the medical schools. Insufficient attention was paid, in preparations for this paper, to the same issue as it

relates to physicians employed in comparable urban primary care facilities. Therefore, nothing will be said about that. However, it should be noted that the Ministry of Health (assisted by USAID) is endeavoring to develop an improved urban health delivery system in the Cairo area. The effort is aimed at establishing and testing a pyramidal system of health care delivery and referral, involving local Maternal Child Health Clinics, General Urban Health Centers, and a specialty pediatric hospital linked to the University of Cairo. Hopefully, such efforts will also strengthen the diagnostic skills and practices of participating physicians.

Publicly operated polyclinics and specialty clinics displayed mixed levels of diagnostic skills and practices. Some of these facilities were so crowded and operating at such a fast pace that the diagnostic techniques seemed superficial and sometimes totally inappropriate. On the other hand, some were observed where the specialists were competent, appropriate time was taken, and the back-up X-Ray, laboratory and other work was adequate. This latter point, (i.e., laboratory facilities and training) is intimately related to the entire diagnostic scene. In general, the diagnostic support services were observed within public facilities to be severely limited in a number of instances. Intermittent shortages of supplies (particularly X-Ray film and chemical

reagents) at public polyclinics and hospitals imply that inadequate inventory controls and possibly budgetary problems may be responsible. In any case, the net effect was to delay patient work-ups or lead to the omission of indicated steps in the evaluation of clinical problems.

Assigned laboratory responsibilities seemed inappropriate in some instances. For example, one Rural Health Hospital when performing complicated deliveries did not have laboratory facilities to determine blood groups. Yet, it was equipped to do a series of other tests such as hemoglobin, blood sugar, serum cholesterol and uric acid. A number of anecdotes were provided concerning the accuracy and reproducibility of clinical tests. All of these observations and information added up to the conclusion that the diagnostic support systems and the distribution/training of their staffs require further careful review since their performance clearly impacts upon the quality of the diagnostic practices. By contrast, both practice of proper diagnostic skills supported by adequate diagnostic services seemed evident in the GHIO and Curative Organization of Cairo polyclinics, specialized clinics, and hospitals. Private systems, according to observations, were generally outstanding in these matters; again, this seemed to be a matter of fee structures and objectives. Some individual and private clinics observed were as bad as if not far worse than anything observed in the public sector. The latter condition, particularly in rural areas, suggests that the Ministry of Health may have to impose stringent licensure conditions aimed at assuring minimal standards of diagnostic practice and support systems.

7.5 Treatment

Again, the observations noted in the HSA Quality of Care Report (Annex F) do not award high marks to the treatment capabilities of personnel manning the rural primary care facilities. This view is amended in some cases by referring favorably to the "improved" practices noted in those Rural Health Units which form a part of the AID-assisted "Strengthening Rural Health Delivery Project".

Views on this entire subject are amplified in other ways by other more extensive studies of the system. The Nutting/Al-Motaz B.O. Mobarak study cited earlier observes that:

- * Tracer studies for bilharzia reveal generally low contact and screening rates. Continuity of care is involved in this, and it is suggested that special "systems" will have to be developed to maintain contact rather than relying largely upon the patient to report to the Units.
- * There seem to be some difficulties surrounding the operation of pharmacy services at the Rural Health Unit Levels. Presently, physicians appear to spend large amounts of their time supervising this function.

- * Small numbers of pregnant women receive antenatal care; and in a related finding it appears that the nurses and midwives allocate less of their time to home visiting within the community and other community activities than is desired by the Ministry of Health.
- * Less than 1% of total staff time is devoted to activities involving health education. This suggests that the long waiting times experienced by patients could be periods in which health education sessions could be held in the waiting areas.

Similar observations were not concentrated upon the urban facilities, although - in that case - various studies of recent years indicate that treatment capabilities are better than those of the rural units; but that may be a function of proximity to neighborhoods as well as the type of facility involved. For example, one description of how a neighborhood Maternal and Child Health Care Center operates probably conveys much of this situation:

"...Home births are the other main service of the MCH clinic. Women who attend the Monday clinic for new pregnancies aim to register because they know that unless their names are "written" the clinic staff will not deliver them or offer other pre- and postnatal care or medicine. Each clinic provides twenty-four-hour child delivery services with alternating shifts of two Hakima (nurse-midwives), two tamargiyya (orderlies) and a driver for the car, the car usually being about twenty years old Births are not considered a medical emergency but the clinic car is sometimes useful in more complicated cases when transport is needed. Generally, taxis refuse to drive in the narrow back lanes. When a woman is near delivery some of the clinic staff is sent for. A Hakima and tamargiyya arrive soon--on foot if the clinic car is not functioning or cannot get through the narrow, crowded back lanes...."

...MCH clinics are generally perceived as a valuable service, and their personnel are, despite the distancing effects of bureaucracy, incorporated into various friendship networks within the community. That is, informal organization supersedes bureaucratic organization. Because of the resultant specific ties between staff and clientele, a given staff member may be praised by one patient and cursed by another. It is, thus, more accurate to regard some of these older, more urban and neighborhood-integrated clinics as personnel incorporated within social networks...."*

Public facility hospitals and polyclinic facilities were likewise observed in their treatment modes for the HSA Quality of Care report. As in previous instances, the findings are very mixed. The general impression is that although often rushed and working under minimally equipped conditions, the

* The Egyptian Maternal and Child Health Center System, Chapter III, Baladi Women of Cairo, 1980.

physicians and nursing staff do cope. University Hospital Complexes, the GHIO, and the Curative Organization Cairo Hospitals are described as having generally adequate treatment procedures. The medical record-keeping systems of the Alexandria GHIO Hospitals and their medical audit review of inpatient cases are singled out for special commendatory comment. Observations about the treatment capabilities of the private sector which are traditional in character or that part associated with the work of the Mostawsafs are not presented. The HSA Quality of Care report also emphasizes that the non-traditional private sector is concerned with curative care only. At the same time, the reports notes observations of private care treatment which range from very high standards indeed to a rural, private, in-patient clinic where treatment conditions are bleak.

7.6 Comments of Private Rural Medical Practitioners:

Several physicians were interviewed in rural practice settings. All were government employees assigned in nearby towns as members of hospital staffs. They had part-time private practices. Their comments were, in general, similar about the following points:

- * There is a sharpened awareness among villagers of the importance of health care. This has an economic origin because parents perceive that healthy children grow into young adults who go off to work in the Gulf States or take employment as agricultural laborers at the present very high wage rates. They are, then, potentially high earners of income.
- * Another factor contributing to this growing awareness is the more widespread presence of pharmacists in the countryside. Although some of the physicians were a bit sensitive about instances in which they knew that pharmacists were doing more than filling prescriptions, all seemed to agree that the pharmacists were a health educative force in the local communities. It was said that properly organized health education messages could be more effectively transmitted through the pharmacists than through other formally organized governmental means.
- * In the same vein, these physicians were very sympathetic to the plight of the doctors manning the Rural Health Units. They regard them as very young, relatively untrained medically, with no experience, saddled with many administrative duties, and assisted by a staff that needs much more training and supervision in how to properly explain the use of drugs and to exploit opportunities to educate patients about preventive health care.
- * In this latter connection, they were of the opinion that most villagers go to the government facilities to get the free drugs and not to be examined. Since the examination is cursory and

the attending physician usually prescribes a double list of drugs (those that are in the Clinic pharmacy and those that must be purchased), villagers regard the free drugs as a net "gain" to them.

- * These physicians agreed that there were people in each village who could not afford to buy drugs or pay for health care. In their opinion, the work of the Health Units should be made more selective so that the truly deserving from the economically disadvantaged point of view would be given effective care. There should be a wider range of free drugs available for such people, the staff should spend more time with them. In order to accomplish this medical social workers should be trained and assigned to work on this subject. In their view, too, local Village Council representatives could be most helpful in sorting out the deserving from those who are merely taking advantage of a free facility or drug.

8. Management Support Systems

Management systems for health services must assure adequate support in terms of: drugs and medical supply; general supply; facility and equipment maintenance; transportation; communication; personnel; finance; and health information.

Since this paper describes the three levels of health care in Egypt and those encompass the total array of public and private systems, only certain commonalities in management support will be identified. Obviously, the management support systems for a far-flung primary rural health delivery establishment that offers free care are quite different from those of highly specialized public or private hospitals. Furthermore, differing and specialized targets and definitions of health needs produce requirements for management support systems of particular kinds.

These circumstances are also accompanied by the fact that in the current Health Sector Assessment of Egypt particular papers are being addressed to some components of management support such as training, manpower utilization, etc.

Finally, as the process of decentralization advances in Egypt it will vitally affect the management support needs of the publicly supported health services delivery systems. Similarly, the rapid growth in size and the multiplicity of private sector providers generates new demands for management support systems particular to that sector, as well as inter-relating with the public sector.

For example, in the past three years, the needs for management support systems in the Ministry of Health have altered sharply. These changes arise out of the shedding of functions to Governorates and the emergence of more programmatic roles for the various components of the Ministry. Those include planning, specifying levels of performance (including measures of utilization and cost-effectiveness), monitoring and evaluation, organization and analysis of information, etc.

Additionally, as the functions of the Ministry alter there is also need to strengthen management support systems for those kinds of activities which are of a national or emergency orientation. Certain research functions, emergency medical care, and the mobilization of physicians for rural or other systemic health care are typical of this need. Accompanying this latter need, management support systems helpful to the organization and implementation of foreign-assisted health activities are essential at the Ministry level.

In the same way, the management support needs of governorate and Markaz health establishments are rapidly altering as well as expanding in magnitude. They include supervision, management, planning, and all aspects of technical or administrative implementation. Again, they also include special attention to management support systems required by foreign-assisted projects which are designed to impact upon some rural or urban health care target.

The private sector is also experiencing a multiplicity of management support needs. These include the usual supervisory, management, and organizational problems; but, in addition, there are sharply defined needs for attention to utilization rates, costs, establishing creditworthy feasibility proposals, and interacting with the publicly supported health delivery system.

Given these various needs among the sectors, there appear to be several of current severity as well as future importance.

8.1 Supervision

In the public sector, as the process of decentralization continues it is clear that at District and Governorate levels many gaps are appearing in the supervisory ranks.

In several governorates visited, physicians responsible for supervision were handling three or four functionally distinct supervisory positions. In those areas, there were also, no second line assistant supervisory personnel. In those instances it appeared that the single over-stretched supervisor could not possibly find the time to make certain that each of the functions for which he was responsible met an acceptable standard of implementation.

In other cases, supervisors at the governorate level were also occupying supervisory positions at the Markaz level. This condition was not temporary. It had been on-going in all cases for more than one year. At the Markaz level, some of the senior technician supervisory positions were vacant, so that performance at that level and extending downwards to supervision in Rural Health units was limited.

In all cases observed, supervisors appeared to be uncertain about two vital matters. On the one hand, they did not appear to be highly knowledgeable about the technical content of their assigned functions. On the other, they did not seem to be aware of those management practices that are essential to effective deployment and utilization of the resources available to them.

It should be noted here, however, that at the governorate level supervisory staff members for the curative services appear to be both more numerous and more aware of the technical aspects of those functions. The management aspects of their operations appear to be less familiar to them. There is much reliance upon a kind of "automatic" management produced by each technician or physician performing their assigned specialization.

In all cases observed, it was noted that responsibility for supervising and evaluating the performance of administrative personnel has now been transferred to the governorates. The same observation applies, during the past year, to technical personnel, although in the latter case Ministry of Health inspection and monitoring systems tend to add another dimension to this function. Nonetheless, pertinent governorate sections charged with responsibility for these matters appeared to be lightly staffed and operating without clearly defined performance evaluation criteria. Furthermore, the

urgency of just trying to handle the daily press of business was such that it was quite clear that supervisors lacked the time as well as specialized support staff to adequately perform the evaluative function.

In those governorates where foreign-assisted projects were operational they were clearly desired by local supervisory personnel. However, a consistent pattern of complaints revolved around three points. (a) projects often seem unrealistic in terms of local needs, operating conditions, and staffing situations; (b) projects are targetted without paying sufficient attention to the local management implications; and (c) already over-extended supervisory staff members are further extended.

In some cases, supervisors remarked that regular functions were assigned lower priorities in order to facilitate governorate supervisory support to attaining the targets in foreign-assisted projects. They also noted, that although governorates are now going through much strain in adjusting to the new demands imposed by decentralization they can adequately absorb foreign-assisted projects if those projects are correctly designed to operate within the current framework.

All of the foregoing seem to be inevitable consequences of the decentralization effort. However, at least two other factors are at work to undermine supervision. One is a steady growth of private practice opportunities in the governorates and districts for government-employed physicians. Even though decentralization results in the creation of many more new supervisory positions locally, government-employed physicians expanding their part-time private practices are not anxious to accept public system responsibilities that will demand much more of their time for effective performance. Furthermore, supervisory work is not regarded both in either the private or the public sector of health care as a rewarding occupation in terms of status, prestige, interest or income. Yet for the health system as a whole--public and private, the importance of adequate supervision and management is steadily mounting. In the public sector there is need to more effectively manage limited resources at a time when the total potential demand is steadily increasing. Private sector efficiencies require attention so as to effectively cater to more discriminating consumers and also to maintain a competitive edge.

Within the public sector there are examples of what improved supervisory management can accomplish. The most noteworthy is the current Strengthening Rural Health Delivery Project, operated by the Ministry of Health with USAID assistance. Largely because of the stress laid upon improved management from the district level, this effort has significantly expanded Health Unit activities in four test areas. The gains include significant expanded outreach activities, improved patient care, creation of a viable health record system, and the development and use of training manuals sharply focused on specific health care interventions. All of this has been done within the context of the overall supervisory difficulties of Markaz and Governorate staffing and operations. This project's experience to date tends to indicate that attention to supervisory problems can achieve solutions. In another

instance, the Government Health Insurance Organization operations among its hospitals at Alexandria displays examples of what can be accomplished in controlling operational costs and improving services through the application of soundly conceived hospital administration practices. In still another case, the Curative Organization of Cairo applies principles of supervision and management which promote incentives at all levels of operation within their hospitals. The resulting cost savings and increased patient satisfaction help in sustaining these fee charging institutions.

8.2 Management Information

In the public sector, at the governorate and Markaz levels, reporting is voluminous, trivial, and vital all at the same time. Decision-makers are receiving information helpful to them through these and other means. Whether it is the kind of data with appropriate analysis and organization that is most helpful to them in discerning program costs and changes in costs, demand, etc. is open to serious question.

There is data production organized by important diseases and health conditions. This kind of reporting exists alongside systems which record the status of supplies, personnel, expenditures, etc. The former are linked by activity or function to the appropriate Directorate at the Ministry of Health. The latter go to governorate health officials and, in some instances, to Ministry of Finance personnel responsible for governorate financial operations.

The established reporting requirements were evolved by the Ministry of Health over many years. Many reports are required. For example, 102 disease-related reports must be generated at different service facilities in the governorates, with varying periodicities, and passed to the Ministry of Health. Similarly, there are another 36 operational status reports at the governorate level; and some of these must be sent, periodically, to relevant Ministry of Health offices.

As the decentralization process continues, responsibility for manning and operating these various data production and reporting systems rests with Markaz and governorate personnel. Supervisors do not appear to be aware of how to interpret and utilize the data coming to them through these systems, and the clerical and analyst personnel preparing or handling the data production seem uncertain of their job functions in many cases. These needs require intensive servicing from the central levels of the Ministry of Health. However, the staff and organizational set-up concerning reporting systems, statistics, and analysis appears limited in capacity and authority at this time. Hence, decentralization in this case is generating a demand for supervision and guidance from the center and the latter is not now in a position to effectively provide that assistance.

Aside from considerations concerning the value of continuing to operate all the existing systems during a time when quality of supervision is under strain, there also appears to be a need for redesigning many types of record

keeping concerned with quality of health care and costs. One example of the former is that of medical records and statistical data systems as these now operate in General and District Hospitals. Observations in several facilities indicated that in some instances only the most elementary records were kept for each patient. In a few places, there are short, well-organized, records, with a discharge summary for each admission. In most instances, however, records were not of the unit type, were very brief, and the diagnoses were generally not organized so that they could be easily coded. The same situation was observed in some private hospitals, though in most cases the quality of their record keeping appears acceptable.

Of equal importance is the need to design and establish systems that will reliably provide data helpful to measuring managerial, personnel, and fiscal performance. Creation of such a capability is essential if there is to be a chance of coping with rapidly altering cost dimensions in both the private and public health care delivery systems. In the former case, a number of observations indicate that costs are steadily escalating. In some instances, there appear to be insufficient data to enable private sector managers to make discriminating decisions about those costs. Public health care managers confront declining budgets and rising costs within the existing system. As it becomes necessary to expand and modernize that system, as well as to handle the increased wage scales that will soon be allowed in that sector, program benefit/cost analysis techniques will become essential in management support systems.

8.3 Financial System:

Health services delivery supported by the public sector is dependent upon government-wide modalities of revenue generation, financial planning, cash flow procedures, and budget control. These are complex, time-tested, and well-established. They have evolved within Egyptian administrative and operating conditions. These modalities are not altering under the processes of decentralization, but there appear to be opportunities for introducing substantive variation in their range and content by coupling Ministry policies/support to governorate initiatives.

Examples suggest that it is possible to develop interventions that would improve management by changing very specific practices in the financial system without changing the overall modalities. Decentralization, in that context, appears to offer some opportunities for development of this kind. At least three facts portray the range of flexibility that may be present:

- Fee-charging (at modest rates) in afternoon or evening public sector outpatient clinic practices are now permitted under Ministry of Health regulations. The fees collected go into a common fund or "economic box". The purpose is to generate funds that can be used for incentives, productivity, and attaching a cash value to sustained improvement in standards. There appears to be considerable flexibility in utilizing these modest amounts of funds among different governorates. Different approaches to utilization was observed in three governorates.

- Presently, the government's budget and accounting system places much stress upon fiscal accountability. Annually, the funds are allocated on an object class basis. There are three of these: salaries and wages, other operating expenses, and investment. Budgets are set up as line items within each class. Senior governorate health supervisory staff are permitted to move funds around within each of the classes covering salaries and wages and other operating expenses. They cannot move funds between these classes. In the case of the third class (i.e., investment) governorates can now consolidate or pool funds within that class and concentrate expenditures upon a single facility.

- Each governorate's Local People's Council is allowed, under the law, to establish local services and development funds. These can be utilized for financing urgent vital public services, including health systems. Two governorates are considering how to develop feasibility plans, with accompanying financial management systems, designed to improve specific health facilities in those governorates. In another case, a governorate is considering how it might financially participate in the development of a primary care group practice that is to be operated by clinical teaching faculty members of the University of Suez (Faculty of Medicine, University of Suez/Boston University project).

Given the existence of the above kinds of initiatives and interests in some governorates, there may be opportunities to introduce one very much needed intervention to the financial system aspect of management support. This concerns program budgeting and accounting. Currently, the systems of budgeting and accounting do not provide the governorates or the Ministry of Health with perspectives that would permit adjusting priorities in relation to resources. In general, resources appear to be spread too thinly, because so many problems at each level of delivery are being addressed at the same time. Program budgeting and accounting, accompanied by a management information system with appropriate fiscal data collection and analysis, could help overcome this problem. Given the magnitude of the requirements that must be met in designing and installing such an approach, it is probable that initially only a single governorate should be the object of attention. However, since a system of this kind might also be of great interest to the Ministry of Finance and the Ministry of Planning, those two ministries should also be involved in Ministry of Health efforts along those lines.

8.4 Health Planning Systems

As remarked elsewhere in this paper, the amount of resources being programmed into the publicly supported health sector each year seems to be on a declining plane vis-a-vis the total potential demand for services.

National priority choices among developmental options probably account, largely, for this situation. However, other factors are also present, and among them is Ministry of Health capacity to plan and monitor health sector development and performance.

In general, as described earlier, the Ministry planning process is budget-oriented on an annual basis, with particular reference to investment decisions. All other decisions, concerning totals and distribution of salaries and allowances and supply requirements are made at the governorate levels. Those decisions are subject to negotiations with the Ministry of Finance.

Concerning investment decisions, which are also subject to negotiations with the Ministry of Finance and to consultation with the Ministry of Planning, the Ministry of Health does determine longer-term goals. These are reflected, for example, in the Five-Year Plan for 1978-1982:

- Concentration on the preventive health services, with special attention to the rural services, epidemic diseases, and the production/provision of vaccines.

- Raising the level of available health services and making them more effective through:

- Laying stress upon developing human resources, with attention to incentives and working conditions

- Developing and reinforcing existing health institutions

- Reinforcing the health services needed to treat emergency cases, including transportation to treatment centers

- Developing house calls in the Rural Health Services, particularly for mother and child care, and with linkages to family planning

- Maximizing benefits from resources allocated to the treatment services of large hospitals; and beginning to develop an enlarged tier of Rural Health Hospitals in order to take the pressure off the large hospitals

- Cessation in building any more new, large hospitals during the Plan years. Complete the Nasser Institute for Studies and Treatment

- Seeking to rationalize the consumption of medicine, which comprises up to 50% of treatment expenses

- Expand the production of medicine within Egypt sufficiently to cover 90% of the demands.

In trying to translate these goals into reality, the Ministry of Health obtained Plan authority for the following distribution of funds:

"Treatment medicine", Preventive medicine, "Combatting epidemics", "Rural Health", "Population and Integrated Projects", etc.	L.E. <u>67,020,000</u> or approximately 50% of the total.
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"General Authority for Hospitals", "Health Insurance", "Cairo Treat- ment Association", "Alexandria Treatment Association", "Nasser Institute for Research and Treatment", etc.	L.E. <u>28,225,000</u> or approximately 20% of the total.
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"The General Authority for Anti- biotics, Vaccines", "The General Authority for Supervision and Medicine Research", etc.	L.E. <u>96,755,000</u> or approximately 27% of the total.
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Of the foregoing figures, rural health projects and "treatment medicine" were assigned the largest sums in the financial categories' L.E. 67,000,000 total. Rural health has 32% and "treatment medicine" 37%. Assistance to urban facilities lies somewhere within the various other categories throughout the entire range proposed investments.

How the Ministry of Health arrived at these levels and their distribution among categories is said to be a part of the "consensus" planning that occurs among the Directorates of the Ministry. Similarly, there is a process of negotiations and planning with the governorates on investments. This resulted, in the 1978-1982 Plans, in the following variation of investments among the main population centers and the governorates. The L.E. 67,020,000 figure noted above is broken out by governorate so that all but Cairo, Alexandria, and Giza share a total of L.E. 26,600,000 with the breakdown as follows:

Kalyoubiya	L.E. 2,000,000
Beheira	2,200,000
Port Said	500,000
Ismailia	600,000
Suez	44,000
Sharqiya	2,300,000
Dakhaliya	2,000,000
Damietta	1,000,000
Kafr El Sheikh	1,500,000
Gharbiya	2,630,000
Menoufiya	2,300,000
Matruh	100,000
Fayoum	600,000
Beni Suef	700,000
Minia	3,350,000
Assiut	1,000,000
New Valley	100,000
Sohag	1,500,000
Quena	1,700,000
Aswan	400,000
Red Sea	46,000

What is of most interest in this distribution is the general uniformity of the spread among groups of governorates. Thus, the seven governorates of Upper Egypt, with an approximate population total of 11,400,000, obtain an average of Piaster 78/head under this kind of distribution. The seven governorates of Middle Egypt, with an approximate total population of 16,300,000, obtain an average of Piasters 84/head. These variations are so slight as to suggest that planned prioritization among large-scale groupings of population is difficult to achieve. Certainly, at this time, there is neither at the Ministry of Health level nor in the governorates that kind of health planning system which looks objectively at differing technologies, varying costs, estimated benefits, critical health needs, and management capabilities and then sets plans/targets with follow-up monitoring. There is no staff trained for such work, and the processes are not institutionalized so that personnel achieve status and reward through specializing in such activities.

The future development of improved capacity in these matters is regarded by senior ministry personnel as contingent upon:

- Establishing the process and status of such work, both at governorate and Ministry of Health levels
- Establishing adequate and attractive rates of compensation for professional-level work in health planning methodologies and systems
- Proving that the application of such methodologies, even in a limited sense, can strengthen the case for a more rational and perhaps enlarged distribution of health care efforts.

8.5 Applied Research Systems

The number and range of different kinds of applied research activities taking place in the Egyptian health sector is extraordinary. They are supported by universities, institutes, Ministry of Health Directorate's foreign assistance organizations, and other special programs. Their subject matter content and quality are reflected in such publications as The Bulletin of The High Institute of Public Health at Alexandria or the more precisely targeted work of the Health Council, the National Center for Health Statistics, the Experimental Center for Training and Research (ECTOR), the International Center for Population Studies and Research, etc.

In some cases, foreign-assisted activities are partially if not entirely constituted so that they foster applied research attention to a defined set of problems in the health sector. One of these is the USAID-assisted "Strengthening Rural Health Services Delivery" project. Others comprise university-connected activities such as the MIT University of Cairo Health Care Delivery Systems Project. The variety of all these efforts, aside from their specific objectives and styles of research, is encouraging. Very much has yet to be learned and synthesized about the epidemiological, consumer-behavior, organizational, and other aspects of all the Egyptian health devliery systems. There is need, however, to start systematically drawing all of this information together and relating it to future planning

perspectives. Development of such a capacity, somewhere in the central government or on another institutionalized basis that would provide interpretative results useful to health planners and administrators appears to be a distinct management support need and opportunity.

9. Findings and Issues

The Findings and issues presented here are tentative, for a number of reasons.

The five-person team which developed this MSA Report on Private and Public Health Services Delivery Systems in Egypt was especially concerned with specific matters related to systems organization, resources, distribution and performance. Given that perspective and other parallel HSA Reports, the team did not directly examine how the health systems deal with specific disease conditions, standards, training, etc. Reports developed by other members of the Health Sector Assessment Team will reflect their own subject matter viewpoints, which may in some cases lead to conclusions different from those presented here. The tentativeness of the findings and issues presented here stems partly from the limited amount of interaction with Egyptian policy-makers and senior administrators which was possible during the drafting of this report. Tight time schedules, on both sides, affected this. Before the Phase II HSA Team arrives there will be opportunity for Egyptian officials to review this report, clarify their own interpretations, and present their own perspectives.

Finally, the findings and issues presented here are not to be construed as policy prescriptions. They signify matters of importance identified by the team and they may be written in such a way as to pre-dispose thinking towards a certain policy emphasis. However, responsibility for analysis of these matters plus all other input rests with Dr. Jeffers the HSA Health Policy Consultant. Therefore, anything asserted here must not be taken as conflicting with his overall judgements.

9.1 Findings:

9.1.1 The asserted social goals with reference to health care of successive Egyptian administrations since 1952 are highly egalitarian, humane, and impressive.

9.1.2 Despite extremely difficult developmental circumstances caused by war as well as extensive social and economic reforms, Egyptian policy-makers and health care administrators have tried to translate the asserted social goals into expanded systems of health-care, nation-wide.

9.1.3 Their accomplishments, in so doing, are extensive and include:

- * Installation and operation of a "free service" health care system at all levels throughout the country.
- * Establishment of a physician-based, statically emplaced, manned and operational rural primary health care system everywhere at village levels.
- * Develop of an installed and manned hospital capacity at all Districts, Governorates, and in the major urban areas.

- * Development of a number of regionally scattered University Hospital Complexes which are the training centers for an expanding corps of Egyptian physicians.
- * Development of a network of nurse training and medical technician training facilities.
- * Development of trained pharmacists who now operate private pharmacies throughout the country.
- * Development of pharmaceutical production facilities and distribution networks which are aimed at getting adequate supplies to all areas of the country at low prices.
- * Creation of village piped potable water supply systems for at least 40% of the rural dwellers of Egypt.

9.1.4 One achievement stands out above all others: the existing public delivery system attempts does try to provide free care to all, in all parts of the country, and it responds to patient requests for primary, secondary, or tertiary care as rapidly as possible.

9.1.5 Another achievement, in recent years, concerns the development of an active private sector health delivery system. It is multiple in form and still evolving. There is a traditional village-based system of private care for the more elementary health problems. Professional private, trained, health care seems to be provided by three groups :

- * Private physicians in solo or clinic practice
- * Private physicians associated with Mostawsafs or other forms of private, voluntary organizations.
- * Licensed private pharmacists.

9.1.6 However, all that has been accomplished is now threatened by four emergent trends:

9.1.6.1 Failure to limit the growth of population through the development of seriously committed and effective (to family planning) public and private health services delivery systems is endangering future chances for providing adequate care to the Egyptian people.

9.1.6.2 As a consequence of the foregoing, and of other factors discussed elsewhere below, the geographic and quality of-care content of health services delivery to particular economic, locational, age, and sex classifications of the population is unevenly distributed. It also may become less able to meet future needs than it does at present.

- * The relatively light coverage of Upper Egypt's population by either public or private sectors of health care at all levels.

- * The limited access to and low acceptability of publicly supported primary health care delivery systems in urban areas.
- * A very heavy concentration of private sector health care delivery systems in high income group and urban-based settings.
- * Very limited patterns of pre-natal and ante-natal services utilization in the public system.
- * Very limited utilization of the publicly operated primary health care system, for reasons such as in accessibility, unavailability, or acceptability to consumers, and limited implementation of outreach activities.
- * Extensive utilization of hospital outpatient facilities by the populace with a resultant (by-passing of all subsidiary facilities).
- * Very light coverage of the local school-age population with school-related health care and health education activities.
- * Limited implementation of effective preventive health care strategies by the public sector.
- * While some successful efforts at health education are in existence on a modest scale, they are not yet broadly organised on an outreach basis by health personnel.

9.1.6.3 Rising costs of constructing, equipping, and operating medical care facilities of all types in both the public or private sectors have reached levels which demand constant attention to cost/effectiveness criteria and management efficiencies.

Unfortunately, current Egyptian public sector systems of budgeting, accounting, management, and reporting do not emphasize these matters. There are, however, demonstrably successful management models in the Egyptian public sector. These consist of the Suez Canal Authority and the Egyptian General Petroleum Corporation. Both of these agencies are being operated by Egyptian personnel. They are attaining high technical performance and demonstrating sound business and management strategic sense.

The already lightly spread Egyptian publicly operated health services delivery systems can never be strengthened adequately, according to any modified delivery model that might be adopted, unless there is intensive attention to management and cost/effectiveness.

9.1.6.4 Failure to develop an economically efficient, independent, and preventive care-oriented private medical care sector. The results of this are threefold:

9.1.6.4.1 Presently, the public sector suffers because its physician-employees engage in private practice to the detriment of their public sector responsibilities. Their energies and attention, both as technical providers of services and as supervisors, are "drained off" into the more financially rewarding private sector. Public sector efficiencies are further lowered.

9.1.6.4.2 Because they do not have to assume all the livelihood risks of totally independent private practices, many physicians are not interested in cost/effective management of their facilities or patients. There are exceptions to this observation (such as the Curative Organization of Cairo and the Government Health Insurance Organization at Alexandria), but in general only a very limited private practice physician constituency supports improved management and cost/effective standards for health care systems.

9.1.6.4.3 This latter situation, accompanied by the quick profit, high-return, opportunities for curative care only in private practice, does not dispose the private sector to strongly support preventive or health education emphases.

9.1.7 All of the foregoing has emerged while accompanied by a persistent theme in Egyptian financial support for the publicly operated health care system. That system has been chronically under-financed as compared to the potential demands implicit in actually trying to operate a qualitatively sound comprehensive "free care" delivery model.

9.1.8 Today, as a consequence of this persistent financial anemia, the public system is remarkably over-extended in terms of what it needs to do if it is to boost performance equitably according to the delivery models that have been designed. Chances for improving this system in its present configuration of services, "free care", and distribution are further eroded by the four emerging trends described above.

9.1.9 There appears to be deliberate under-financing of the health sector. It is quite clear that in recent years Egypt's developmental policies have awarded high priority to productivity and infrastructure growth. Services sectors such as health care are provided with much less resources. In the Egyptian context, with a commitment to widespread and "free" services, this generates serious future questions about allocation of the limited resources, their management, the targets at which public health care should be directed, and relative efficiencies of differing styles/organization.

9.1.10 Significant staffing and organizational changes in Egypt during recent years signal that the kinds of serious questions listed above will not be adequately addressed by the public sector unless special preparations accompanied by policy prescriptions are adopted soon. These changes include the following:

9.1.10.1 A distinct shrinkage is taking place in the numbers of trained and experienced public health administrators and managers directing and

supervising the entire publicly operated health services delivery systems. This is happening at Ministry, Governorate, and District levels, and it is caused principally by the current financial attractiveness of part-time private practice.

9.1.10.2 Decentralization of health delivery services, has taken place. This is advantageous in two ways. It makes the entire system more responsive to local needs and priorities. It also contains the potentials for utilization of local revenue resources. However, the process has generated increased supervisory needs at District levels and, again, these are in short supply. Furthermore, the Governorates have not so far chosen, nor have they been encouraged, to augment centrally funded health budgets by use of their authority to raise funds locally through various means.

9.1.11. Similarly, serious attention to the questions mentioned above will require engaging and exploiting the potentials of the private sector, including the traditional, charitable and voluntary, and professionally trained.

9.1.12. The foregoing circumstances point clearly towards a time for innovation, review, and test of matters concerning the public and private health services delivery systems of Egypt. The existing systems and practices cannot be long continued as they are without seriously damaging capacities to respond to growing consumer demand for services and the goals of providing 'free' care for everyone.

9.1.13. Two forces, the private sector and the processes of decentralization, are powerfully affecting the healths services delivery systems in unplanned and unregulated ways. Each has attributes that might be most helpful in supporting the innovations, tests, and reviews which are required.

9.1.14. Decentralization offers possible opportunities to modify the existing systems of health service delivery in consonance with the flexibility in organizational powers and some assigned revenue authority now possessed by the Governorates. This could be done on an experimental basis, using selected Governorates as the venues for testing new delivery models, incentives, continuous education systems for health care personnel, and modes of management/supervision. At the same time this would present opportunities for strengthening some of those functions at the Ministry of Health level which should be reinforced so as to better support Governorate development, test, and performance evaluation. For example, strengthened Ministry of Health capacities to perform the following functions are urgently required:

9.1.14.1. Development of job supervision protocols and the introduction of specialized supervisory training on a continuing education basis.

9.1.14.2. The introduction of program budgeting and accounting, with linkages to continuous health planning by qualified and adequately deployed staff.

9.1.14.3. Total revision of management information and health-related information reporting systems, with accompanying training introduced at all levels.

9.1.14.4. Establishment of programmatic priorities which are clearly defensible on the basis of cost/effectiveness criteria.

9.1.15. In like manner, the private sector - in all of its variegated aspects pertaining to the health services delivery system - offers many opportunities for development. Presently, it is unregulated, extremely secretive about its mode of work, extensively curative-oriented, and a disruptive force vis-a-vis the maintenance and operation of a qualified cadre of publicly-employed health system delivery personnel.

Constructive engagement of this sector in addressing some of the serious questions mentioned above in section 9.1.9. would not be easy to accomplish. Yet it does appear that there are now certain portions of the health services delivery responsibilities which should be openly allocated to the private sector, subject to much-improved regulation. Similarly, there are preventive care, health education, health status reporting and other like supportive measures which the private sector could be encouraged to adopt.

Organizationally, how the above might be accomplished would require flexibility. It is probable that many simultaneous efforts would have to be exerted. These might include the encouragement of various types of health insurance schemes on a competitive basis, re-licensure and re-registration requirements, incentives or inducements for cooperation, etc.

9.2 Issues

A representative set of issues is presented here. They are neither definitive nor complete, because, as the above findings suggest, the entire subject of private and public health services delivery systems in Egypt is complex. The complexity is increased because the very term 'delivery' implies that some action or set of actions is taking place now and something different is going to be done with them because of their importance in relation to some population health care problem or other.

Here, the issues are presented based upon a different logic. It is assumed that major systemic changes in the public or private sector or their interrelationships cannot be addressed frontally or as a major problem subject to immediate change. For example, it would be ideal if the Government would agree that it must allocate expanded resources to the health sector; in reality, however, it will probably not allocate much more than current levels. Similarly, it would be ideal if government would admit the necessity of creating a whole specially salaried and rewarded group of specialists (in this case health administrators) in order to preserve the managerial viability of the public sector system. However, in reality such an urgently needed policy may not be adopted.

ANNEX ADescription of a Public Hospital, Alexandria

There are only two hospitals of this type in Alexandria. This one serves western and central Alexandria, which contains a population of approximately 1,500,000. It is a 260-Bed hospital with an Out-patient Clinic and an Emergency Medical Services Unit.

The facility is located in a low-income, densely populated, area and the building is small, crowded, and heavily used.

The Out-patient Clinic handles about 1,000 cases/day and the Emergency Medical Services Unit about the same number. Hospital bed occupancy is at least 80% during the winter months and moves to 110 and sometimes 120% in the summer months. All treatment in the Out-patient Clinic is free, after paying the usual L.E. .05 registration fee. In the afternoons, the staff operates an "economic group" system which handles about 200 of the total 1,000 patients .

The Emergency Unit, Out-patient Clinic, and In-patient care facilities have different staffing patterns and assignments. Since this hospital is linked to the University Hospital - as a training location - it has 150 House Officers (interns) fully assigned. There are 60 residents and about 10 specialists. The residents are fully assigned; but specialists come in on a short-term and when-needed basis.

The Emergency Unit is staffed by 8-hour shift and around the clock. It operates five ambulances, all new, radio-equipped, and with telemetry equipment. The staffing per shift is: 2 Residents, 6 House Officers, 2 University-trained Nurses, 4 Nurses; 8 Nursing Assistants, 2 Technicians for laboratory and X-Ray, and supporting staff. The Unit is located in the

Hospital Building; but in a separate area with its own labs, X-Rays, cardiac equipment, etc. installed and operational. The Emergency Unit appeared to be compact, heavily used between the hours of 2:00 p.m. and 10:00 a.m., and has a record keeping system geared to computerized processing at Cairo. Facilities appeared to fairly clean and adequately lighted, though crowded.

The Outpatient Clinic provides six services: Ophthalmology, Gynecology, Internal Medicine, Minor Surgery, Othopedics, and Dental Services. Each of these has 2 Residents and 4 to 6 House officers in attendance. The area is jammed, with poor light, bad air circulation, and is very dirty, but contains adequate waiting benches. Because of space problems, patient-handling is not private (except in the case of women), and doctors, nurses, and assistants appear to "swarm" around each patient under examination and treatment. Some services seem better organized and operated than others; Ophthalmology and Dental Services seem to be the best. The latter has three chairs, two of which have high-speed equipment, and there are six dentists and trainees in attendance.

The inpatient part of the hospital has three major surgery theatres and two for minor purposes. The surgeries appear to be adequately equipped, heavily used, and not well run from the standpoint of maintaining adequate sterilization standards.

Beds are crowded together, with six to eight in rooms which at the GHIO hospitals would only contain two beds. There are 10 "paying beds", beds located two per room, in larger rooms with adjacent W.C. These beds cost L.E. 1/day; according to the information provided only about 2 or 3 are occupied at any one time.

In a discussion of the overall operations and problems of the Hospital with the Director, the following points emerged:

- a. Since 1974, in his experience, the quality of the House Officer's and Residents has been rapidly decreasing. They are poorly trained, and it is difficult to supervise so many at the same time. By contrast, the quality and performance of the nurses continues to show improvement.
- b. He gets no financial support from the surrounding community; but through the Hospitals General Council or Board he does obtain some political influence. This is helpful in bringing pressure to bear at the Governorate level for certain supplies, equipment, etc. The Board is comprised of himself, the Chief Nurse, the Chief Pharmacist, 1 Surgeon, 1 Social Worker, and 2 Local leaders drawn from the community. He selects the latter after consulting with various neighborhood leaders and the political party.
- c. His medical record forms are standard for MOH hospitals. We reviewed some of the records with him. By contrast to the GHIO hospitals, the records are not adequately catalogued, there is no registration number filing system, and retrieval of files on a continuing patient re-visit basis is not possible.
- d. He lacks qualified Hospital Administration staff to assist him. The handling of such a busy facility would improve enormously if such a person were available. Of course, this assumes that the proper incentives could be provided to such personnel. In his opinion, it

is the lack of adequate incentives which affects performance in the hospital. Other than the very limited services provided through the "economic plan" in the afternoons, there are no means by which Residents on his staff can improve their incomes. They have to work full-time; though some manage to arrange their schedules so that they can do some outside practice, they are not supposed to do so.

- e. He does not have the time to really look at his Medical Records in a way that would help to improve practice. Though there are case conferences in which particular cases are critiqued these are ill-organized affairs and he doubts that the students derive much benefit from them. Certainly the hospital does not. In many cases they only serve to tell him more about what he already knows concerning poor practices. For example, the Hospitals Emergency and Out-patient Clinics average six to eight cases of acute appendicitis per day. Patients are operated on immediately in minor surgery. He knows that, in fact, it is really a way for House Officers to get a little surgical experience, so that when somebody comes in complaining of a few pains in the lower abdomen, they are quite often diagnosed as having acute appendicitis. From there to the operating table is about five minutes. He refused to discuss the rates of recovery on this one.

- f. He sums up the main problems as financial ones (with the government trying to provide free services to everybody) and a constant and steady lowering of quality throughout the system. What is required, in his opinion, is a political decision that is strong-willed enough to tell people that only so much free service can be provided and that everything else will have to be paid for using a competitive, quality-raising, set of insurance and private sector systems.

ANNEX B
CONSUMPTION OF PATIENT-DAYS BY CAUSE
IN GENERAL AND DISTRICT HOSPITALS

<u>Cause</u>	<u>No. of Patients</u>	<u>% Patients</u>	<u>Ave. Length of Stay In Days</u>	<u>Patient Days</u>	<u>% Patient-Days</u>
- Digestive System	2,970	17.1	10.2	30,294	19.3
- Accidents Poisoning, Violence	2,641	15.2	8.0	21,128	13.5
- Circulatory System	1,269	7.3	12.9	16,370	10.4
- Respiratory System	1,157	6.6	8.7	10,066	6.4
- Senility and Ill Defined Condition	671	3.9	9.2	6,173	3.9
- Reproductive & Related Systems	5,609	32.2	8.3 *	72,660 *	46.4
- Other	3,094	17.8	"	"	"
- All cases	17,411	100.1	9.0	156,699	99.9

* Derived figures. Categories cannot be separated on the basis of information in this report (1). MOH, 1980.

Annex C

Distributed
SEPARATELY

EGYPTIAN VOLUNTARY ASSOCIATIONS
AND THE HEALTH SECTOR

March 18, 1982

Prepared for
Office of Health, USAID/Cairo
as part of the
1982 Health Sector Assessment

by
Veronica Elliott
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Washington DC

ANNEX D

EQUIPMENT AND VEHICLES SECTION
OF THE REPORT ON
PUBLIC AND PRIVATE
HEALTH SERVICES SYSTEMS
IN EGYPT

March 22, 1982

Prepared for
Office of Health, USAID/Cairo
as part of the
1982 Health Sector Assessment

by
Stephen Fabricant
Consultant

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LIST OF REFERENCES USED IN PREPARATION OF THIS REPORT

LIST OF PERSONS CONTACTED IN PREPARATION OF THIS REPORT

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ANNEX 1 MID Project Program Review, December, 1980

2 S&E for one Rural Health Unit

3 Space required for equipment maintenance unit and basic services to be provided

4 Scope of Work

Equipment and Vehicles Report

by Stephen Fabricant, Consultant

1. Objectives, Methodology, Constraints, and Variances from Scope of Work

The original intent of this section of the Health Sector Analysis was to describe and assess the existing situation in both the private and public health sector in terms of the numbers and types of vehicles and medical equipment, their distribution in the country, their condition and utilization, the requirements for their maintenance, and the requirements for greater quantities and more appropriate types in the future.

At the outset of the study, the investigator quickly realized that the short time allocated to the acquisition of information (less than two weeks), by limiting the degree to which quantitative data could be amassed, would place a serious limit on the degree to which all these requirements could be fulfilled and on the credibility which might be given to some of the conclusions reached. As a consequence, several lines of investigation were dropped, including primarily attempts to develop a comprehensive inventory of vehicles and equipment, the situation in the private sector, and to make more than a few field site visits. A more qualitative assessment has resulted, but several important issues have been identified through less formal, anecdotal types of reports and interviews. These issues, rather than numerical data, have been focused on, because of their importance to users of this Health Sector Assessment in the conceptualization of possible future interventions in the health sector which would involve the acquisition, use, and maintenance of, vehicles and equipment.

Vehicle procurement and use in AID-supported health sector projects has already been considered in some project evaluations; the findings of one evaluation is presented in Annex 1 to this report. Only where gaps in the evaluations concerning vehicles and equipment have been perceived have efforts been made to look into these areas in more depth. An effort has also been made in this section to look more closely at the parts of the health sector outside the projects already implemented with USAID assistance, rather than at these projects themselves.

Unfortunately, it is not in the "unimplemented" parts of the health sector where most of the good data lies. With the exception of data on projects carried out with support from other assistance agencies, the data becomes scarcer and more difficult to obtain in a reasonable time as one attempts to learn about the situation outside the major cities of Cairo and Alexandria. For example, the Ministry of Health Central Statistics Bureau offered to obtain figures on the numbers and distribution of vehicles in all the governorates, but with the assurance that it would take several weeks for this information to be reported back to Cairo. An alternative would have been to go to the rural governorates and gather the data personally, an approach that would have been appropriate only for a much longer mission. In the end, much reliance has been placed on previous studies judged to be of high quality, and the limited data which could be obtained has been used to extrapolate and confirm the earlier reports whenever possible.

Information on vehicles and equipment in the private sector would have been available, but it cannot be considered particularly relevant in the context of this assessment and was therefore ignored. The role of the private sector is significant in the field of maintenance and supply, however, and will be discussed.

2. Present Vehicle Situation - Ministry of Health

2.1 Estimates of quantities and types of existing vehicles

The decentralization of the functions of the various GOE ministries has resulted in responsibility for accounting for and maintaining records on most types of property belonging to the governorate in which the property is located or used. The central Ministry of Health, therefore, did not know what the total complement of vehicles throughout Egypt was, with the exception of some categorical programs which have escaped having their vehicles put into the governorate vehicle pools. Such data were made available for the central Ministry of Health in Cairo and for the Ministry of Health vehicles in Cairo and Giza Governorates; the results are shown in Table 1.

Table 1

Table 1. Number of MOH Vehicles by Type, Central MOH and Cairo and Giza Governorates

Vehicle Type	MOH Central HQ	Cairo Gov'te	Giza Gov'te
Limousine	3	3	1
Station wagon	34	0	0
Microbus	12	3	10
Large Bus	6	0	0
Pickup	8	5**	28
Jeep	0	0	4
Ambulance*	1	0	0
X-Ray vehicle	0	0	2
Lorry	1	0	0
Motorcycle	3	1***	0
Totals	68	12	45

* not part of EMS organization

** one reported as not running

***not running

Taken by itself, very little can be concluded from the information in Table 1. The absolute numbers of vehicles hardly seem excessive given the large populations served, the numbers of MOH personnel, and the number of MOH facilities located in these two populous governorates. The high proportion of freight-carrying vehicles found in Giza probably reflects the need to transport large amounts of supplies to the rural districts of this governorate. The very low number of vehicles reported as out of commission is surprising in light of previous reports, and perhaps is explained by the availability of both MOH and private-sector maintenance and repair facilities in the Greater Cairo area.

The numbers of vehicles become somewhat more interesting if they are compared to the numbers detained for MOH transport personnel, as shown in Table 2.

Table 2

Transport Personnel in Central MOH and Cairo
and Giza Governorates

Personnel	Central HQ	Cairo Gov'te	Giza Gov'te
Drivers, car	40	9	n.a.
Drivers, motorcycle	3	0	n.a.
Mechanics	4	n.a.	n.a.

2.2 The Shortage of Drivers as a Constraint to Utilization

Since the Central Ministry has only 40 drivers for its 65 cars, trucks, and buses, assuming only those drivers are allowed to operate vehicles, then approximately one-third of its vehicles will be unusable at any given time, regardless of their condition. The problem of shortage of drivers is well known in the Ministry, and highlights the problem of the public sector competing with the private sector for drivers, as well as any other class of skilled labor. The driver problem is acute because there is less potential for compensation for low wages through after-hours jobs than there is for example, for mechanics, who might have access to the tools, information and technical advice at their "official" jobs which might enhance their incomes from other jobs. The driver, in contrast, would rarely be in a position to be able to use his official vehicle after hours for private purposes, but by virtue of his official job is excluded from the many available higher-paying full-time opportunities for good drivers. Presumably this same situation exists in many of the Governorates. An incentive scheme for drivers has been tried in the SRHD project, but has not been evaluated. Incentives have also been used in some countries to encourage lower fuel consumption. The

solution to the general question of low salaries and incentives lies outside the scope of this portion of the Health Sector Assessment, but will be touched on in a subsequent section in the context of equipment maintenance.

2.3 Estimates of Gross Vehicle Needs

An estimate of total vehicle needs for the public health sector can be made, primarily as an exercise to obtain the order of magnitude of the cost this vehicle gap represents, and without reference to the reasonableness of the notion of supplying this number of vehicles, or indeed any additional vehicles, to the health sector. A comparative study of three EMRO/WHO countries, including Egypt, (Ref.1) states that 93 percent of sampled health units had no vehicle at all, and another four percent had a vehicle that was not in working order. If the total number of units (both rural and urban MOH facilities) is taken for the sake of argument as 3,500, this yields the result that some 3,255 facilities in Egypt have no vehicle at all, and another 140 have vehicles needing some degree of major repair. This compares quite closely with an estimate made in 1976 (Ref.2) of fleet size of 3,320 required to replicate the SRHD pilot project on a nationwide basis. Recent PIO/C's indicate unit costs of about \$9,500 for the type of utility van that has been supplied, resulting in a total cost in the neighborhood of \$31 million.

2.4 Vehicle Appropriateness

The data available from Cairo and Giza governorates show that a wide range of vehicle types are presently in use. No functional analysis of vehicle requirements at the various levels of the health sector is available, but the range of possible uses for vehicles in the health sector is fairly limited. The small American-made sedans supplied to the Urban Health Project have apparently been performing well mechanically, but it has been recommended that future procurement be limited to station wagons or some more readily identifiable type of vehicle to limit the potential for unauthorized usage. The non-documented experience in the Rural Health Project is that

cargo-carrying is one of the most frequent uses of the project vehicles, and the windowless, seatless cargo vans supplied were the most intensively utilized. A multi-use arrangement of the utility vans, with two (or at most three) bench seats for passengers and the remaining space for cargo, has also proved to be a very practical configuration.

The U.S.-made vans supplied to the Rural Health Project have come under criticism for their unsuitability, but it is difficult to suggest any superior alternatives.

The issues which have arisen are those of vehicle size (too large to maneuver in village lanes), high fuel consumption, and less-than-perfect reliability, maintainability, and utility. The last issue has already been addressed, and in any case cannot be attributed to the origin of the vehicles in question. The complaints about the size of these vans cannot be refuted: American manufacturers saw the popularity of the Volkswagen Microbus in the U.S. in the 1960's, and followed a course of development based on the principle that bigger is better. Up until recently there was little indication that the trend toward downsizing passenger cars for the sake of fuel economy would be carried through to utility vehicles, but there is some likelihood that smaller van-type vehicles will be available in the future from U.S. sources.

That these vehicles consume a lot of fuel cannot be refuted either. Because they are large, they are also heavy and come equipped with large engines. (Some were apparently supplied with 8-cylinder engines, an insupportable decision and contrary to the original consultants' recommendations. The specifying of 4-wheel drive automatically affords a penalty in terms of fuel consumption and maintainability, and the requirement and utilization of this feature in vehicles supplied to projects should be studied.) Part of the fuel consumption problem may also be due to careless driving habits and improper maintenance. In any event, high consumption is a problem which probably receives more attention than it deserves. As a fact for future reference, a vehicle which makes 25 miles per gallon (9.4 liters/100 kms.) will use only 929 liters less per 15,000 kms (the planned mean annual distance to be

traveled by SRHD vehicles) than a vehicle which makes 15 miles per gallon (15.66 liters/100 kms.). At Egyptian subsidized fuel prices, this translates to a savings of only L.E. 131.5, which certainly cannot represent a very high percentage of the POL (petrol-oil-lubrication) budget for each vehicle.

Complaints about poor reliability of U.S.-made vans and other U.S. vehicles are probably well-founded, but must be examined in detail if any correct conclusions and recommendations are to be obtained from them. A problem experienced with tubeless tires in the rural project was undoubtedly an inconvenience, but readily amenable to solution. These vehicles may have a greater tendency to lose odd parts and get superficially damaged than utility vehicles manufactured in other countries, but in the final analysis, they are rather sturdy machines which can be kept operable for long periods, given reasonable regular maintenance and availability of spare parts. It is, of course, entirely possible that some vehicles arrive in Egypt in poor condition to begin with, either through damage in transit or due to inadequate final inspection procedures at the factory.

The matter of maintainability is really the most serious one. No machine, let alone one which is called on to transport heavy loads on poor roads under dusty atmospheric conditions, will perform well for long without regular preventive maintenance and technically correct repairs when the inevitable failures occur. With respect to criticisms that have been leveled specifically at U.S.-made vehicles, this situation seems to be improving as more of the same types of U.S. vehicles are brought into Egypt for use in all sectors, private and public. All three major U.S. manufacturers are now represented by dealerships and parts stockists, although not extensively beyond the major urban areas. This is a factor which is changing rapidly, and it is not unreasonable to anticipate the time when U.S.-made vehicles pose no more of a problem to maintain than any other makes, as mechanics become more familiar with them and parts and special tools become more available in the private and public sectors in the governorates. In the case of any health sector projects, the challenge will therefore not be to establish maintenance programs for previously unknown vehicles, but rather to ensure that the maintenance is up to acceptable standards prevailing in other sectors.

2.5 Vehicle Maintenance Facilities

It was not possible to learn much new about facilities for maintenance of vehicles at the governorate and district levels of the MOH. From recent (Ref. 4) and older (Ref. 2) reports and comparison with what exists in Cairo, it must be surmised that very little indeed exists. What exists in Cairo is a small, inadequate facility for the Central Ministry. A large new facility at Abbesiya was built under a UNICEF project for transport equipment and maintenance several years ago, but the equipment furnished for it has never been installed. Current plans call for it to be used by the Cairo Governorate Health Department. As it is in proximity to the Ministry's Central Workshop and the Department of Medical Equipment, there is some potential for its being used as a training institute for MOH vehicle mechanics, although there are not now any plans as such for this.

As a result of surveys of available facilities for vehicle maintenance done in conjunction with past USAID project designs, some provision for vehicle maintenance has usually been built into the project as a guarantee against shortages of resources for maintaining the vehicles supplied. These have ranged from provision of spare parts for USAID-procured vehicles to the construction of full-scale maintenance facilities. The alternative of leaving the responsibility for maintenance with the Ministry of Health has presumably been explored and rejected in all cases. A recent study (Ref. 4) of the existing situation and facilities for vehicle and equipment maintenance in one rural governorate presented a set of recommendations which suggest an alternative approach, namely, a separate effort to reorganize existing facilities, retrain and supplement personnel, and establish maintenance procedures in such a way that excessive technical and financial demands are not made on the governorate MOH. Using these recommendations, a possible model for efficient and effective decentralized vehicle maintenance appears feasible.

Simply stated, a small local governorate facility, with the appropriate stock of commonly used spare parts would be responsible for routine preventive

maintenance such as lubrication and oil changes, replacement of belts and hoses, tire repair, battery maintenance, etc.. These types of activities are predictable and can be budgeted for more or less exactly, along with the budget for fuel and drivers' salaries. Beyond that point, the responsibility for actually carrying out major repairs, obtaining spare parts, etc, would fall to the private or quasi-governmental sector which would be a contractor to the local MOH organization. In the instance of the governorate studied, the local branch of the Egyptian Engineering and Tractor Company was relied on successfully for performing all major repair work. This arrangement makes sense from several points of view. It obviates the need for the governorate, the MOH, or the categorical project to recruit and pay the salaries of fully-skilled mechanics, to purchase and commission specialized repair tools and equipment, or to make a large investment in spare parts which statistically will be rarely used. It is not unreasonable to expect that dealers in the major cities will stock complete lines of specialized (i.e., non-routine) spare parts. The tradeoff here is between the costs of keeping these parts in stock at the local level and the time delay in procuring them from the major depots. Once the procurement channels are established, the delays entailed in obtaining any individual items should be reasonable. The question of excessive costs of spare parts purchased through local agents usually arises at this point when alternative systems are proposed. This will be dealt with later in the discussion of procurement issues.

3. Discussion of Vehicle-Related Issues

3.1 Alternative vehicle specifications and preferable types

There is little to say in this regard, since the previous analysis suggests that the choices made to date have not been very far from optimum, given what is currently available from U.S. manufacturers. Hopefully, the trend toward downsizing will manifest itself in the form of a utility vehicle that more closely resembles those available from several Japanese and European manufacturers. For any procurement occurring in the near future,

specifications of available vehicles should be reviewed to try to come closer to the actual requirements of the Egyptian health sector. Diesel engines will apparently not be an option, as their importation has been prohibited on grounds of air pollution. Perhaps different tires could be specified, and axle ratios chosen for better economy in the speed ranges known to be used. Experience with automatic transmissions should be reviewed to determine if their specification is advisable.

Jeep-type vehicles are sometimes considered more desirable than the utility vans for work in rural areas, but until a very inexpensive, lightweight jeep is available from a U.S. manufacturer, this line of thinking should be discouraged. The SRHD project has succeeded in obtaining a waiver from USAID regulations for the purchase of some lightweight Japanese motorcycles as an experiment in transportation for some types of health workers. This effort bears careful study, since the opportunity for cost savings are great if a motorcycle can be functionally substituted for a 4-wheeled vehicle. The same comment would also apply to the bicycle, the use of which may not be unattractive in view of the short distances and flat terrain often encountered between rural health units and population centers.

3.2 Alternative Approaches

All of the foregoing has merely skirted what are perhaps the most crucial issues to arise from this assessment of equipment and vehicle needs and problems. Planners of future interventions in the health sector should take a step back and evaluate the results of supplying vehicles to past and present projects. Certainly the notion that the ownership of vehicles is the most cost-effective method of providing transportation must be critically examined. The authors of one preliminary study for the SRHD Project (Ref. 2) observed that "vehicles in the pools of some governorates and districts currently are being employed for preventive health services, such as bilharzia and malaria control, for which no vehicles were allocated in the PRP." Rather than recognizing this as an opportunity to build an efficiently-managed fleet, it was construed, together with the preponderant lack of vehicles at the RHC

and RHU level, as the justification for supplying vehicles for exclusive use at this level. No doubt the potential pitfalls were recognized: "However, providing large numbers of vehicles at the rural health center and unit levels is not sufficient to guarantee the success of the pilot project. New initiatives and increased support and supervision will have to come from the MOH, governorate and district levels." (Ref. 2) The apparent answer to this caveat is that the new initiatives were not forthcoming, and that the costs to the project and the MOH of increased support and supervision have been quite high.

Evaluations will reveal the costs of vehicle ownership to the projects, but it seems apparent that the worst type of cost incurred has been the dilution of management and organizational skills by the requirements of obtaining the vehicles, maintaining records on them, and establishing and running maintenance facilities. Reports of underutilization suggest that the overall cost-benefit figures of ownership will be quite high, and perhaps it would be appropriate to design experiments for evaluating alternatives. It is not the function of this assessment to suggest alternatives, but some are fairly apparent. The ambulance function stands out prominently as a questionable way of transporting victims to rural health facilities, as there rarely are functioning telephones in either the units or the nearby villages. Seriously ill people will usually find a means of transport if the motivation to get themselves to a source of treatment is high enough; taxis are often available, and the total number of vehicles in Egypt is definitely on the rise. The other functional needs for transportation should be studied carefully and alternatives sought. If the ideal powered vehicle for rural health services is not available from the U.S., perhaps it is in fact a simple machine which could be manufactured locally. Certainly, the figure of \$31 million for vehicles estimated earlier is only the tip of the iceberg if the SRHD pilot project is to be replicated nationwide, and if all the procurement and ownership costs are considered the actual total may well be unacceptably high.

In the likely event that the above question cannot be answered definitively, or while it is being studied, another related question immediately arises. Is

there a better way to provide vehicle ownership than building it, along with attendant maintenance capabilities, into a project or program? The alternative seems to be to design separate programs for strengthening fleet management and maintenance at a centralized level appropriate to the project. If, for example, an integrated health and family planning program was proposed for an entire governorate, would it not make sense to attempt to solve the transport problem for all governorate health facilities by supporting a project which would strengthen fleet management and maintenance for all health vehicles? The risk of providing vehicles to be earmarked for a specific project would be reduced by virtue of improved fleet management. The option of distributing the responsibilities for major repairs and stocking spare parts to the private sector could also be tested.

Lastly, the problem of vehicle and spare parts procurement must be addressed. The current system of project management whereby vehicles and spare parts for projects are procured by USAID in the U.S. cannot possibly be the least expensive or most effective way of accomplishing these objectives. The sheer bulk of paperwork exhibited in the files of one project are alone enough to convince the most ardent believer in this system that the overhead costs to AID are immense. Non-financial costs to the projects concerned are also high, in terms of frustrations caused by delays, manpower wasted tracking down mistakes and shortages, and the time spent on what are regarded as routine matters of procurement management.

Recognizing that the barriers to changing the rules and system are imposing, the advantages of direct, "off-the-shelf" procurement should be considered nevertheless: In the case of Egypt, assuming that the technical details of arranging exemption from import duties can be worked out with the Ministry of Finance, the final price negotiated with local agents of U.S. manufacturers for large quantities of vehicles would include a profit margin that could hardly fail to be less than the overhead cost of procurement under the present PIO/C system. Vehicles which are already in country could be procured and put to use in projects without delay. The dealer could be held responsible for local preparation of the vehicles and for their condition on delivery to the

project. The dealer could be made contractually responsible to stock spare parts, which he most likely would do in any case since it would be virtually guaranteed that the vehicles sold to the project would be identical in specification to those in common use in Egypt. Maintenance and repair training programs could also be included in contractual agreements. Since all three U.S. manufacturers are now represented in Egypt, the chances of genuine competitive bidding could be as great as in the U.S., and as a last resort the old system of stateside procurement could be used if no satisfactory contract could be made with the local agents.

4. Present Equipment Situation - Ministry of Health

4.1 Estimates of Quantities, Types, and Distribution of Equipment

4.1.1 Rural Areas

Inventorizing equipment is such a difficult task that to undertake the job in a single health facility alone requires firm determination and a good deal of time. To attempt the same job for an entire geographical area such as a district would require a trained crew of several people for weeks; to even contemplate it on a national level would be to invite madness. This could also explain why the Health Facilities Inventory section of the Health Profile of Egypt Vol. II (Oct. 1981) lists as the third of its four components, but has not yet completed, a "census of equipments in health establishments and units." Therefore, in this section only rough estimates can be expected. The sources of data are lists of equipment which has been supplied to Rural Centers, MCH Centers, and Rural Units in the past, and the sample survey (Ref. 1) used in the preceding section. Additional information should become available from the University of Michigan study and the Health Profile of Egypt's Health Facilities Inventory.

The objective of this review is to get some rough idea of the costs involved in bringing all existing Ministry of Health facilities up to a level which will not prevent the staff from performing their planned service delivery functions for lack of equipment and expendible supplies. The basic information is presented in tabular form below:

Table 3. Estimated lack of equipment and cost of supplying it.

<u>Type of Equipment</u>	<u>% Of Units* Lacking</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Basic Laboratory	8%	\$800	\$224,000
Basic Equipment for diagnosis & treatment*	33%	555	555,000
Basic expendible supplies*	33%	90	90,000
Refrigerators	38%**	305	406,650
Midwifery sets for existing staff	4600***	60	276,000
			<u>\$1,551,650</u>

*The total number of units is assumed to be 3,500, which includes urban facilities, but a further assumption is made that most of the equipment shortages are in the rural facilities. It was assumed that the "1/3 lacking adequate equipment and supplies" meant they were lacking 1/4 of needed equipment and 3/4 of needed supplies.

**The percentage of units having electricity supply is only 77%, and it is not known whether the percentage given for lacking refrigerators is of those units having electricity or all units

***Based on a need for three kits per unit.

Unit costs from UNICEF (Annex 2) and SRHD procurement records.

In theory, all existing units have been supplied at one time or another, either by the Ministry of Health, through various bilateral assistance programs, or (predominantly) by UNICEF. Much of this equipping occurred far in the past, and equipment has been broken and not repaired, has been stolen or misplaced, and expendibles have been consumed and not resupplied. None of the deficiencies observed in Ref. 2 are particularly surprising.

A useful rule to observe when considering the replacement or supplying of equipment, is that it should be planned in a systematic way rather than filling random holes, so that the resources are in place for an unbroken chain from primary care at the Rural Unit or MCH Center level to the secondary level. For example, if serious accidental injuries and broken bones are common occurrences in rural areas, the rural units should be equipped with simple radiography equipment, plaster buckets, splints, gauze, etc., so that the injured person can be treated immediately at that level.

4.1.2 Urban Facilities

The larger hospitals in urban areas appear to be generally well-equipped with fundamental plant equipment, and the equipment for diagnosis and treatment covers a wide spectrum of sophistication. A good deal of this equipment is of Eastern European origin, and while this generally means that the equipment had good specifications for the time it was acquired, is ruggedly built and not too difficult to service, there is now often difficulty in obtaining service and spare parts from local sources. However, few complaints are heard about this since experience with equipment from Western sources has not always been good either. The more complex a piece of equipment is, the less likely hospital staff can either use it correctly or maintain it in working order. The hospitals are therefore at the mercy of local agents, who often do not have competent staff either. Service contracts are often painfully exorbitant in cost. As a generalization, the most satisfactory service comes from firms which sell a lot of expensive equipment in the Middle East and have competition from other firms for the same markets; such firms must maintain adequate after-sales field service organizations. It should be pointed out that few U.S. manufacturers fall into this category.

Another important source of both medical equipment and maintenance is the state-owned importer, Gomhouria Company. In theory at least, all non-donated equipment from non-represented manufacturers is imported by them, and they bear responsibility for assuring service. It is unlikely that they are sufficiently staffed with technical personnel to perform this task adequately.

The quality of maintenance, and indeed, utilization, of the equipment appears to depend a lot on the personal attention given to the problem by the top levels of hospital management. A motivated hospital director can divert budget allocations to maintenance, appeal to sources in the Ministry of Health, cajole and threaten manufacturers' agents, and generally leave no stone unturned to get equipment repaired. If equipment in an otherwise well-run hospital is left unrepaired, either the director has exhausted all possibilities, or the equipment was not much needed in the first place. In whatever type of management system is eventually established for the Department of Medical Equipment, it will be advantageous to devise a way of removing, repairing, and pooling non-working equipment, so that the needs of hospitals can be met in part from the large investment already made in equipment that is not being used.

The tendency exists in Egypt, as in the developed world, to try to acquire the latest in medical technology. Highly sophisticated equipment exists even in non-teaching hospitals, and it is sometimes duplicated by other hospitals in the same city. The investigator did not attempt to learn how decisions are made in the area of equipment procurement, but it is questionable that potential benefits to patients are compared to costs, or alternatives explored very intensively. Medical specialists who have been trained abroad on sophisticated equipment naturally want to have the same when they return to practice, and doubtless this is a politically difficult thing to control. In a situation where resources are limited, the costs involved must be viewed alongside the medical benefits to the population.

As far as the urban hospital system is concerned, the major opportunities for improvements appear to be in making certain that new hospitals are rationally

and economically equipped, and in strengthening the capacity of the Ministry of Health to maintain and repair the equipment it already owns.

4.2 Equipment Maintenance

In contrast to the field of vehicle maintenance, the Ministry of Health has made a serious attempt to address the need for maintenance and repair of medical equipment by means of several programs operating in parallel which comprise a well-planned scheme to provide the infrastructure capable of supporting the present and anticipated future levels of technology found in the health care system. The results achieved in a very short period of time are encouraging and give reason to be optimistic that future investments in equipment in equipment will not be wasted. The same optimism cannot necessarily be expressed with regard to investment in plant, but since the establishment of a plant maintenance infrastructure follows parallel lines to that for equipment, it might be hoped that this will be attained with proper planning and management of the overall program.

Trained manpower is the maintenance infrastructure component in critically-short supply. Two avenues for development of this technological manpower have been pursued, one at the level of professional engineering, and one at the level of specialized biomedical equipment technicians.

4.2.1 Biomedical Engineering at Cairo University

The former are trained in a five-year formal program at Cairo University in its Department of Systems and Biomedical Engineering. This program started in 1976 and turned out its first class of engineers last year. An initial evaluation of the program has indicated that while these engineers were in possession of a high level of theoretical skills, they tended to have few practical skills useful for the purposes of equipment maintenance. However, this is a young program and not all of the planned laboratory facilities which will give students in this program the desired "hands-on" experience have yet been installed.

4.2.2 Department of Medical Equipment, MOH

The second center of manpower development is under the control of the Ministry of Health, at the Department of Medical Equipment in Abbassia (Cairo).

Under a joint assistance program of the Overseas Development Administration (UK) and the World Health Organization, with contributions by Project Hope and the National Institutes of Health in the U.S., space belonging to the Ministry of Health Central Workshop has been renovated and equipped with training materials. A training course of two years duration was designed and instituted in 1978 to prepare basic level technicians with the foundations of medical equipment technology and its place in health services, and skilled in first-line repair and maintenance of such systems. The approach used is a very pragmatic one and emphasizes the teaching of the skills of a "polyvalent" technician who can use a wide range of basic tools to maintain and repair the assortment of equipment found in health facilities. As part of the instructional program they are repairing or rehabilitating existing MOH equipment, and also are training providers in the proper use and maintenance of equipment. In addition, several graduate engineers from other disciplines have been given advanced training in medical equipment technology and bioengineering, and will serve in future as a cadre for leadership in the technical field within the Ministry of Health and as instructors in the technician training program. It is to be hoped that they will be given an active role in decisions about appropriate equipment procurement.

This program proposes (Ref. 5) to establish Hospital Service Centers in urban areas, Regional Centers in the governorates, and several new technical departments in the central Ministry. Present resources and the likely budget for posts and facilities will allow a target of opening about one Hospital Service Center per year over the next five years. These will be staffed by two engineers and four technicians, in a space in each hospital of about 60 square meters. Five smaller 'Service Sections' will also be established each year, staffed by one technician and one engineer each, and these will be designed to be upgraded gradually into Hospital Service Centers.

In the governorates, three Regional Centers based on the model at Hamdeya, Giza, will be established over the period 1982-85, with support from UNDP. The MOH proposes to add a training component to these centers which it believes will help recruitment to and expansion of the services. These are planned for Assuit, Zagazig, and Mansoura, since these cities already have Health Technical Institutes to which the technician training programs can be attached.

In other governorates, it is possible that future Regional Centers could be established by reorganizing and augmenting existing services as suggested earlier (Ref. 4) for the purpose of vehicle maintenance, possibly under the umbrella of other projects requiring similar engineering services such as the Second Population Project. Some suitable workshop space will be needed and approximately \$50,000 for equipment for each small center employing six technicians and two engineers. Details of these requirements are shown in Annex 3.

This program at the Department of Medical Engineering (under the Manpower Development Directorate of the MOH) is now turning out approximately 30 well-trained technicians each year, and, in the investigators' opinion, is highly successful. It is also an extremely critical factor in the future ability of the Egyptian health sector to make good use of investments in equipment and technology. (It can reasonably be expected that a high proportion of the graduated technicians and engineers will eventually find employment in the private sector.) There are two major reasons it has been successful - maintenance of equipment is perceived by the Ministry of Health as a necessary service, and the project has received well-conceived and adequate assistance from external sources. It would be an important effort to support so the quantity of technicians graduated can be increased while still maintaining the quality of training. A comprehensive plan describing in detail the relationship between biomedical engineering education at all levels and the health services has been prepared by a U.S.-based PVO. (Ref. 6)

An incentive scheme for maintenance and repair personnel worthy of mention has been designed and reportedly has been used with good success. The Department bills the client hospital, clinic, or doctor for the service performed (on a much lower scale than private-sector repair services), the proceeds are pooled and distributed according to fixed ratios among the engineers, technicians, hospital directors, and administrators.

4.2.3 Central Workshop, MOH

The Ministry of Health has maintained for many years a large facility at Abbasiya, adjacent to the newer Department of Medical Equipment and the uncompleted UNICEF vehicle maintenance facility. This workshop, which incidentally does appear to have cooperative links with the Department of Medical Equipment, currently employs about 250 craftsmen and laborers. Their main functions at present are the making of utilitarian types of furniture for MOH facilities, the renovation of simple equipment such as autoclave baskets, and making rather major repairs on some types of basic plant equipment. The major problem that this department faces is the replacement of the skilled craftsmen, most of whom are close to retirement age, with younger skilled workers, who can obtain much higher salaries in the private sector.

Another activity of this unit is the manufacture of laboratory test tube racks made of galvanized steel. This suggests a possibility for upgrading the general level of activity at the Central Workshop, and the generation of income which could be used for incentives or salary supplements, by enlarging the manufacturing scope to include other simple items which the MOH now purchases in fairly large quantities. Such types of equipment as infusion stands, boiling pans, and even hospital beds, could readily be manufactured there with only relatively small amounts of additional production equipment. The potential for the export of equipment (perhaps modified for local requirements) to the Middle East and developing countries seems rather bright.

On a rather more ambitious level, the Department of Medical Equipment has built a prototype of a newborn incubator from locally-available materials,

costing a fraction of imported models. While the time is probably not yet right for the mass production of such types of equipment, the possibility of some degree of local self-sufficiency in the field of medical equipment seems worth further investigation. There would also appear to be considerable potential for exports from Egypt in this field.

5. Other issues and questions raised in the Scope of Work

Other questions posed in the Scope of Work for this part of the Health Sector Assessment will be addressed in this section.

5.1 Medical providers' instruments and carrying bags

It has been asked if there are opportunities for donor assistance related to supplying medical providers' instruments and carrying bags. The answer appears to be that the instruments normally used by the providers are now generally available in MOH facilities, and there does not seem to be any serious benefit to be gained in supplying a carrying bag. (An observation made by a member of the HSA team is that there is an opportunity for cost savings in providing equipment for rural units by simply eliminating the otoscopic head, which he judged to be of very limited usefulness, from the otoscope kit). In brief, it did not seem that there exists a significant constraint to the delivery of patient care due to lack of providers' instruments.

5.2 Equipment for Rural Sanitarians

The subject of equipment for rural sanitarians has also been mentioned in the Scope of Work. The present policy is toward deliberately limiting the scope of the sanitarians' activities until their potentials can be better defined and training provided. For the present, the only types of equipment with which they need to be supplied is that necessary to maintain the health unit in a hygienic condition and make minor repairs on its water supply. This

might include hand tools such as wrenches, hacksaw, and screwdrivers, a drain auger, cleaning tools such as a floor squeegee, screening materials, flyswatters, and the like. No specialized equipment for food sampling appears to be needed, and unless a mass latrine-building program is instituted, neither do any other tools. (Ref. 7)

5.3 Emergency Medical Services Equipment and Vehicles

The entire matter of Emergency Medical Services equipment and vehicles has not been dealt with in this section of the Assessment, since it is the exclusive realm of another consultant. General comments about the capabilities for maintenance may apply, although it seems likely that special ambulance garages will be established in the major cities. Since the U.S.-made ambulances supplied are based on the same chassis as the more common utility van (usually Dodge manufacture), the matter of spare parts supply should be considered in the light of an expanding dealer network in Egypt.

END

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LIST OF FACILITIES VISITED

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Al-Sahel Hospital, Shobra, Cairo,

Dept. of Medical Equipment Regional Center, Hamdeya, Giza

Rural Units and Centers in Aswan, Giza, Qalyubia, Sharkia, and Qena Governorates (in 1981)

1982 Health Sector Assessment
Equipment and Vehicles Report

SUB-ANNEX 1: Expects from the Report on SRHD Mid-Project
Program Review, December 1980.

i. Components Stated in the Implementation Program

Lack of transportation was identified by the MOH as one of the major constraints to the effective delivery of health services to rural population groups. Transportation facilities are of vital importance for assuring:

- o the provision of health service inputs principally for its outreach program but also for in-service, patient referral and for emergency services.
- o maintenance of quality care which is largely determined by the frequency and timeliness of specific health interventions.
- o supervision of health service staff and in-service training activities at the periphery.

Vehicle Distribution. From April 26 through June 4, 1976 a group of experts made an extensive survey on transport facilities and needs for the four governorates included in the project. SRHD staff reviewed their report and visited two governorates to discuss with health care providers at all levels current transport needs; they came to the conclusion that with minor modifications, the 1976 recommendations were valid. Some changes were made with respect to timing and eventual vehicle use. Distribution of vehicles is planned in two phases, during which distribution will be gradual. 140 vehicles were ordered initially. It was planned to distribute them in lots because of their different times of arrival and the time required for licensing; and the need to develop vehicle maintenance facilities adequate for routine vehicle maintenance such as the first 1000 mile check and repair.

The two major objectives for the initial distribution are:

- o to cover minimal transport needs compatible with effective health care at the health facility level in order to ensure supervision and in-service training at all levels.
- o to permit data collection by special teams of investigators for baseline information, program monitoring, etc.

A second shipment of vehicles is planned in order to test specific variables of the project involving transport availabilities.

In the beginning of the project none of the four governorates had the necessary extra facilities to maintain and provide repair services

for the planned vehicle fleet on an ongoing basis. Intermediate plans, therefore, have been proposed:

- o In order to assure that the vehicles are maintained in the interim, garage (i.e., the Cairo Ford Agency) to provide maintenance, repair and training services on a pro-rated cost basis.
- o A training session for all mechanics will be given, including a general overview of brand-specific (Ford) motors and the rationale for preventive maintenance and vehicle maintenance record-keeping. A review of existing records will be made at the initial training session and the additional forms recommended in the PP Special Analysis on transportation should then be introduced and discussed. Subsequent periodic training sessions should be conducted as the vehicles age, and these sessions should be increasingly problem-oriented.

The local Ford agency can probably best carry out the pre-delivery checks on all vehicles as well as the recommended periodic checkups.

The local (Ford) agency might be used as the major technical resource center until MOH repair facilities are completed and the mechanics trained. The contract negotiated with this (Ford) agency should include a provision for emergency outreach services.

Implementation Plan. Following is an overview of the transport implementation scheme:

Buildup of (vehicle) service facilities:

- New Construction: district workshops (for regular maintenance); and governorate workshops (for maintenance and repair).
- New Equipping: Mobile service vehicles (one per governorate) and stationary facilities.
- Use of existing facilities: at MOH level and private sector.
- Initial distribution of vehicles: to recipients; timing of distribution.
- Vehicle Administration: assessment of transportation needs; monitoring of vehicle use; maintenance routines and standing orders; and storing and distribution of replacement parts.

Buildup of vehicle service facilities at the district and governorate levels has been begun in part or is to begin shortly. Discussions and negotiations are now under way for equipping mobile repair vehicles, setting up training courses for MOH mechanics, and for securing initial service and maintenance facilities within the private sector.

Distribution of Vehicles in the initial period are to be made to all 60 (current) health centers. Each district will receive six vehicles for administrative use. Vehicles will be provided to the field Executive Directors, one vehicle jointly for the persons responsible for environmental sanitation and laboratory supervision, one vehicle for truck transport and one for a newly designated function--in-service training; and one specially-equipped vehicle will be provided for health education services. The MCH supervisor will receive an ambulance as a replacement vehicle at the health facility.

Five vehicles will be distributed at the governorate level. One vehicle will be provided to the project Executive Director, and one for joint use by personnel in charge of supervision of nursing activities, family planning and MCH. Another, provided to the Director General, will be used to facilitate supervisory activities and serve as a replacement vehicle for health center, district and governorate levels. One vehicle will serve as a replacement vehicle primarily for the MCH district supervisor.

At the central level, vehicles will be provided as follows: two for the use of the SRHD core staff, two for use by MOH supervisory personnel, one for data collection, two for transport and two for replacement.

Vehicles at the health center as well as those for the MCH supervisor at the district level will be ambulances with two or four-wheel drive depending on the terrain. District ambulances may serve as replacements for health center vehicles. The remainder of district vehicles are vans (for the project field Executive Director, environmental sanitation and laboratory supervision, training), cargo, and one specially-equipped health education van.

At the governorate level, the mobile repair vehicle as well as the data collection vehicle will have four-wheel drive: the rest will have two-wheel drive.

At the central level, most vehicles will be two-wheel drive vans, except for the four-wheel drive van (MOH supervision) and two cargo trucks. The distribution of vehicles is shown in summary form in Table b-i-1.

Total initial vehicle allocation will thus total 115 two-wheel drive vehicles and 25 four-wheel drive vehicles. Table b-i-2 gives the distribution of vehicles by type and district.

Emergency use of vehicles has priority over all other utilization at the center, district or governorate level.

Vehicle Administration

To maximize vehicle utilization, management and supervision will need to be established and strengthened.

The technical aspects -- reporting procedures, maintenance schedules, etc., will be followed as recommended in the transportation report section of the Project Paper. In addition, three other objectives will be sought:

- o to maximize the efficient use of vehicles based on health service and support services needs on all governmental levels.
- o to strengthen the administrative supervisory skills of the managers responsible for the vehicles and programs on all governmental levels.
- o to determine the cost factors for maintaining a fleet of vehicles.

On the MOH level, a transportation task force might be appointed and given the responsibility to: identify MOH transportation needs; identify the parameters of MOH responsibility for vehicle maintenance and repair;

Recipient	No. per unit	total no.	Types of vehicles						
			Vans		Cargo		Ambulance		Sp.
			2wh	4wh	2wh	4wh	2wh	4wh	2wh
1. RHC's (1 H.U)	1	63					51	12	
2. Distr. level	6	48	21	4	8		3	4	8
Distr. Exec. Dir	1	8	8						
MCH Sup.	1	8	1				3	3	
Env. San. and Lab. Superv.	1	8	4	4					
Cargo	1	8			8				
Training	1	8	8						
Hlth. Ed.	1	8							8
3. Gov'te Level	5	20	16			4			
PED Supervision	1	4	4						
- DG plus replacem.	1	4	4						
- techn. Servs.	1	4	4						
- Mobile works	1	4				4			
Replacement	1	4	4						
4. Central level	9	9	6	1	2				
SRHD (Core)	2	2	2						
MOH Superv.	2	2	1	1					
Appl. Research and Data Col.	1	1	1						
Cargo	2	2			2				
Replacement.	2	3	2						
TOTAL		140	43	5	10	4	54	16	8

Table b-i-1

DISTRIBUTION OF VEHICLES BY SITE AND TYPE

	VANS		AMBUL.		CARGO		HLTH. ED.	SUB. Tot.		TOTAL		GRD TOTAL
	2wh	4wh	2wh	4wh	2wh	4wh	2wh	2wh	4wh	2wh	4wh	
Project Headquarters	6	1			2					8	1	9
Dakahleia Governorate total	8	2	14	6	2	1	2			26	9	35
Governate	4					1		4	1			
Simbillawin District												
Headquarters	2	1		1	1		1	4	2	11	4	
Rural Health Centers			7	2				7	2			
Dekernis District												
Headquarters	2	1		1	1		1	4	2	11	4	
Rural Health Centers			7	2				7	2			
Beheira Governorate Total	8	2	12	6	2	1	2			24	9	33
Governorate	4					1		4	1			
Xom-Hamada District												
Headquarters	2	1		1	1		1	4	2	9	4	
Rural Health Centers			5	2				5	2			
Eday-el Barud District												
Headquarters	2	1		1	1		1	4	2	11	4	
Rural Health Centers			7	2				7	2			
Fayum Governorate Total	10		12	1	2	1	2			26	2	28
Governorate	4					1		4	1			
Fayum District												
Headquarters	3		1		1		1	6		11		
Rural Health Centers			5					5				
Abshwi District												
Headquarters	3		1		1		1	6		11	1	
Rural Health Centers			5	1				5	1			
Assiut Governorate Total	11		15	3	2	1	2			30	4	34
Governorate	4					1		4	1			
Assiut District												
Headquarters	3		1					4		9	1	
Rural Health Centers			5	1				5	1			
Abnub District												
Headquarters	2		1		1		1	5		10	1	
Rural Health Centers			5	1				5	1			
El-Kosiyia District												
Headquarters	2		1		1		1	5		7	1	
Rural Health Centers			2	1				2	1			
TOTAL	43	5	53	16	10	4	8			114	25	139

Table b-i-2.

define and codify policies relating to vehicle usage, maintenance, and enforcement procedures (supervision); review purchasing and supply procedures; and examine warehousing capabilities and needs.

The composition of this task force could include a supply officer, training officer, financial administrative officer, chief mechanic, maintenance supervisor and several program officers.

Since the role of the governorate is similar to that of the MOH in that it provides direction and supportive services, a task force might be developed to assist the Director General in: identifying governorate transportation needs; developing vehicle utilization schedules; developing enforceable governorate policies concerning vehicle usage and maintenance; and examining and identifying the resources necessary to maintain the vehicles.

This planning task force should minimally include the Director General or his appointee, the administrative/fiscal officer, the program director, supply officers, two district directors, the chief mechanic and others deemed necessary by the Director General of the governorate.

The district level is more closely identified with the delivery of actual clinical and preventive health services to the population. The planning task force on this level should: identify specific service needs; develop vehicle utilization plans or schedules; codify policies concerning vehicle usage and maintenance; and examine and identify the resources necessary to maintain the vehicles.

At the rural health center level, the Director, fiscal administrative officer, chief mechanic, and program directors will: identify transportation needs and develop a vehicle utilization schedule; and examine and identify resources necessary to maintain vehicles.

Vehicle Utilization. In order to estimate approximate vehicle usage, health service and administrative activities at the health center and district levels have been broken down into specific routine service and

emergency components and their frequency and location (in kilometer from the center) have been estimated. For the determination of vehicle usage for routine service delivery, planned activity levels were used. For the estimation of emergency vehicle requirements, observed mortality and birth rates and estimated morbidity levels were used. Estimated figures (Tables b-i-3, b-i-4) tend to identify the health center vehicle as the most used and therefore most subject to breakdown and need for repair. Assuming a six-day work week and one month (Ramadhan) of little or no activity, or a 280 workday year, the health center vehicle was expected to run 14,000 kilometers, the vehicle at the district level, 6,000 kilometers per year.

ii. Chronological Overview

June 1978	140 vehicles arrived in Egypt.
October 1978	Dr. H. Hoppes, Consultant, worked on transportation monitoring and vehicle maintenance system.
December 1978	Mr. Little and Dr. Michael inspected vehicles dispatched to Dakahleya; excluding the vehicles used by the Field Executive Director and the District Director, all vehicles were unused, in storage. Maintenance facilities were under construction at the governorate and district levels.
January 1979	Transportation monitoring forms and driver handbooks developed and being printed.
	Mr. Little and Dr. Todry visit Fayoum to evaluate transport system.
	Vehicles distributed to all governorates. Maintenance available in the private sector but repair facilities still unavailable (important because some 80% have dis-aligned front ends)
February 1979	Newly received Ford vehicles reportedly unusable because of irreplaceable tubless tires.
December 1979	Vehicle spare parts and tools arrive.
April 1980	Incentive program for drivers

**ESTIMATED DAILY VEHICLE USAGE AT THE HEALTH CENTRE LEVEL
BY PERSON AND ACTIVITY**

Activities	ROUTINE (Trips x Km)					EMERGENCY (Trips x Km)*			
	Nurse**	Sanitarian	H.D.	Lab Assist.	All Total	Nurse	H.D.	All total	Grand total
MCH	1 (6)				6 Km.	1(6)+ 1.5(6)	1.5(6)+ .01(20)+.01(6)	24.3	30.2
Fam. Plan.									
Env. San.		.8(6)			4.8km.				4.8
School Health	.6 (6)	as team			3.6km				3.6
CDC									
Parasit and Endem.				.3 (6)	1.8km.				1.8
Village Conf.			.05(12)		.6km.				.6
Med. Care(adult)							.15(10)	1.5	1.5
Other			.2(12)		2.4km.		1 (6)	6.0	8.4
All activities trips	1.6	1.4	.9	.9	3	2.5	1.5	4	7
Km.	9.6	4.8	3.0	1.8	19.2	15.0	16.8	31.8	50.9

* Emergency services include transportation of patient from surrounding health units

** Includes all nursing staff.

TABLE b-i-4

ESTIMATED DAILY VEHICLE USAGE AT THE DISTRICT
LEVEL BY PERSON & ACTIVITY

Vehicle No.	PERSON/GROUP	ACTIVITIES		TOTAL
		Supervision (trip x km)	Conferences (Trip x km)	
1	District Medical Officer	.33(25)=8.25	.09(25)=2.25	10.50
2	MCH/LAB/SAN Supervisors	.75(25)=18.75	.09(25)=2.25	21.0
3	District Health Education	-----	.85(25)=21.5	21.25

TABLE b-i-4

October - Consultant David E. Crichton visits all 10 project
November districts to report on status of vehicles delivered.
1980

iii. Progress to Date.

In a visit of all 10 SRHD districts in the four governorates made in October 1980, Consultant Crichton checks up on 121 vehicles. (Out of the 140 vehicles ordered and shipped, one was demolished on its way from Alexandria leaving accountable 139; therefore 18 vehicles could not be located at the time of the October 1980 survey.)

The two principal observations made by Mr. Crichton following his October 1980 field study were: the cars were in good condition; and they were largely underutilized.

Seventy-eight percent of the vehicles were found to be in good to excellent condition and another 7% would be added to these categories with minimal repairs to windshields and springs. This means that 15%, or 18 vehicles are in poor or bad condition, as is true for half of the 15%, there is no key. Vehicles destined for central use were not as well preserved. Of the five vehicles inspected by Mr. Crichton on October 12, only two were in good condition with the minor dents and scratches that might be expected with use in Cairo traffic. One of the other three vehicles has only 3854 kilometers on it but it cannot be moved from its present location where it is buried in dirt piles. This vehicle and the other two vehicles that are not being driven can be expected to deteriorate further from lack of use and upkeep, and the consultant suggests that they should be assigned to project areas where they are needed.

The table on the following page shows utilization of the vehicles found in the different districts. It was decided that "normal utilization" of a vehicle either in Cairo or other areas would be above 15,000 kilometers over a two-year period and that kilometer below that would be considered below normal.

Utilization of Vehicles as observed October 1980
in 10 SRHD Districts of the four governorates, Egypt.

<u>Governorate</u>	<u>No. of Districts</u>	<u>No. of Vehicles Inspected</u>	<u>Normal >15,000 km</u>	<u>Below Normal <15,000 km</u>	<u>No Report</u>
Behera	2	28	11	12	5
Dakahleya	3	33	13	20	
Fayum	2	27	10	17	
Assiut	3	28	18	10	
Cairo		5	2	3	

Thus, only 45% of the vehicles were considered utilized normally, taking into consideration earlier criteria established for likely use in the project. At that time, estimates were made for regular utilization plus a highly uncertain amount of use for "emergencies" which have proved to be far fewer or to require considerably less vehicle utilization than had been projected at the outset of the project. Part of the problem of under-utilization was the lack of drivers.

SRHD will study this report carefully and determine future ordering needs (against the 240 foreseen for the project). Certainly, the need for redistribution among the vehicles currently available is indicated. Specifications for additional vehicles would state the preference for smaller vehicles which would probably be much cheaper. The possibility of contracting taxis in certain instances may be considered as well, though it has limited appeal so far.

It is not possible to state to what extent the driver incentive plan has helped to contribute to the relatively good condition of the vehicles, but this evaluation summary will be available in the next months.

It is hoped also that it will be possible to show the importance of the vehicle to increased home visiting. At this point, it might appear that vehicle under-utilization suggests that factors other than transportation are more important but this remains to be shown conclusively.

Consultant Needs

1982 Health Sector Assessment
Equipment and Vehicles Report

SUB-ANNEX 2

Supplies and Equipment for on Rural Health Unit

S & E for one Rural Health-Unit

I. General Equipment

<u>Item No.</u>	<u>Description</u>	<u>UNIPAC Code No.</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost \$</u>
01	Scale physician adult metric 140 KGS x 100 G	01 405 00	1	Each	104.-
02	Strecher Army type-folding	01 800 00	1	Each	30.-
03	Table examining portable 3-section with pad	01 850 00	1	Each	185.-
04	Table utility w/drawer and rails 500x800 MM.	01 804 00	1	Each	68.-
05	Waste receptacle 13 LTR/3 gallon capacity SS	01 900 00	1	Each	21.-
06	Apron utility 900MM x 1M clear vinyle plastic	03 050 00	2	Each	2.50
07	Finger-cot surgeons large size rolled end box 72	03 269 01	1	Box	0.80
08	Finger-cot surgeons med. size rolled end box 72	03 270 01	1	Box	0.80
09	Finger-cot surgeons small size rolled end box 72	03 271 01	1	Box	5.-
10	Lantern kerosene pressure 1.183 LTR/2.5 Pint 400 MM	05 323 00	1	Each	23.-
11	Notebook ruled wire-bound 50 sheets 130 x 200 MM	05 380 00	3	Each	0.75
12	Razor safety all-metal 3-piece	05 440 00	2	Each	2.-

2.5.2.19

Item No.	Description	UNIPAC Code No.	Quantity	Unit	Cost \$
13	Blades safety razor double-edge pack of 5	05 442 00	10	PKT	0.70
14	Towel huck 430x500MM	05 750 00	6	Each	2.-
15	Flashlight pre-focu- sed 2-cell right an- gles head	06 300 00	1	Each	1.-
16	Filter water alumin- ium with 4 sterasyll candles	56 199 02	1	Each	66.-
					512.55
					Say 520.-
<u>-II. Diagnostic Equipment</u>					
17	Tongue-depressor 165 MM metal	06 200 00	3	Each	0.75
18	Tongue-depressor child size box of 500 wood	06 210 00	1	Box	2.0
19	Hammer reflex testing Taylor solid rubber head	06 400 00	1	Each	1.50
20	Pelvimeter collyer external grad CNS/ Inches	06 670 00	1	Each	6.-
21	Speculum nasal bos- worth wire stainless steel	06 800 00	1	Each	0.40
22	Sphygmomanometer ane- roid 300 MM w/bandage cuff	06 840 00	1	Each	29.-
23	Bandage-cuff spare for Sphygmo 068 4000 child	06 845 00	1	Each	9.-
24	Chestpiece bowles spare for stethoscope 068 6000	06 861 00	1	Each	2.-
25	Stethoscope foetal pinard monaural	06 865 00	1	Each	1.10

Item No.	Description	UNIPAC Code No.	Quantity	Unit	Cost \$
26	Box microscope slide (empty) for 100 slides	09 221 00	1	Each	2.50
27	Container sputum-cup for transport	09 325 30	1000	Each	100.-
28	Slide microscope plain 25 x 75 MM Box 72 clinical	09 690 00	3	Box	3.-
					157.25
			Say		160.-

III. Treatment Equipment

29	Stove kerosene single burner pressure type	01 700 00	1	Each	17.-
30	Irrigator 1.5 LTR w/tu- hing-clamp & str-conne- ctor	02 520 00	1	Kit	6.-
31	Measure graduated w/han- dle 1000 ML/1 quart SS	02 610 00	1	Each	2.-
32	Aspirator nasal infant size 30 ML	03 100 00	1	Each	1.-
33	Bottle dropping 30 ML Polyethylene	03 165 00	1	Each	0.40
34	Catheter tracheal delee w/glass mucus trap 16FR	03 190 00	2	Each	2.70
35	Catheter tracheal delee open-tip funnel end 16 FR	03 195 00	1	Each	0.50
36	Catheter urethral set of 12 assorted	03 234 00	1	Set	3.-
37	Cup medicine 30 ML Polypropylene	03 249 70	3	Each	0.10
38	Gloves surgeon's Latex size 6-1/2'	03 280 00	6	Pair	2.10
39	Gloves surgeon's Latex size 7	03 285 00	6	Pair	2.-

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<u>Item No.</u>	<u>Description</u>	<u>UNIPAC Code No.</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost\$</u>
40	Gloves surgeon's Latex size 7-1/2	03 290 00	6	Pair	2.-
41	Jar forceps 180 MM deep Polypropylene	03 335 00	2	Each	5.70
42	Pail diaper w/cover 11-15LTR.Polyethylene	03 375 00	1	Each	2.-
43	Pump breast hand rubber bulb w glass bell	03 450 00	1	Each	1.35
44					
44	Measure dispensing conical 5ML/60 Minims glass	04 400 00	3	Each	7.50
45	Measure dispensing conical 125ML/4 oz glass	04 410 00	1	Each	3.50
46	Syringe irrigating catheter-tip 60ML glass	04 700 00	1	Each	1.-
47	Tube vaginal glass 10MM diam 150MM long	04 890 00	1	Each	0.50
48	box for minor surgery items 165x90x27MM metal	05 130 00	1	Each	4.-
49	Pins safety medium size/ 40 MM bag of 12	05 390 00	3	Bag	0.35
50	Stone sharpening oil Arkansas 50x19x0.3MM	05 590 00	1	Each	1.-
51	Suture nylon monofil sterile 000 USP 760 MM	05 625 00	6	Each	1.80
52	Tape umbilical non-sterile 3 MM widex100 M spool	05 660 00	2	Each	6.50
53	Tourniquet fabric-web type 25 x 914 MM	05 700 00	1	Each	0.70
54	Applicator ear & nasal double-ended 180MM SS	07 030 00	1	Each	0.15
55	Forceps clip-applying/ removing Michel 125 MM SS	07 200 00	1	Each	1.50

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Item No.	Description	UNIPAC Code No.	Quantity	Unit	Cost \$
56	Forceps hemostat straight Kocher 140MM SS	07 260 00	2	Each	4.50
57	Forceps hemostat str- aight Roche-str-pean 160 MM SS	07 275 00	2	Each	5.-
58	Forceps splinter spring-type fine points 100 MM	07 349 00	1	Each	0.40
59	Forceps sponge-hol- ding straight 225 MM SS	07 350 00	3	Each	13.50
60	Forceps tissue spring- type 1x2 teeth 150MM SS	07 370 00	2	Each	2.-
61	Holder needle straight narrow-jaw Mayo-HGR 150 MM	07 435 00	1	Each	3.-
62	Needle Hypo-Luer-set of 144 assorted	07 523 00	1	Set	4.50
63	Needle suture 3/8 cir- cle cutting assorted	07 585 05	1	PKT	0.60
64	Speculum vaginal bi- valve graves small SS	07 770 00	3	Each	11.-
65	Speculum vaginal bi- valve graves medium SS	07 775 00	3	Each	13.-
66	Speculum vaginal bi- valve graves large SS	07 780 00	2	Each	9.-
67	Suture-clips michel 14 MM SS box of 1000	07 810 00	2	Each	17.-
68	Syringe Hypo 2 ML Luer glass	07 835 00	15	Each	4.25
69	Syringe Hypo 5 ML Luer glass	07 840 00	15	Each	4.50

4.50

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Item No.	Description	UNIPAC Code No.	Quantity	Unit	Cost \$
70	Syringe Hypo 10 ML Luer glass	07 845 00	6	Each	2.45
71	Bottle narrow-mouth- screw cap rnd 250 ML Poly prop	09 193 05	2	Each	0.50
72	Bottle wide-mouth- screw cap rnd 1 LTR polyprop	09 193 10	1	Each	0.60
73	Bottle wide-mouth- screw-cap square 120 ML Polyprcp.	09 213 00	1	Each	0.20
					172.55
					Say 180.-
Grand Total					860.-

45729

S & E For Midwifery Kits and Accessories

Midwifery kits and accessories for 104 health centres

<u>Item No.</u>	<u>Description</u>	<u>UNIPAC Code No.</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost \$</u>
74	Midwifery-kit type 3 w/opt (cent-alum case)	9902101	1	Each	42.42
75	Forceps hemostat straight rochester- pean 160 MM SS	0727500	2	Each	5.08
76	Stethoscope foetal pinard monaural	0686500	1	Each	1.14
77	Gloves surgeon's Latex size 7	0328500	1	Pair	0.39
78	Gloves surgeon's Latex size 7 1/2	0329000	1	Pair	0.38
79	Holder needle curved metzenbaum baby 150MM SS	0742985	1	Each	2.31
80	Needle suture 3/8 cir- cle cutting assorted	0758505	1	PKT	0.61
81	Needle suture 3/8 round pt 12 pkt of 6	0759332	1	PKT	0.69
82	Suture nylon monofil sterile 000 USP 760MM	0562500	1	Each	0.34
83	Suture silk black set of 3 sizes	0565500	1	Set	0.85
					54.21
				Say	<u>60.-</u>

V. 52220

(CONTINUED FROM PREVIOUS PAGE)

(CONTINUED FROM PREVIOUS PAGE)

COTTON WOOL ABSORBENT NON-STERILE 100G
 GAUZE-PAD STERILE 12-PLY 76X76MM SQUARE
 SOAP-BOX 2-PIECE HINGED PLASTIC
 SOAP TOILET 113G BAR UNWRAPPED
 TOWEL HUCK 430 X 500 MM
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS SURGICAL STRAIGHT 140MM 8/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

0519500 ROLL
 0522000 EACH
 0551004 EACH
 0552000 BAR
 0578000 EACH
 0738001 EACH
 0774500 EACH
 0930480 EACH

MEASURE 1.5M/80" VINYL-COATED FIBREGLASS
 TOWEL HUCK 430 X 500 MM
 ANALYSIS-OUTFIT (ALBUMIN) TEST TUBES/BOTL/CLMP
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 FORCEPS HEMOSTAT STRAIGHT ROCHESTR-PEAN 180MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS SURGICAL STRAIGHT 140MM 8/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

0557000 EACH
 0575000 EACH
 0584000 SET
 0688000 EACH
 0727500 EACH
 0738001 EACH
 0774500 EACH
 0930480 EACH

MIDWIFERY-KIT TYPE 3 BASIC (CENT-ALUM CASE)

STERILIZER INSTRUMENT 222X82X41 MM STAINLESS
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BOWL SPONGE SS SET OF 2 NESTING CLOSELY
 IRRIGATOR 1.5LTR STAINLESS STEEL
 APRON UTILITY 900MM X 1M OPAQUE PLASTIC
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 12FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 POUCH CLEAR POLYPROPYLENE 250X380 MM LONG
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 TUBE RECTAL ONE-EYE FUNNEL-END 22FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 BOTTLE DROPPING 10ML AMBER GLASS
 BOTTLE N/M ROUND SCREW-CAP 60ML AMBER GLASS
 BOTTLE W/M ROUND SCREW-CAP 60ML AMBER GLASS
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 CASE FOR MIDWIFE KIT WITH LID EMPTY ALUMINIUM
 COTTON WOOL ABSORBENT NON-STERILE 100G
 GAUZE-PAD STERILE 12-PLY 76X76MM SQUARE
 LAMP ALCOHOL WITH SCREW CAP 80ML METAL
 PINS SAFETY MEDIUM SIZE/40MM BAG OF 12
 SOAP-BOX 2-PIECE HINGED PLASTIC
 SOAP TOILET 113G BAR UNWRAPPED
 SCALE SPRING BABY 10KG 100G GRADUATIONS
 TAPE-MEASURE 1.5M/80" VINYL-COATED FIBREGLASS
 TOWEL HUCK 430 X 500 MM
 URINALYSIS-OUTFIT (ALBUMIN) TEST TUBES/BOTL/CLMP
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 FORCEPS HEMOSTAT STRAIGHT ROCHESTR-PEAN 140MM 8/B SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS SURGICAL STRAIGHT 140MM 8/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

0167000 EACH
 0211000 EACH
 0227000 SET
 0260000 EACH
 0308000 EACH
 0322000 EACH
 0324500 EACH
 0340000 EACH
 0361000 MTR
 0378500 EACH
 0382000 LGTH
 0416000 EACH
 0417000 EACH
 0417500 EACH
 0481080 EACH
 0481080 EACH
 0514000 EACH
 0519500 EACH
 0519500 ROLL
 0522000 EACH
 0530000 BAG
 0539000 BAG
 0551004 EACH
 0552000 BAR
 0557000 EACH
 0567000 EACH
 0575000 EACH
 0584000 SET
 0688000 EACH
 0727500 EACH
 0738001 EACH
 0774500 EACH
 0930480 EACH

MIDWIFERY-KIT TYPE 3 BASIC (CENT-CANVAS BAG)

STERILIZER INSTRUMENT 222X82X41 MM STAINLESS
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BOWL SPONGE SS SET OF 2 NESTING CLOSELY
 IRRIGATOR 1.5LTR STAINLESS STEEL
 APRON UTILITY 900MM X 1M OPAQUE PLASTIC
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 12FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 POUCH CLEAR POLYPROPYLENE 250X380 MM LONG
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 TUBE RECTAL ONE-EYE FUNNEL-END 22FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 BOTTLE DROPPING 10ML AMBER GLASS
 BOTTLE N/M ROUND SCREW-CAP 60ML AMBER GLASS
 BOTTLE W/M ROUND SCREW-CAP 60ML AMBER GLASS
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BAG PUBLIC-HLTH NURSE WATERPRF SHLDR-STRP EMPTY
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 COTTON WOOL ABSORBENT NON-STERILE 100G
 GAUZE-PAD STERILE 12-PLY 76X76MM SQUARE
 LAMP ALCOHOL WITH SCREW CAP 80ML METAL
 PINS SAFETY MEDIUM SIZE/40MM BAG OF 12
 SOAP-BOX 2-PIECE HINGED PLASTIC
 SOAP TOILET 113G BAR UNWRAPPED
 SCALE SPRING BABY 10KG 100G GRADUATIONS

0167000 EACH
 0211000 EACH
 0227000 SET
 0260000 EACH
 0308000 EACH
 0322000 EACH
 0324500 EACH
 0340000 EACH
 0361000 MTR
 0378500 EACH
 0382000 LGTH
 0416000 EACH
 0417000 EACH
 0417500 EACH
 0481080 EACH
 0481080 EACH
 0512040 EACH
 0514000 EACH
 0519500 ROLL
 0522000 EACH
 0530000 BAG
 0539000 BAG
 0551004 EACH
 0552000 BAR
 0557000 EACH

MIDWIFERY-KIT TYPE 3 W/OPT (CENT-ALUM CASE)

STERILIZER INSTRUMENT 222X82X41 MM STAINLESS
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BOWL SPONGE SS SET OF 2 NESTING CLOSELY
 IRRIGATOR 1.5LTR STAINLESS STEEL
 APRON UTILITY 900MM X 1M OPAQUE PLASTIC
 CATHETER TRACHEAL DELEE OPEN-TIP FUNNEL END 16FR
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 12FR
 CONNECTOR 3-IN-1 FOR 5.4 TO 10.9MM TUBING NYLON
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 POUCH CLEAR POLYPROPYLENE 250X380 MM LONG
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 TUBE RECTAL ONE-EYE FUNNEL-END 22FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 BOTTLE DROPPING 10ML AMBER GLASS
 BOTTLE N/M ROUND SCREW-CAP 60ML AMBER GLASS
 BOTTLE W/M ROUND SCREW-CAP 60ML AMBER GLASS
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 CASE FOR MIDWIFE KIT WITH LID EMPTY ALUMINIUM
 LAMP ALCOHOL WITH SCREW CAP 80ML METAL
 PINS SAFETY MEDIUM SIZE/40MM BAG OF 12
 SOAP-BOX 2-PIECE HINGED PLASTIC
 SOAP TOILET 113G BAR UNWRAPPED
 SCALE SPRING BABY 10KG 100G GRADUATIONS
 TAPE-MEASURE 1.5M/80" VINYL-COATED FIBREGLASS
 TOWEL HUCK 430 X 500 MM
 ANALYSIS-OUTFIT (ALBUMIN) TEST TUBES/BOTL/CLMP
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 FORCEPS HEMOSTAT STRAIGHT ROCHESTR-PEAN 180MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS SURGICAL STRAIGHT 140MM 8/B SS
 SCISSORS SURGICAL STRAIGHT 140MM 8/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

0167000 EACH
 0211000 EACH
 0227000 SET
 0260000 EACH
 0308000 EACH
 0319500 EACH
 0322000 EACH
 0324400 EACH
 0324500 EACH
 0340000 EACH
 0361000 MTR
 0378500 EACH
 0382000 LGTH
 0416000 EACH
 0417000 EACH
 0417500 EACH
 0481080 EACH
 0481080 EACH
 0514000 EACH
 0519500 EACH
 0519500 ROLL
 0522000 EACH
 0530000 BAG
 0539000 BAG
 0551004 EACH
 0552000 BAR
 0557000 EACH
 0567000 EACH
 0575000 EACH
 0584000 SET
 0688000 EACH
 0727500 EACH
 0738001 EACH
 0774500 EACH
 0780000 BOX
 0774500 EACH
 0774500 EACH
 0930480 EACH
 0930480 VIAL

MIDWIFERY-KIT TYPE 3 W/OPT (CENT-CANVAS BAG)

STERILIZER INSTRUMENT 222X82X41 MM STAINLESS
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BOWL SPONGE SS SET OF 2 NESTING CLOSELY
 IRRIGATOR 1.5LTR STAINLESS STEEL
 APRON UTILITY 900MM X 1M OPAQUE PLASTIC
 CATHETER TRACHEAL DELEE OPEN-TIP FUNNEL END 16FR
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 12FR
 CONNECTOR 3-IN-1 FOR 5.4 TO 10.9MM TUBING NYLON
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 POUCH CLEAR POLYPROPYLENE 250X380 MM LONG
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 TUBE RECTAL ONE-EYE FUNNEL-END 22FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 BOTTLE DROPPING 10ML AMBER GLASS
 BOTTLE N/M ROUND SCREW-CAP 60ML AMBER GLASS
 BOTTLE W/M ROUND SCREW-CAP 60ML AMBER GLASS
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BAG PUBLIC-HLTH NURSE WATERPRF SHLDR-STRP EMPTY
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 COTTON WOOL ABSORBENT NON-STERILE 100G
 GAUZE-PAD STERILE 12-PLY 76X76MM SQUARE
 LAMP ALCOHOL WITH SCREW CAP 80ML METAL
 PINS SAFETY MEDIUM SIZE/40MM BAG OF 12
 SOAP-BOX 2-PIECE HINGED PLASTIC
 SOAP TOILET 113G BAR UNWRAPPED
 SCALE SPRING BABY 10KG 100G GRADUATIONS

0167000 EACH
 0211000 EACH
 0227000 SET
 0260000 EACH
 0308000 EACH
 0319500 EACH
 0322000 EACH
 0324400 EACH
 0324500 EACH
 0340000 EACH
 0361000 MTR
 0378500 EACH
 0382000 LGTH
 0416000 EACH
 0417000 EACH
 0417500 EACH
 0481080 EACH
 0481080 EACH
 0512040 EACH
 0514000 EACH
 0519500 ROLL
 0522000 EACH
 0530000 BAG
 0539000 BAG
 0551004 EACH
 0552000 BAR
 0557000 EACH

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BEST AVAILABLE

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MEASURE GRADUATED W/HANDLE 500ML/1 PINT SS
 TRAY INSTRUMENT/DRESSING W/COVER 310X185X83MM SS
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 DROPPER MEDICINE CURVED TIP UNGRADUATED
 MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 TAPE-MEASURE 1.5M/60" VINYL-COATED FIBREGLOSS
 URINARY-TEST-SET COMPLETE
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 FORCEPS DRESSING SPRING-TYPE 150MM SS
 FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 SCISSORS SURGICAL STRAIGHT 140MM S/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

MCH-B-CENTRE-FOT (METRIC-CENT-FORD STETH) - STOVE

SCALE INFANT METRIC 16KGS X 20G
 STERILIZER INSTR.BOILING TYPE 320X170X100MM FUEL
 STOVE KEROSENE SINGLE BURNER PRESSURE TYPE
 BASIN KIDNEY 475 ML (16 OZ) STAINLESS STEEL
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BASIN SOLUTION DEEP APPROX. 6 LITRE S.S.
 BOWL SPONGE 800ML STAINLESS STEEL
 CUP SOLUTION 180ML STAINLESS STEEL
 IRRIGATOR 1.5LTR STAINLESS STEEL
 JAR DRESSING W/COVER 2.13 LITRE STAINLESS STEEL
 MEASURE GRADUATED W/HANDLE 500ML/1 PINT SS
 TRAY INSTRUMENT/DRESSING W/COVER 310X185X83MM SS
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 DROPPER MEDICINE CURVED TIP UNGRADUATED
 MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 TAPE-MEASURE 1.5M/60" VINYL-COATED FIBREGLOSS
 URINARY-TEST-SET COMPLETE
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 FORCEPS DRESSING SPRING-TYPE 150MM SS
 FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 SCISSORS SURGICAL STRAIGHT 140MM S/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

MCH-B-CENTRE-FOT (METRIC-CENT-PINARD STETH)

SCALE INFANT METRIC 16KGS X 20G
 STERILIZER INSTR.BOILING TYPE 320X170X100MM FUEL

0260000 EACH
 0276500 EACH
 0323000 EACH
 0324600 EACH
 0361000 MTR
 0363000 EACH
 0365000 EACH
 0378000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481050 EACH
 0481060 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0567000 EACH
 0580000 SET
 0686000 EACH
 0721000 EACH
 0724500 EACH
 0736001 EACH
 0770000 EACH
 0772000 EACH
 0773500 EACH
 0930460 EACH

9902511 KIT

0145500 EACH
 0162000 EACH
 0170000 EACH
 0210000 EACH
 0211000 EACH
 0214000 EACH
 0226000 EACH
 0237000 EACH
 0250000 EACH
 0255000 EACH
 0260000 EACH
 0276500 EACH
 0323000 EACH
 0324600 EACH
 0361000 MTR
 0363000 EACH
 0365000 EACH
 0378000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481050 EACH
 0481060 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0567000 EACH
 0580000 SET
 0686000 EACH
 0721000 EACH
 0724500 EACH
 0736001 EACH
 0770000 EACH
 0772000 EACH
 0773500 EACH
 0930460 EACH

9902520 KIT

0145500 EACH
 0162000 EACH

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BASIN KIDNEY 475 ML (16 OZ) STAINLESS STEEL
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BASIN SOLUTION DEEP APPROX. 6 LITRE S.S.
 BOWL SPONGE 800ML STAINLESS STEEL
 CUP SOLUTION 180ML STAINLESS STEEL
 IRRIGATOR 1.5LTR STAINLESS STEEL
 JAR DRESSING W/COVER 2.13 LITRE STAINLESS STEEL
 MEASURE GRADUATED W/HANDLE 500ML/1 PINT SS
 TRAY INSTRUMENT/DRESSING W/COVER 310X185X83MM SS
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 DROPPER MEDICINE CURVED TIP UNGRADUATED
 MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 TAPE-MEASURE 1.5M/60" VINYL-COATED FIBREGLOSS
 URINARY-TEST-SET COMPLETE
 STETHOSCOPE FOETAL PINARD MONAURAL
 FORCEPS DRESSING SPRING-TYPE 150MM SS
 FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 SCISSORS SURGICAL STRAIGHT 140MM S/B SS
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM

MCH-B-CENTRE-FOT (METRIC-CENT-PINARD STETH) - STOVE

SCALE INFANT METRIC 16KGS X 20G
 STERILIZER INSTR.BOILING TYPE 320X170X100MM FUEL
 STOVE KEROSENE SINGLE BURNER PRESSURE TYPE
 BASIN KIDNEY 475 ML (16 OZ) STAINLESS STEEL
 BASIN KIDNEY 825ML (28 OZ) STAINLESS STEEL
 BASIN SOLUTION DEEP APPROX. 6 LITRE S.S.
 BOWL SPONGE 800ML STAINLESS STEEL
 CUP SOLUTION 180ML STAINLESS STEEL
 IRRIGATOR 1.5LTR STAINLESS STEEL
 JAR DRESSING W/COVER 2.13 LITRE STAINLESS STEEL
 MEASURE GRADUATED W/HANDLE 500ML/1 PINT SS
 TRAY INSTRUMENT/DRESSING W/COVER 310X185X83MM SS
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 DROPPER MEDICINE CURVED TIP UNGRADUATED
 MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 TAPE-MEASURE 1.5M/60" VINYL-COATED FIBREGLOSS
 URINARY-TEST-SET COMPLETE
 STETHOSCOPE FOETAL PINARD MONAURAL
 FORCEPS DRESSING SPRING-TYPE 150MM SS
 FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CRM
 SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 SCISSORS SURGICAL STRAIGHT 140MM S/B SS

0210000 EACH
 0211000 EACH
 0214000 EACH
 0226000 EACH
 0237000 EACH
 0250000 EACH
 0255000 EACH
 0260000 EACH
 0276500 EACH
 0323000 EACH
 0324600 EACH
 0361000 MTR
 0363000 EACH
 0365000 EACH
 0378000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481050 EACH
 0481060 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0567000 EACH
 0580000 SET
 0686000 EACH
 0721000 EACH
 0724500 EACH
 0736001 EACH
 0770000 EACH
 0772000 EACH
 0773500 EACH
 0930460 EACH

9902521 KIT 133.45

0145500 EACH
 0162000 EACH
 0170000 EACH
 0210000 EACH
 0211000 EACH
 0214000 EACH
 0226000 EACH
 0237000 EACH
 0250000 EACH
 0255000 EACH
 0260000 EACH
 0276500 EACH
 0323000 EACH
 0324600 EACH
 0361000 MTR
 0363000 EACH
 0365000 EACH
 0378000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481050 EACH
 0481060 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0567000 EACH
 0580000 SET
 0686000 EACH
 0721000 EACH
 0724500 EACH
 0736001 EACH
 0770000 EACH
 0772000 EACH
 0773500 EACH

BEST AVAILABLE

(CONTINUED FROM PREVIOUS PAGE)

BOWL SPONGE 800ML STAINLESS STEEL
 CUP SOLUTION 180ML STAINLESS STEEL
 IRRIGATOR 1.5LTR STAINLESS STEEL
 JAR DRESSING W/COVER 2.13 LITRE STAINLESS STEEL
 MEASURE GRADUATED W/HANDLE 500ML/1 PINT SS
 TRAY INSTRUMENT/DRESSING W/COVER 310X195X83MM SS
 TRAY INSTRUMENT SHALLOW 480X330X19MM SS
 CATHETER URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 GLOVES SURGEON'S LATEX SIZE 7
 SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 SYRINGE EAR & ULCER RUBBER TIP 100ML
 SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 DROPPER MEDICINE CURVED TIP UNGRADUATED
 MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 STONE SHARPENING OIL ARKANSAS 60X19X6.3MM
 SUTURE COTTON WHITE NON-STERILE 00 USP 91M
 TAPE-MEASURE 1.5M/80" VINYL-COATED FIBREGLASS
 TOURNIQUET WEB HEAVY OLIVE DRAP 38X1066MM
 URINARY-TEST-SET COMPLETE
 URINOMETER SQUIBB COMPLETE
 TONGUE-DEPRESSOR 165MM METAL
 PELVIMETER COLLIER EXTERNAL GRAD CMS/INCHES
 SPHYGMOMANOMETER ANEROID 300MM W/BANDAGE CUFF
 STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 STETHOSCOPE FOETAL PINARD MONAURAL
 CATHETER URETHRAL FEMALE 12FR METAL
 FORCEPS DRESSING SPRING-TYPE 150MM SS
 FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 FORCEPS SPONGE-HOLDING STRAIGHT 225MM SS
 FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CHM
 FORCEPS UTERINE VULSELLUM STRAIGHT JACOBS 250MM
 HOLDER NEEDLE STRAIGHT NARROW-JAW MAYO-HGR 160MM
 KNIFE-HANDLE SURGICAL FOR MINOR SURGERY #3
 KNIFE-BLADE SURGICAL FOR MINOR SURGERY #10 PKT 5
 KNIFE-BLADE SURGICAL FOR MINOR SURGERY #11 PKT 5
 KNIFE-BLADE SURGICAL FOR MINOR SURGERY #12 PKT 5
 NEEDLE HYPO 0.70X32MM/22GX1-1/4" LUER BOX OF 12
 NEEDLE HYPO 0.65X19MM/24GX3/4" LUER BOX OF 12
 NEEDLE HYPO 0.90X38MM/20GX1-1/2" LUER BOX OF 12
 NEEDLE SUTURE 3/8CIRC TRI PT PKT OF 6 ASSTD
 SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 SCISSORS SURGICAL STRAIGHT 140MM S/B SS
 SPECULUM VAGINAL BI-VALVE GRAVES SMALL SS
 SPECULUM VAGINAL BI-VALVE GRAVES MEDIUM SS
 SYRINGE HYPODERMIC 2MLX0.1ML NYLON LUER
 SYRINGE HYPODERMIC 5MLX0.5ML NYLON LUER
 SYRINGE HYPODERMIC 10MLX0.5ML NYLON LUER
 CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM
 HEMOGLOBINOMETER-SET SAHLI-TYPE COMPLETE
 PIPETTE SAHLI 0.02ML FOR HEMOGLOBINOMETER
 MEASURING-TUBE SQUARE(14.5G HB)FOR HEMOGLOBINMTR

0228000 EACH
 0237000 EACH
 0260000 EACH
 0265000 EACH
 0260000 EACH
 0276500 EACH
 0278000 EACH
 0323000 EACH
 0324500 EACH
 0328500 PAIR
 0361000 MTR
 0363000 EACH
 0364000 EACH
 0366000 EACH
 0379000 EACH
 0379000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481000 EACH
 0481000 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0559000 EACH
 0561000 SPU
 0567000 EACH
 0570000 EACH
 0580000 SET
 0582000 EACH
 0582000 EACH
 0587000 EACH
 0588000 EACH
 0588000 EACH
 0588000 EACH
 0666500 EACH
 0710000 EACH
 0721000 EACH
 0724500 EACH
 0735000 EACH
 0736001 EACH
 0742500 EACH
 0743500 EACH
 0745000 EACH
 0748000 PKT
 0748100 PKT
 0748200 PKT
 0748000 BOX
 0781000 BOX
 0782000 BOX
 0785500 PKT
 0770000 EACH
 0772000 EACH
 0773500 EACH
 0777000 EACH
 0777500 EACH
 0785570 EACH
 0785572 EACH
 0785574 EACH
 0930480 EACH
 0950000 SET
 0980800 EACH
 0951000 EACH

MCH-A-CENTRE EQUIPT W/OPT (AVOIR-FAHR-RECORD)

SCALE PHYSICIAN ADULT AVOIRDUPOIS 360LBSX1/4LB
 SCALE INFANT AVOIRDUPOIS 30LBSX 1/2 OZ
 STERILIZER INSTR.BOILING TYPE 320X170X100MM FUEL
 STOVE KEROSENE SINGLE BURNER PRESSURE TYPE
 BASIN KIDNEY 478 ML (16 OZ) STAINLESS STEEL
 BASIN KIDNEY 826ML (28 OZ) STAINLESS STEEL
 BASIN SOLUTION DEEP APPROX. 8 LITRE S.S.
 BOWL SPONGE 800ML STAINLESS STEEL

9902464 KIT
 0140000 EACH
 0145000 EACH
 0182000 EACH
 0170000 EACH
 0210000 EACH
 0211000 EACH
 0214000 EACH
 0228000 EACH

(FROM PREVIOUS PAGE)

WASH BOTTLE 180ML STAINLESS STEEL
 WASH BOTTLE 1.5LTR STAINLESS STEEL
 WASHING W/COVER 2.13 LITRE-STAINLESS STEEL
 WASH GRADUATED W/HANDLE 500ML/1 PINT SS
 WASH INSTRUMENT/DRESSING W/COVER 310X195X83MM SS
 WASH INSTRUMENT SHALLOW 480X330X19MM SS
 WASH URETHRAL NELATON SOLID-TIP ONE-EYE 14FR
 WASH CONNECTOR 3-IN-1 FOR 6 TO 8 MM TUBING NYLON
 WASH GLOVES SURGEON'S LATEX SIZE 7
 WASH SHEETING PLASTIC CLEAR VINYL 910MM WIDE
 WASH SHIELD NIPPLE GLASS SHELL RUBBER NIPPLE
 WASH SYRINGE EAR & ULCER RUBBER TIP 100ML
 WASH SYRINGE RECTAL INFANT RUBBER BULB HARD TIP 30ML
 WASH TUBE RECTAL ONE-EYE FUNNEL-END 20FR 500MM RUBBER
 WASH TUBE RECTAL ONE-EYE FUNNEL-END 24FR 500MM RUBBER
 WASH TUBING LATEX RUBBER FOR IRRIGATOR 1.5M LENGTH
 WASH DROPPER MEDICINE CURVED TIP UNGRADUATED
 WASH MEASURING-CUP 1LTR/32 OZ/4 CUPS PYREX
 WASH THERMOMETER CLINICAL ORAL DUAL CELS/FAHR SCALE
 WASH THERMOMETER CLINICAL RECTAL DUAL CELS/FAHR SCALE
 WASH BRUSH HAND SURGEON'S WHITE NYLON BRISTLES
 WASH DUSTER (DUST-GUN) HAND WITH 530MM EXTENSION
 WASH LANCET (HAGEDORN SUTURE NEEDLE) STRAIGHT 75MM
 WASH STONE SHARPENING OIL ARKANSAS 60X19X6.3MM
 WASH SUTURE COTTON WHITE NON-STERILE 00 USP 91M
 WASH TAPE-MEASURE 1.5M/80" VINYL-COATED FIBREGLASS
 WASH TOURNIQUET WEB HEAVY OLIVE DRAP 38X1066MM
 WASH URINARY-TEST-SET COMPLETE
 WASH URINOMETER SQUIBB COMPLETE
 WASH TONGUE-DEPRESSOR 165MM METAL
 WASH PELVIMETER COLLIER EXTERNAL GRAD CMS/INCHES
 WASH SPHYGMOMANOMETER ANEROID 300MM W/BANDAGE CUFF
 WASH STETHOSCOPE FORD TYPE BINAURAL COMPLETE
 WASH STETHOSCOPE FOETAL PINARD MONAURAL
 WASH CATHETER URETHRAL FEMALE 12FR METAL
 WASH FORCEPS DRESSING SPRING-TYPE 150MM SS
 WASH FORCEPS HEMOSTAT STRAIGHT KELLY 140MM SS
 WASH FORCEPS SPONGE-HOLDING STRAIGHT 225MM SS
 WASH FORCEPS STERILIZER (UTILITY) 200MM VAUGHN CHM
 WASH FORCEPS UTERINE VULSELLUM STRAIGHT JACOBS 250MM
 WASH HOLDER NEEDLE STRAIGHT NARROW-JAW MAYO-HGR 160MM
 WASH KNIFE-HANDLE SURGICAL FOR MINOR SURGERY #3
 WASH KNIFE-BLADE SURGICAL FOR MINOR SURGERY #10 PKT 5
 WASH KNIFE-BLADE SURGICAL FOR MINOR SURGERY #11 PKT 5
 WASH KNIFE-BLADE SURGICAL FOR MINOR SURGERY #12 PKT 5
 WASH NEEDLE HYPO 0.70X32MM/22GX1-1/4" LUER BOX OF 12
 WASH NEEDLE HYPO 0.65X19MM/24GX3/4" LUER BOX OF 12
 WASH NEEDLE HYPO 0.90X38MM/20GX1-1/2" LUER BOX OF 12
 WASH NEEDLE SUTURE 3/8CIRC TRI PT PKT OF 6 ASSTD
 WASH SCISSORS BANDAGE ANGULAR LISTER 182MM SS
 WASH SCISSORS GAUZE STR 215MM SHARP/BLUNT POINTS SS
 WASH SCISSORS SURGICAL STRAIGHT 140MM S/B SS
 WASH SPECULUM VAGINAL BI-VALVE GRAVES SMALL SS
 WASH SPECULUM VAGINAL BI-VALVE GRAVES MEDIUM SS
 WASH SYRINGE HYPODERMIC 2MLX0.1ML NYLON LUER
 WASH SYRINGE HYPODERMIC 5MLX0.5ML NYLON LUER
 WASH SYRINGE HYPODERMIC 10MLX0.5ML NYLON LUER
 WASH CLAMP TUBING REGULATING HOFFMAN 13 X 19 MM
 WASH HEMOGLOBINOMETER-SET SAHLI-TYPE COMPLETE
 WASH PIPETTE SAHLI 0.02ML FOR HEMOGLOBINOMETER
 WASH MEASURING-TUBE SQUARE(14.5G HB)FOR HEMOGLOBINMTR

0237000 EACH
 0250000 EACH
 0255000 EACH
 0260000 EACH
 0276500 EACH
 0278000 EACH
 0323000 EACH
 0324500 EACH
 0328500 PAIR
 0361000 MTR
 0363000 EACH
 0364000 EACH
 0366000 EACH
 0378000 EACH
 0379000 EACH
 0379000 EACH
 0382000 LGTH
 0425000 EACH
 0450000 EACH
 0481000 EACH
 0481000 EACH
 0514000 EACH
 0521000 EACH
 0532000 EACH
 0559000 EACH
 0561000 SPU
 0567000 EACH
 0570000 EACH
 0580000 SET
 0582000 EACH
 0582000 EACH
 0587000 EACH
 0588000 EACH
 0588000 EACH
 0588000 EACH
 0666500 EACH
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 0721000 EACH
 0724500 EACH
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 0742500 EACH
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 0781000 BOX
 0782000 BOX
 0785500 PKT
 0770000 EACH
 0772000 EACH
 0773500 EACH
 0777000 EACH
 0777500 EACH
 0785570 EACH
 0785572 EACH
 0785574 EACH
 0930480 EACH
 0950000 SET
 0980800 EACH
 0951000 EACH

MCH-B-CENTRE-EDT (METRIC-CENT-FORD STETH)

SCALE INFANT METRIC 18KGS X 20G
 STERILIZER INSTR.BOILING TYPE 320X170X100MM FUEL
 BASIN KIDNEY 478 ML (16 OZ) STAINLESS STEEL
 BASIN KIDNEY 826ML (28 OZ) STAINLESS STEEL
 BASIN SOLUTION DEEP APPROX. 8 LITRE S.S.
 BOWL SPONGE 800ML STAINLESS STEEL
 CUP SOLUTION 180ML STAINLESS STEEL
 IRRIGATOR 1.5LTR STAINLESS STEEL
 JAR DRESSING W/COVER 2.13 LITRE STAINLESS STEEL

9902464 KIT
 0140000 EACH
 0145000 EACH
 0182000 EACH
 0210000 EACH
 0211000 EACH
 0214000 EACH
 0228000 EACH
 0237000 EACH
 0250000 EACH
 0255000 EACH

AVAILABLE

1982 Health Sector Assessment
Equipment and Vehicles Report

SUB-ANNEX 3

Space required for Equipment Maintenance Unit

and

Services to be Provided

ANNEX

APPENDIX 3 : Space required for equipment maintenance unit and basic services to be provided

<u>Function</u>	<u>Approx. Area (metres²)</u>
• <u>Office</u> (Director and Administrator) with records and technical information system	20
• Electro-mechanical Workshop	30
• Electrical/Electronic Workshop	30
• Enclosed garage/vehicle bay for vehicle maintenance training and other mechanical servicing work	20
• Store	20
• Staff-room	20
• Washroom/ W.C.	10
<hr/>	
Total	150

Services needed

<u>Services needed</u>	<u>Power</u>
1. <u>Office</u>	3 off 10 amps power sockets(3-pin)
Furniture: 2 off desks	1 off 16 amp contactor for 3KW air-conditioner
6 off chairs	1 off Telephone point and set
4 off filing cabinets	300 Lux lighting (fluorescent)
2 off work-control boards	Capacity of single-phase wiring in room , 10 amps, 220 VAC, 50 Hz
2 off lockable cupboards	
2 off bookcases	
1 off Intercom to all rooms	

2. Electro-mech W/shop

Power and Water

Furniture: 5 off bench/work stations (2x1 m²)

10 off stools

4 off lockable cupboards

1 off filing cabinet

1 desk (supervisor)

3 chair

1 work-control board

2 off wall-mounted tool-cabinets

1 Intercom station

1 Blackboard(for training)

24 off 3-pin power sockets (4 off per bench)

Main switch-board for electrical supply to unit located here. Three-phase neutral and earth system Capacity of each phase should be a minimum of 70 amps (220 VAC, 50 Hz)

2 off 5-pin 3-phase socket

Capacity of single-phase wiring in room 40 Amps

1 off 16 amp contactor for 3 KW air-conditioner

400 Lux lighting (fluorescent)

1 off large sink with hot water facility

3. Electrical/Electronic W/shop

Furniture: As for 2. above

Similar to 2. above, excluding main switch-board and three-phase socket

Recommend voltage stabilizer for the supply in this area (capacity 10 KW) also isolation switch/contactors for room.

4. Enclosed garage

Furniture: 2 off heavy-duty work benches (2x1 m²)

1 off notice board

1 Intercom station

1 off wall-mounted tool-cabinet

2 off lockable cupboard

Doors for vehicle access

4 off 3-pin power socket

2 off 5-pin 3-phase outlet

Capacity of wiring circuit for single phase 15 amps

1 off sink with water

300 Lux lighting

5. Store

Furniture: 1 off desk
1 off chair
2 off filing
 cabinets
10 off lockable
 cupboards
1 off notice
 board

Power etc

2 off 3-pin power sockets
Wiring capacity 5 amps
200 Lux lighting

6. Staff-room

Furniture: 30 lockers for
 staff
2 off tables
10 off chairs
Essential kitchen
facilities e.g gas-
stove, refrigerator

4 off 3-pin power sockets
Wiring capacity 5 amps
200 Lux lighting
1 off sink with drainer
 and hot water

7. Washroom/ W.C.

Suitable for use by both sexes.

APPENDIX 4 : Staff required for maintenance organization
when fully operational (for all governorate
health facilities)

<u>Title</u>	<u>Number</u>	<u>Duties</u>
Director of Centre	1	
Administrator	1	Records, work-scheduling, finance
Engineers	4	
Assistant Admin.	1*	Secretarial, receipt/delivery, procurement
BMEP technicians	8	
Refrig. A/C Tech ^{ns}	2	
Electricians/ Craftsmen/Skilled men	7	Basic systems, installations, repairs, routine preventive procedures
Storeman	1*	
Drivers	3	
Labourer/Cleaner	2*	
<hr/>	<hr/>	
Total	30	

* It may be possible that these staff could be 'shared' with Training Centre equivalents.

APPENDIX 5 : Test equipment, tools and materials required by maintenance group

1. Engineer/Technician Tool Kit (Electrical and Electronic)

These should be portable for carrying on outside jobs and also be secure. Approximately one kit for each two technical staff will be sufficient to cover work done in the maintenance unit, from the mobile units (see later) and other jobs outside the centre.

Therefore, around 10 will be needed eventually.

Contents:

Tool case (metal)
Centre punch, spring-loaded
Hammer, ball pein (100gm)
Magnifying glass, watchmakers
Pliers, electrician's insulated
Pliers, snipe-nose (100mm and 200mm)
Spring rule, 3m
Rulers (150mm and 300mm)
Scriber
Torch, battery operated
Knife (or scalpel with blades)
Oil can, small
Files, set of needle
Screwdrivers, set of jewellers
" , neon indicating
" , posidrive light and medium size point
" , standard heavy, medium and light size
Soldering iron, 60W thermostatically controlled 220VAC
Solder and solder-sucking tool
Spanner, adjustable small (130mm)
" , flat, BA and metric sets (6-32mm or BA equiv)
" , open-ended, AF and metric (6-32mm or AF equiv)
Allen keys, set
Wire cutters, diagonal
Wire strippers
Hex spanners, set of small sizes
Hacksaw, junior with blades
Crimping tool, medium
Multimeter such as AVO 8 with sets of leads

N.B. Recommend that 4 off of above are purchased for Phase 2 work, remainder during Phase 3.

Estimated cost (1981) is £ 400 (Sterling per kit)

2. Engineer/Technician Tool Kit (Mechanical)

These would be portable in secure case. Likely requirements are for one of these kits in each of the mobile units (see 1a and two located in the maintenance centre for work there or outside (not using the mobile unit). This kits supplements No

Therefore 4 will be needed eventually.

Contents:

Tool case (metal)
Circclip pliers, inside and outside (180mm)
Oil can, large
Power drill, with stand and comprehensive accessories
Vice, instrument
Inspection mirror
Feeler gauges (Imperial and metric)
Mole wrench (250mm)
Engineers pliers (200mm)
Snipe-nose pliers, long (200mm)
Side cutters (150mm)
Ballpein hammer (500 gm)
Hacksaw, senior with blades
Pin-punch, set
Slip-joint pliers
Reze countersink (90°)
Screw extractors, set
Wrench, socket set (AF and metric), small sets of

N.B. Recommend that 1 eff is purchased for Phase 2 work, reus
(if useful from experience) in Phase 3

Estimated cost (1981) is £ 250 (sterling)

3. Test equipment, tools and materials for Electrical/Electronic Workshop

These items would be located permanently in the Maintenance Centre although some items could be taken out temporarily on investigations and troubleshooting jobs.

Items marked with (*) should be purchased in Phase 2.

a) Test Equipment (sub-total estimate £ 5700)

2 eff oscilloscopes (10-15 MHz) complete with probes (1 eff portable *)
1 eff function generator; sine, square, triang. (1MHz)
1 eff digital multimeter
1 eff DC bench power supply (dual) (*)

3 a) cont'd

- 2 off electrical thermometer with stock of thermocouples (*)
(1 off in Phase 2) N.B. Analogue output available
- 1 off strip-chart recorder with pens, paper consumables
- 1 off mains voltage logger (*)
- 2 off 'Camsafe' electrical safety tester (1 off phase 2) (*)
- 2 off bonding tester (1 off Phase 2) (*)
- 2 off insulation tester (1 off Phase 2) (*)
- 2 off line-loop impedance tester (1 off in Phase 2) (*)
- 2 off variable transformer 2 kW (*) (1 off Phase 2)
- 1 off voltage stabilizer (10 kW for workshop) (*)
- 1 off diathermy tester
- 1 off defibrillator tester
- 1 off ECG simulator
- 1 off humidity meter
- 1 off electric (low volt) hand drill, stand and drills
- 2 off re-chargeable battery charger (1 off in Phase 2) (*)

b) Tools (sub-total estimate £ 200)

- Files, set of needle
- Wire strippers
- Soldering iron, 60W thermostatically controlled, 2 off
- Solder and de-solder tool, 2 off
- Pliers, insulated universal
- " , long nose insulated
- Wire cutters, insulated
- Screwdriver, posidrive small, medium and large point
- " ; jeweller's set of
- " ; standard, blade length 3"x $\frac{1}{2}$, 6"x $\frac{5}{16}$, 8"x $\frac{3}{8}$, 4"x $\frac{1}{8}$
- " ; double off-set
- " ; electrician's insulated, blade 8"x $\frac{3}{16}$
- " ; standard, blade 1 $\frac{1}{2}$ " small and medium cross point
- " ; standard 1 $\frac{1}{2}$ " and 2"x $\frac{5}{16}$
- Magnifying glass
- Tweezers

c) Materials, components etc (sub-total estimate £ 1000)
(supply a quarter for Phase 2) (*)

- Cable(various), connecting wire(various), solder, fuses,
- switches, indicator lamps, resistors, capacitors, small nuts,
- washers, screws, cable glands, tie-wraps, semi-conductors
- Range of re-chargeable batteries for instruments(test)

Estimated costs of items for Electrical/Electronic Workshop
is £ 6900 (Sterling) (Based on 1981 prices)

4. Equipment, tools and materials for Electro-Mechanical Workshop

These items would be located permanently within the Electro-mechanical workshop but can be used for any work or training given in the vehicle maintenance training garage which is proposed as part of the Beni Ahmed facility.

Items marked with (*) should be purchased in Phase 2.

a) Equipment (sub-total £ 4400)

- 1 off gas welding set with all accessories and consumables
- 1 off vacuum cleaner, cylinder type with hose/nozzle
- 1 off air-compressor with paint-spray accessories
- 1 off pillar drill, capacity 25mm, with full accessories
- 1 off power drill, stand, range of drills (*)
- 1 off electric grinding M/C, bench mounted, with goggles
- 1 off lathe, Myford Super 7 type or equivalent with accessories
- 1 off engraver, hand, electric (*)
- 1 off electric hot plate,
- 2 off clamp-meter, full AC range (*)
- 1 off refrigeration charging cylinder, complete with manifold and gauges (*)
- 1 off vacuum pump
- 1 off refrigerant gas-leak detector
- 1 off mercury sphygmomanometer (*)
- 2 off aneroid barometer, scale 0-300mm Hg, large dial (*)
- 2 off O₂ flow meters, accurate
- 2 off stop watches (1/10 sec)
- 1 off vacuum gauge, 800mm Hg
- 2 off pressure gauge, mains water (*)
- 1 off " " , 100 psi
- 4 off mercury-in-glass thermometers, different (2 off *)
- 1 off battery tester (10A) and charger (12 VDC)

4. cont'd

b) Tools (sub-total £ 600)

Files with handles, range of sizes and types
Bearing pullers, different sizes
Tube flaring tools, kit
Inspection lamp (2 off)
Soft-faced hammer
Micrometer, 0-25mm
Vernier calipers, 120 mm
Engineers try-square
Hand drill, selection of drills 1-25mm
Tap and die set, metric 2-12mm, BA 0-8BA
Metal hand shears
Scriber
Soldering iron, 120W thermostatically controlled (2 off) 220 VAC
De-solder tool
Rule, 6" steel, 12 " steel with metric markings
Spring rule, 3m
Screwdriver, standard, blade 3"x $\frac{1}{4}$, 6"x $\frac{5}{16}$, 8"x $\frac{7}{16}$, 4"x $\frac{1}{8}$
1 $\frac{1}{2}$ "x $\frac{1}{4}$, 2"x $\frac{5}{16}$,
1 $\frac{1}{2}$ "xsmall cross point
2"x medium "
4"x medium "
8"x large "
" , posidrive, small, medium and large point
" , jeweller's, set of
" , double off-set
" , insulated, blade 8"x $\frac{3}{16}$
" , neon
Hacksaw, junior and senior with blades
Pin hammer, 100 gm
Ball pein hammer, 700 gm
Pin punches, set
Pliers, insulated universal
" " long nose
Cutters, wire (insulated)
Centre punch
Wire strippers
Knife, retractable blade
Ring spanner, sets of metric and AF
Pop rivet kits (two sizes) with stock of rivets
O-ring kit (2 off)
Bench vice, large and medium
Socket set, metric and AF, large sets of
Grease gun
Magnifying glass
Crimping tool, large
Hydrometer, battery acid

c) Materials etc (sub-total £ 300, with £ 100 allocated in Phase 2)

Nuts, bolts, screws, sheet metal, bar, lubricants, adhesives,
tool-hardening powder, carborundum paper, PTFE tape, gasket
material, neoprene sheet, glass-ware (range)

4. cont'd

Estimated costs (1981) of items in Electro-mechanical workshop is £ 5300 (Sterling)

5. Mobile workshops

To provide full coverage for the hundreds of health facilities in the governorate, both in terms of being able to respond rapidly to urgent repairs and in establishing a regular schedule of preventive maintenance will require at least three vehicles.

- a) 2 off vans, two seater with load capacity of 10cwt. 1800cc engine with rear space fitted for storage of test equipment, tools and supply of materials and components. Enough space to transport equipment requiring repairs of modest size e.g. 1½ metre length vertical sterilizer. Roof-rack fitted (ladder transportation). (Specification similar to Ford Escort commercial van)
- b) 1 off pick-up, two-seater cabin with open tail space. Carrying capacity 1-1½ ton. (Specification similar to a) e.g. Ford Escort to rationalize vehicle spares.

N.B. All vehicles must be such that use for other purposes than maintenance is not a temptation.

Recommend that 1 off of type a) is supplied in Phase 2 with other two during Phase 3

Estimated cost (1981) is £ 12,000 (Sterling) including stock of spares

6. Other Equipment for Maintenance Centre (All in Phase 3)

- 3 off Air-conditioners (reverse cycle) 3kW. (Required to minimize dust problems with test equipment etc)
- 1 off Refrigerator (8 cu. ft)
- 1 off Photocopier (20/min) plus supply of consumables (Essential for job control, information notices, circulars to users etc)
- 1 off Intercom system between rooms of centre

6. cont'd

Range of technical literature for service requirements e.g. selection of books, service guides, technical service manuals, stock lists from suppliers,

N.B. All other furnishings, fixtures and fittings, as well as general administration aids to be procured in Egypt from local funds. (For guide see Appendix 3)

Estimates cost (1981) of 'Other Items' is £ 2100 (Sterling)

SUMMARY OF ESTIMATED COSTS (£ Sterling)

	Phase 2	Total (Phase 2 included)
1. Electrical Tool kit	1600	4000
2. Mechanical Supplementary kits	250	1000
3. Electronic W/Shop	2150	6900
4. Electro-mech W/S	500	5300
5. Mobile W/shops	4000	12000
6. Other items	-	2100
<hr/>		
Totals	8300	31300
10% Contingency	830	3130
20% Averaged Inflation 1982-84	1660	6260
<hr/>		
GRAND-TOTALS	£ 10,790	£ 40,690

SUB-ANNEX 4

ANNEX 4

SCOPE OF WORK

Annex on Equipment and Vehicle Needs of the GOE Public Sector Health Services Systems

One important output of this study for USAID-Cairo will be the estimates of the magnitude of the equipment and vehicle problems facing the Ministry of Health and of how much it would cost donors to help the GOE to meet those problems. The report will need to deal specifically with vehicles, for example, with issues which have arisen regarding vehicles in the rural and urban health projects and in the JWG emergency medical services project. The consultants will need to review USAID and other U.S. experience in the area of vehicle and equipment supply in Egypt, including maintenance and use and specifically including the rural health and emergency medical services projects. These areas should be dealt with in an annex to the report.

The annex should pay particular attention to equipment problems and opportunities for donor assistance related to the following:

- Health centers and clinics
- Medical providers' instruments and carrying bags
- Nurses' instruments and carrying bags
- Laboratory equipment and supplies
- Environmental sanitation workers' equipment and supplies

ANNEX EHigh Institute of Public Health - Hospital Administration
(Alexandria)

At present (in March 1982), the High Institute of Public Health in Alexandria has a eight-member faculty in Hospital Administration. They have 120 students annually. The principal course leads to a Diploma in Hospital Administration. This requires three terms and courses are distributed as follows:

First Term: 16 weeks -- In addition to other lectures required in Public Health matters, the Management Courses include:

1. Introductory in Public Health Administration (2 hours weekly)
2. Special Studies (in principles of management) (2 hours weekly for students of Public Health and Hospital Administration)

Second Term: 16 weeks (for students of Public Health Administration and Hospital Administration)

1. Planning and Evaluation (2 hours weekly)
2. Health Economics (1 hour weekly)
3. Operations Research (2 hours weekly)
4. Personnel Administration (1 hour weekly)
5. Local Health Administration (2 hours weekly for P.H.A. students only)
6. Medical Care (2 hours weekly)
7. Principles of Hospital Administration (4 hours weekly for students of Hospital Administration only)
8. Hospital Design (1 hour weekly)
9. Hospital Records and Hospital Statistics (3 hours weekly)
10. Hospital Infection (1 hour weekly)

Third Term: Field Work for five weeks.

There are also two-year courses for Master's Degrees in Hospital Administration and three-year courses for Ph.D.'s. The average production of Ph.D's under this program is 1/year and Master's, 3/year.

Dr. El-Amin Abdel Fattal Essa, Professor of Hospital Administration at the Institute and a collaborator with the GHIO-Alexandria establishment, argues that there is a great need for developing "continuing education" courses in this subject on a "crash" basis. These should be two to three week courses at the outset, with some provision for additional training at periodic intervals. He believes that at Alexandria they could handle up to 30/40 of such individuals at a time and that they could do several groups per year. Perhaps, the annual total could be set at about 250.

He argues, though, that training alone will not be enough. Means must be found to convince the MOH at Cairo and the individual governorates that it is important to have this kind of trained staff. Furthermore, it will be necessary to raise the rates of compensation as well as the status of Hospital Administrators. This must be done urgently, because the number of new, private hospitals being established in Egypt is growing and, as the economy continues to expand with increasing speed, there will be increasing popular demand for improved hospital services. He knows of cases where completed 200-bed and 500-bed hospitals are now standing idle and unopened because of a lack of qualified hospital administration-trained physicians to manage them.

His experience with the GHIO-Alexandria system indicates that improved hospital administration and cost controls may be the only avenues of action to insure that expanded systems can bear the risks attendant to expanded coverage and a changing beneficiary population.

He sees the subject as so important that he would not confine its development only to the High Institute of Public Health at Alexandria. However, since that institution exists and has a trained faculty with a good applied research relationship with the GHIO-Alexandria, he believes that it should be the principal point at which to initiate action.

As yet, personnel of the Hospital Administration staff have not developed a plan for organizing and operating such a program. They need, first, to know whether there is some serious interest in the matter at the MOH, among the governorates, and among foreign donors. In his view, if there were interest, then the whole program ought to be planned collectively so that from the outset there would be a common perspectives on goals, resources, and means of implementation.

Among matters that would have to be considered in any program, the following warrant mention here:

- Library holdings are old and dated. Periodical supplies are good and current, but the literature of the past ten years on hospital administration in the United States and Western Europe is lacking.
- Some means would probably have to be found for rehabilitating space so that dormitory housing could be supplied to each training class. This might also include some classroom space.
- There are, at present, no sources of funds from the MOH for supporting applied research programs in hospital administration. Funds would need to be made available, even in modest amounts, in order to support the development of Egyptian-based data and perspectives about problems of hospital administration.

ANNEX F

Quality of Care
Section of
the Report on
Public and Private Health Services Delivery Systems
in Egypt

March 25, 1982

Prepared for
Office of Health, USAID/Cairo
as part of the
1982 Health Sector Assessment

by
Dr. Robert Benjamin
Consultant

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- Introduction
- Methodology
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 - Public Sector
 - Private Sector
- Problems Identified and Issues for Further Discussion
- List of Persons Contacted

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References:

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ANNEX F

Quality of Care Section of HSA Report on Public and Private Health Services Delivery Systems

Dr. Robert Benjamin

EXECUTIVE SUMMARY

Any nationwide assessment of quality of care done within a very short time span can only be a superficial sampling of the wide spectrum of care available. Certain sectors of the providers of care were more readily accessible and more willing to be interviewed than others. In general, personnel of both the government (MOH facilities) and the public sectors were readily accessible. The private sector was another matter.

In light of these differences in willingness to be observed, far more governmental facilities were visited than any other sector. Rural Health Units, Rural Health Centers, Rural and District General Hospitals were graciously made available for observation. Staff were for the most part open, frank, and willing to answer all questions pertaining to the government sector. When questioned about their private practices, however they were, with only the rarest exceptions, unwilling to talk or to allow their private facilities to be visited.

All physicians are guaranteed employment in the government sector and draw salaries which range from 45-100 L.E./month. Various incentives have been devised to augment their incomes. Recently, legislation that had previously prohibited part-time private practice by government physicians has been changed. Now, all but a few are allowed the opportunity to have a private practice after the usual hours of governmental service.

The public sector (herein defined as governmentally owned but privately managed/run) was equally open and willing to be examined. Two such operations were visited: the Government Health Insurance Organization (GHIO) of Alexandria, and the Cairo Health Organization for Medical Care (the "Curative Organization"). These are governmentally owned but privately run/managed organizations whose financing structures are basically experimental alternatives to the government's total subsidization of free medical care.

The GHIO is basically a Health Maintenance Organization type of structure, offering only curative services and financed through a fairly complicated set of varying arrangements. Beneficiaries of GHIO coverage pay a specified percentage of their monthly salary, ranging from 1.0% to 0.5%. This is augmented by contributions from the employer ranging from 3.0% to 0.5% depending on whether the employer is private or governmental sector and also depending on whether the insured is an employee or a dependent of an employee. Physicians are, for the most part, salaried, with opportunity to

augment income through provision of extra hours of service.

GHIO patients are not permitted to choose their own physician and must see whichever physician is there at time of presentation. Because many physicians are regularly scheduled, however, patients may see the same physician again. GHIO currently has 30 hospitals distributed throughout some governorates (Cairo has five; Giza three and Alexandria two). They serve a total beneficiary population estimated at approximately 2.0 - 2.5 million nationally (in Alexandria approximately 500,000 and in Cairo approximately 750,000) with expansion goals of many times that.

The Curative Organization of Cairo, on the other hand, operates on a direct fee-for-service basis, with price lists of fees posted. This fixes fees that physicians are allowed to charge. This attracts clientele through a modest fee schedule and provision of good quality care. Patients are free to choose whichever physician on staff they prefer.

Physicians' wages in the Curative Organization of Cairo are based on a percentage of bills generated. Thus the better physicians (as perceived by the patients) are in demand by their patients and the less capable physicians swiftly lose patients and leave the system. (House officers and residents working within Curative Organization facilities are, however, paid by the MOH.) Thus a competitive system of quality and high performance is attained. The Curative Organization of Cairo also attempts to control prices in the private sector through competition by providing comparable service for modest cost.

The Curative Organizations have twelve hospitals in Cairo and Giza, as well as five in Alexandria. Only the Curative Organization in Cairo was visited. The Curative Organization in Alexandria is said to be quite different in some respects.

Other methods of public and private insurance financing exist in Egypt (such as Railroad Employees Hospitals and other employer-provided schemes) but these are not discussed in this paper.

The private sector provides widely varying standards of care at widely varying and unregulated free market pricing. This was the most difficult sector to assess, due to its reluctance to be examined for fear of either tax audit repercussions or possible controls on their otherwise complete freedom.

Quality of care in Egypt is integrally linked to two major factors--the amount of financial resources available to provide care, and the level of knowledge, training and skill of the provider.

With regard to training, it is this observer's opinion that Egyptian physicians can generally be divided into two general categories (the usual caveat regarding generalizations notwithstanding, for exceptions always do exist): those trained before the 1974/1975 decision to drastically increase numbers of physicians, and those whose training came later.

Because after 1974/75 numbers of medical students leaped by 1,000-1,800 or more per class, the medical educational system, which until that time was able to produce fewer but well-trained physicians, was rapidly overwhelmed. As a result, quality of medical education rapidly deteriorated. It is now at a state which this observer considers inadequate as to levels of knowledge and skills. What training is received is theoretical and not related to the major causes of morbidity and mortality in Egypt. Hands-on experience is not obtained until physicians are posted to their obligatory period of governmental rural service. Even then, because of lack of application of concepts of supervision and management, this experience usually occurs without the benefit of supervisory guidance and on-site training. There is an eight week preservice training course for rural doctors; this is inadequate to provide the knowledge which should have accrued in the preceding five years of medical education.

Unless standardized nationally administered qualifying examinations are instituted immediately, this cohort will continue to increase in size. This will present inordinate problems when older physicians begin to retire, leaving no one of assured quality to replace them.

It is germane at this point to note that no national standards regarding minimum proficiency in knowledge and skills have been established for physicians and nurses. Basically, if accepted to medical school, barring any serious errors, after five years a student emerges as a physician. It is imperative that Egypt decide exactly what the medical needs of its populace are and develop minimal standards which all physicians must meet before licensure. A system of national examination for ~~licensure~~ must be developed if the quality of Egypt's physicians is to be assured.

It is these new, ill-equipped physicians who are posted to the rural areas to provide care for at least half the population. The smartest and best new physicians remain at urban centers and universities. Thus it is that quality of care in general is worst at the periphery where primary care and preventive skills are most needed.

There now exists an exceedingly large cohort of physicians (estimated at 5,000/year for the past seven years, and expected to increase to 7,000 medical school entrants per year as of 1982) who are unable to compete with older, better-trained physicians, and who are in dire need of upgrading. More are in the pipeline being "trained" now. Some provisions must be designed toward providing opportunities in continuing medical education for these people. Perhaps the current practice of licensure to practice medicine and surgery for life ought to be revised. Unless standardized, nationally administered qualifying examinations (perhaps modeled after U.S. National Board of Medical Examiners/FLEX Examinations) are instituted and initiated immediately, this cohort will continue to increase. This clearly is not in the best interest for Egypt, as it will present inordinate problems when older physicians begin to retire, leaving no one of assured quality to replace them in Egypt's physician work force. Relicensure would provide an excellent opportunity to retest and upgrade standards of care.

Care in urban areas within the governmental sector is of much the same quality.

Management and administrative skills at almost all levels are poor to nonexistent. Opportunities must be created for upgrading supervisory capacity at governorate, district and village levels. Punitive concepts of supervision must be replaced by modern scientific methods of problem identification and problem solving. On-site inspection and on-site training must make their way into the professional community. Discussions with faculty members of the High Institute of Public Health (HIPH) in Alexandria revealed that they perceive this to be a major problem. They are anxious to design short (2-3 week) courses in mid-level management and administration which can be offered for administrators and supervisors at just below the Director General level in the governorates and on down to the physicians and nurses of the Rural Centers and Units. These courses, they feel, should not be offered peripherally, but rather in a setting where these techniques can be shown to be working. Currently their capacity to provide these badly needed inputs is limited by physical limitation of space more than of personnel. The training of trainers could well be accomplished at this level as well. Consideration should be given to assisting the HIPH in these endeavors.

The Strengthening Rural Health Delivery (SRHD) project has made some fairly significant inroads in improving both technical and practical medical knowledge as well as in management/administrative skills of those physicians and nurses in selected districts of four governorates where implementation has occurred. This observer recommends that further consideration be given to the approaches, techniques and evaluations of this as yet small but important project.

Facilities and equipment, too, are important considerations in assessing quality of care. On the whole, the numbers of health units and centers are probably close to adequate in rural areas, averaging 0.6-0.7 rural units and centers per 5,000 population. Urban facilities, however, are inadequate in number with only an estimated 0.2-0.4 units and centers per 5,000 population.

Hospitals in the government sector are generally old and without proper maintenance and janitorial services; they have not withstood the ravages of huge patient flows. Further compounding the problem, hospitals, like the physicians who serve in them, are under no system of standardization.

Exceedingly substandard conditions were observed throughout most of the hospitals visited; rare exceptions exist, notably in Alexandria. Sterile technique in surgical theatres was generally not observed in the government facilities. Operating theaters had windows open to the street, with screening in terrible disrepair. Surgeons were observed without masks or caps during operations.

Again, it is suggested that some minimal standards be established and rigorously enforced at national levels (through a joint committee for hospital accreditation, perhaps) before going on to build more hospitals which would be doomed to repeat the histories of their predecessors.

Similar controls must be established for laboratories and blood banks.

Lest the reader believe that quality care is nonexistent in Egypt, the body of this paper does report some sterling examples of care provided at the highest of European or American standards. These were found only in the major cities and were the exceptions, rather than the rule. They do, however, provide metersticks against which other facilities can be measured.

With regard to financing, it is recommended that an in-depth study be made of the several ~~alternatives to financing of health care that may be~~ attempted in Egypt. It is this observer's opinion that a unitary approach may well lock the country into a system which will not be in its best interest. While GHIO appears to be providing good care to its beneficiaries, this observer believes that with expansion of coverage, quality of care will decrease due to inability of its financing system to keep up with increased per capita utilization.

The Curative Organization in Cairo too, appears to be doing well, but both the Curative Organization and GHIO depend on an upper class and strong middle class for beneficiaries and participants.

An independent insurer (one which does not provide care but provides only financial insurance, such as the Blue Cross/Blue Shield prototype) is still another option.

Before any major decision regarding financial assistance to the GHIO or any other scheme is made, an in-depth study of financing mechanisms should be attempted.

Introduction

Before beginning any assessment of quality of care, certain definitions must first be dealt with in order to fully understand implications at varying levels. Quality of care will vary with the type of institution, and with institutional affiliations (Government vs private, public sector, University, Health Insurance Organization etc.), location (Rural vs urban), level of specialization of provider, availability of equipment and resources, and other factors.

The Government sector is defined here as including those services staffed and operated solely by the Ministry of Health. The public sector is defined as organizations which are governmentally owned but privately managed/run. The private sector includes those areas over which government plays no obvious role in direct controls.

Assessment of the governmental sector and even the public sector is somewhat easier to accomplish than assessment of the private sector. This has to do with the willingness of each to allow itself to be subject to examination.

Governmental facilities in both rural and urban areas were readily available to this observer, as were public organizations such as the Government Health Insurance Organization and the Curative Organization of Cairo. Private physicians and even governmental/public physicians who had private practices were reluctant to do more than talk very briefly and superficially about their private practices and were usually unwilling to allow them to be observed. This greatly hampered the ability to draw any conclusions, apart from impressions and generalities regarding this very important sector of health care providers. If a hard look is to be given to this sector, a longer term, in-depth study must be undertaken in order to fully assess quality of care provided in it. Even total numbers of privately practicing physicians are difficult to determine, with stated estimates ranging from "just a few" (this was from the Medical Syndicate) to 400-600. In reality, the majority of physicians probably spend some portion of their time (ranging from only a small percent to full time) in private, fee-for-service type practice.

In thinking of the private sector, one must also keep in mind the traditional providers of health care; the dayas, hakims, hallak, spiritualists and others, who are an important part of the private sector.

How health services are financed also has implications for quality of care--in both objective and subjective terms. User perception of quality is heavily linked to costs: many consumers believe that "free" care is probably not "good" care and that inexpensive generic medications cannot be as good as expensive brand name medications. Thus, utilization of services may well be affected by pricing, both in a positive attracting sense as well as a negative deterrent one. High cost would thus have both attractive ("It must be better") and negative ("I can't afford it") implications.

Therefore, in attempting to determine quality of care, many variables must be considered.

Methodology

Only three weeks were available in which to conduct this survey. A complete, sophisticated, and in-depth analysis of all that is occurring was obviously not possible. A more complete study should be considered if a detailed understanding of quality of care is needed for decision-making. While a brief visit to a facility can be quite revealing, several days of observation are necessary at any one site to truly evaluate something as objective and subjective as quality of care.

Because of the short time available in which to make some assessment of quality of care, a "micro" approach was deemed appropriate. A more "macro" level study would be less likely to reveal subtle variations in quality of care as it is being delivered to the consumers of health services. Given that "micro" approach evidence will be presented in anecdotal form, it should be viewed as only a small sample of the great variety of levels and quality of care currently being supplied by Egypt's health care providers. Some basic conclusions can, however, be drawn from even such a small sampling of data.

An attempt was made to standardize the approach to assessment of quality by asking uniformly similar questions, by observing the condition of facilities and equipment and the adequacy of supply of materials and pharmaceuticals, and by reviewing records to check appropriateness of diagnostic procedures and treatment as well as for type of record keeping system.

In order for care to be of high quality it must also be appropriate. For this reason, questioning of providers was always based on the most common illnesses. For example, one young physician stated that while he had received much instruction on diagnosis and treatment of cancer he rarely if ever saw any. For this reason, lines of questioning proceeded as follows: What is the most commonly seen problem here at your facility (during summer/winter)? How do you make the diagnosis? How do you treat it? Do you feel you have adequate laboratory/diagnostic equipment to make the diagnosis with certainty? Do you have a sufficient supply of appropriate medications to adequately treat it? Specific questions were also asked regarding knowledge of family planning techniques and the availability of contraceptives.

Facilities were examined to assess their general states of repair and cleanliness. It is easy to differentiate a chronically ill-kept facility which was quickly cleaned on notification of a site visit from one which is chronically well-maintained. Presence/absence/condition of plumbing and sanitary facilities--Is there a wash basin in the examining room? Does it work? Was the practitioner actually observed to use it between patients?

Presence of certain items of basic equipment was also looked for; these include stethoscope, sphygmomanometer, thermometer, otoscope, and examining gloves, as well as other types of equipment pertinent to specific practice situations - (ENT, OB/Gyn, Surgery, etc.). These all present possible constraints under which the physician/nurse must practice and thus they affect quality of care.

At one site a health worker was observed giving tetanus immunization to pregnant women using a reusable needle. When asked about sterilization procedures, the reply led this interviewer to believe that adequate sterilization had not occurred and that this may well be a significant factor in the spread of serum hepatitis amongst the population with subsequent vertical dissemination to the newborn population.

Pharmacies were examined for cleanliness as well as for adequacy of supplies, diversity, and appropriateness of drugs. One clinic had a very large supply of testosterone on hand. When asked why, the reply was that it was very much in demand to make the men "more potent". Appropriateness of this type of medicament should raise questions regarding appropriateness of care and the goals/objectives of the system providing it.

Record review was attempted whenever possible in order to ascertain method of storage, type of record, completeness of record and lastly as an attempt at medical audit of treatment received for certain common classes of diagnoses.

Questions and observations regarding records included the following: Were records kept in family folders or by individual? Were they identified by patient name, number, or by each visit? Accuracy of diagnosis was not possible to ascertain on examination of patient records unless they were supported by laboratory examinations; therefore, diagnoses were accepted as stated and treatment was questioned as to appropriateness in relation to the stated diagnosis.

Laboratories were checked for types of equipment, state of repair, presence/absence of reagents. Laboratory assistants and technicians were queried on knowledge whenever feasible and were asked to show the interviewer the last microscopic slide they examined and to interpret what was seen.

More detailed information was obtainable at the rural level from all classes of personnel than at the larger, more urban hospitals where staff (other than the hospital director) were often either unavailable or too busy to answer detailed questions. In those instances, only more limited information as to types of examinations, number of patients seen, condition of facilities etc., was usually obtained.

While an attempt at standardization of observations was made, it must be remembered that the observations represent only an extremely small portion of an entire system. Also we have chosen not to identify the sites where specific observations were made; it is just as useful for the purposes of this report to present aggregated observations, rather than to state that the following observations were made at site X or site Y. Identification of the sites would only result in investigation of one site or another, and this investigator believes the observed problems to be generic and not localized to one or a few sites. Where such specific, probably non-recurring observations are made, sites may be identified. It should also be noted that assessments of this type tend to concentrate on problem areas in their reporting and often fail to enumerate the good aspects. Identification of things well done can often be lengthy and difficult, while identification of problem areas is often easy. The purpose of this report is to identify problem areas as symptoms and

to guide the reader into discussions surrounding the issues that arise subsequent to their identification.

Description of Findings

Governmental Sector

The basic infrastructure of MOH services is designed to provide care at four levels; village health units, district health centers, general hospitals, and, at the apex of this pyramid, the university hospitals and the teaching institutes (especially those in Cairo and Alexandria. In principle, a referral system governs the passage from the village to the district level facilities; however, a number of utilization studies have indicated that in urban areas especially there appears to be little semblance of effective referral mechanisms. Thus, self-referral by the patient to secondary and tertiary care facilities overloads them with large numbers of primary care cases which they are not staffed to handle, thereby draining manpower and energy for care which could well have been provided at the periphery.

The present rural infrastructure provides a health facility for about every 5,000-9,000 persons. This network is designed so that every village is either directly serviced by a health unit or is within 3 kms. of one. Rural services are designed to include: MCH, immunization, screening for endemic and parasitic disease, environmental sanitation, health education, family planning and curative medical care.

In contrast to the highly integrated rural health care delivery system, the urban network has been characterized by fragmentation of services and a preponderance of specialized facilities. The notion of a health care system responsive to "community needs" has yet to become a reality in urban areas. Recently, MOH is attempting to create General Urban Health Centers to meet these needs. In seeking preventive or curative care the consumer must frequently visit several service points. Maternal and child health services are in principle taken care of by the MCH centers; however, immunizations are dispensed by the Health Bureaus.

The ensuing confusion as to where particular services may be obtained has contributed to a pattern of overuse of the outpatient departments of government hospitals to the neglect of peripheral stations.

It is hoped that development of the new General Urban Health Centers will reduce hospital outpatient visits. Each of these General Urban Health Centers is expected to serve a population of 50,000.

Facilities were visited at Rural Health Units, Rural Health Centers, District Polyclinics and District General Hospitals in four governorates: Cairo, Dakhaliya, Fayoum and Quena. The results of observations in rural areas will be summarized first.

While both Rural Health Units (RHU) and Rural Health Centers (RHC) were visited, it is important to note that some were among those implemented in the Strengthening Rural Health Delivery Project (SRHD) while others were not. Differences between implemented and nonimplemented facilities were striking.

In general, nonimplemented facilities were ill-kept, with the buildings in poor state of repair. Maintenance was minimal, with little evidence of attention to general cleanliness. SRHD facilities by contrast were better maintained and far cleaner than nonimplemented facilities. Wash basins were available in all facilities, whether implemented or not.

Pharmaceutical supplies seemed quite adequate in all RHU's and RHC's--one had no condoms, all had oral contraceptives, one had no penicillin but did have sulfas and tetracyclines. Physicians stated that often one or another type of medication would be in short supply but that there was almost always a fairly acceptable substitute on hand.

Equipment is yet another matter--all physicians seemed to be in possession of a stethoscope. Whether this was the physician's personal property or not was not ascertained. Sphygmomanometers were rarely in evidence. If requested, they appeared in about 3 out of 4 cases.

The BP cuffs, while issued to the clinic, quickly became appropriated almost as "personal" property of the physician. This presents real problems to nurses on home visits, as it obviates their ability to take BP readings. This point becomes almost moot as when several physicians were requested to take this investigator's BP, they were unable to do so properly, either placing the bladder of the cuff inappropriately and/or letting the pressure down far too rapidly for accurate reading.

Almost all facilities had at least one thermometer. No facilities were observed to have otoscopes. Examining gloves were not seen in any RHU or RHC.

Scales for weighing infants were in evidence at SRHD units but not at nonimplemented areas. On request they appeared, but were usually covered in dust and often not in good shape. When asked to demonstrate use of scales, SRHD area nurses fared very well, whereas unimplemented area nurses failed uniformly. A very interesting phenomenon was noted regarding ability to use scales. When physicians were requested to demonstrate weighing technique many failed to demonstrate knowledge of how to use the scales. Nurses, however, especially in SRHD implemented areas, performed much better.

Supply of needles remains in question. This observer saw needles both disposed of and reused. It is not known if those needles seen in disposal had been reused. Further, disposal practices are haphazard and present real problems with regard to disease spread. When needles were reused, at most sites, they were reused after boiling--length of time was stated as 10 minutes in some sites to as long as 20 minutes at others. This observer believes that boiling, when done, at all, was for shorter periods than stated and that times were estimated rather than measured. This would corroborate suggestions regarding iatrogenic spread of hepatitis.

Differences in record keeping were very apparent between SRHD implemented areas and nonimplemented areas. Nonimplemented areas kept clinic register books that stated patient name, clinic register number, diagnosis and treatment. The records were aggregates of loose papers often piled in a cabinet. Records were very often incomplete.

SRHD areas by contrast kept a folder for each patient; antenatal records and infant growth charts were well maintained and information was easily retrievable.

This basically represents a picture of the substrate in which medicine is practiced in rural Egypt. While quality of care may be limited by lack of physical resources, ultimately it is determined by the knowledge and practices of the practitioner, be it physician or nurse.

Knowledge of treatment based on appropriate diagnosis was widely variable. In general, although not uniformly, staff of SRHD implemented units performed somewhat better than those elsewhere. Dakhaliya Governorate, for example, was the only area where all physicians sampled stated that treatment for mild diarrhea included advice to the mother to continue breast feeding and to utilize oral rehydration therapy. This answer was received in both implemented and nonimplemented areas of Dakhaliya. (It must be borne in mind that sample size in Dakhaliya was small).

In all other governorates where physicians were asked about treatment of diarrheas, the reply was "antibiotics, intravenous fluids, discontinue breast feeding" when asked if any further action could be done, a few would add "Oh yes, oral rehydration."

When questioned on respiratory tract illness and treatment, responses were more uniform in acceptability (antibiotic), although knowledge of dosage of penicillin for infants, children and adults was often poor. One physician actually recommended withholding of fluids as part of the treatment of respiratory infection--to "avoid edema and aspiration".

Questioning regarding eye problems again resulted in spotty levels of knowledge of adequate treatment and of knowledge of diagnostic signs and symptoms. One physician, when asked what he would do if a patient came to him complaining of an irritation in the eyes, a grainy or gritty feeling, with physical examination revealing a grainy-looking appearance under the eyelid, replied "I've never seen it before."

This response, in an area where trachoma is common, makes one question validity of diagnoses in general.

In a review of records, otitis media was frequently seen as a diagnosis. This diagnosis must have been made by history alone as no otoscopes were seen. Similarly, when clinics were observed in operation the usual scenario involved the patient or the patient's mother giving what this observer assumed to be the major complaint, followed by not more than one or two questions from the doctor which were briefly answered by the informant. At this point the physician wrote out one or more prescriptions, after which the patient left. Because this observer does not speak Arabic, it was impossible to evaluate the quality or appropriateness of the questions asked or of the answers given. Total time of physician/patient contact ranged from 30 seconds to 2 minutes. On one occasion--and this was at a polyclinic at district level--the physician was just about to finish up with a very sick child when someone said something

to him in Arabic. The physician appeared somewhat startled, looked up, and upon seeing that he was being observed, pulled the stethoscope out of a drawer and cursorily applied it to two or three areas of the child's chest before dismissing the patient.

While this observer was obviously limited by lack of Arabic, and interpretation of interactions between physician and patient may therefore be questioned, in general, physical examination practices seem totally inadequate for accurate assessment of the patient's condition. Total time spent with the patient is equally inadequate to explain proper usage of the medicines prescribed.

Record review showed what this observer would deem overuse of antihistamines and often inappropriate selection and use of antibiotics (this may have been due to limitations of supply/selection available). Vitamin therapy seems to accompany almost each visit. Appropriateness of this is not questioned, as discussions with a Cairo dermatologist reveal that nutritional conditions such as pellegra are still present in sufficient numbers to warrant such an approach.

When questioned on knowledge of contraceptive techniques and their mode of action, general response was mixed. Knowledge of methods was fairly good while knowledge of how they worked was poor. Again it is interesting to note that nurses in the SRHD implemented areas generally fared better on this subject than did the doctors in either implemented/nonimplemented areas. This presents grave implications when one considers that the physicians are expected to supervise the nurses and to provide them with ongoing continuing inservice training. While both nurses and physicians had received simultaneous training by SRHD staff, it was reported that nurses generally took more interest in this subject and physicians were deemed to feel that they "knew it already" and were thus disinclined to pay attention. A similar phenomenon was observed to have occurred during training on use of scales.

In general, both physicians and nurses had trouble with interpolation of both weights on scales as well as temperatures (when thermometers were used) Because of this difficulty, weights/temperatures are often rounded off at the nearest kilo or degree, or, more frequently, weighing or temperature taking was simply omitted.

When questioned on where they learned how to use scales, blood pressure cuffs, thermometers, etc., many physicians could not remember (those in implemented areas were given special training and they did remember). In subsequent discussions with teachers and professors at the university level, the same question was raised--and the reply was that they "probably weren't taught." Nurses, however, were indeed taught these skills within their nursing school curricula. Conceivably, physicians did not learn these tasks well, believing that this is "nurses work" and that therefore they need not involve themselves. Again, this has supervisory implications.

Within urban areas in governmental institutions, conditions are quite similar. Physical plants are in poor repair, some having been built 60 or more years ago.

Given chronic lack of maintenance/janitorial services, buildings which might have survived the ravages of high patient flow have deteriorated dramatically.

Large numbers of patients could be seen waiting for service by physicians who took only a few moments with each (ranging from 1/2 minute to 15 minutes, with the majority less than three minutes each). Waiting time is often 1-2 hours. During this time period no attempt was made to provide education on diseases, nutrition, or preventive health measures. In one General Urban Health Center, however, a demonstration on preparation of Supramin, a high protein food supplement, was observed in progress. While this was the only place such a demonstration was observed taking place, it was for one mother only, while 25 or more waited outside. This demonstration could well have been presented to the group rather than to one person at a time.

Urban hospital outpatient departments were packed with people, and were generally poorly maintained. Inpatient beds were crowded together with 6-8 per room. One particular hospital (260 beds) had 10 paying beds for patients who might desire more commodious accommodation (2 beds per room). These cost 1 L.E./day and only two or three are occupied at any one time. Free beds by contrast have occupancy rates of approximately 80% during the winter and 110%-120% during the summer when gastrointestinal disease is more common.

Discussions with young physicians corroborated observations that sterile technique and sterilization processes were almost nonexistent. One hospital had no alcohol to prepare venipuncture sites. Another's operating room was reported to have cats in it. Yet another was reported to have been closed down completely due to tetanus. This investigator was invited into the Operating Room (OR) of one hospital during surgery. No suggestion was made to have protective outer garments or shoe covers put on. Surgeons were operating without masks or caps or with gauze covering their mouths only. Windows to the OR were open and screening was in poor repair. This particular hospital's OR was on the first floor and breezes from the street were felt coming in through the screening.

In general, concepts of sepsis and asepsis are not well understood. This is supported by the comment of one medical faculty professor who stated that many physicians did not sterilize smallpox scarification needles between vaccinations in the belief that this would nullify or reduce the effect of vaccination. The subsequent presence of pus was therefore accepted as a successful vaccination "take".

Physicians were not observed to wash hands between patients. A reliable observer informed me that she had witnessed a gynecologist performing repeated vaginal exams with "only one glove, which he occasionally washed between patients."

Hospital records were generally ill-kept. Filing systems depended upon date of patient visit. Folders were not used and patient records were kept together by means of folding one corner and making a tear.

Records are not reviewed with an eye toward medical audit/quality of care. A review of Emergency Room records at one hospital revealed that an average of 6-8 emergency appendectomies were done per day, with a patient flow through the Emergency Room of approximately 1,000 patients per day--this included nonemergency ambulatory patients seen in Emergency Room after the outpatient department closed at 2:00 p.m. This seems to be an inordinately high number of appendectomies. Unfortunately, the hospital had no tissue review policy and therefore the percentage of normal to abnormal appendices could not be determined. This does, however, present a great opportunity for the House Officers and Residents (numbering 150 and 60 respectively) to perform surgery, so patients who present to emergency with lower abdominal pain are quite often diagnosed as having acute appendicitis. Time from presentation to operating table was stated to be on the order of five minutes. When questioned if this were necessary, the hospital director replied that "acute appendicitis is a surgical emergency."

The Emergency Room of this same hospital was, however, stocked with defibrillators and radiotelemetry hookups with its ambulances. ER staffing pattern was: 6 House Officers, 2 Residents, 2 university trained nurses, 8 nursing assistants, and 2 technicians. As previously mentioned, this was for a patient flow of approximately 1,000 patients/day, with the bulk presenting in the eight hours between 2:00 and 10:00 p.m., or approximately 100-125 per hour. Divided equally among the eight physicians (assuming all were present), this represents approximately 15 patients per hour per physician (including all those appendectomies as well as other surgical procedures).

It must be kept in mind that this one hospital served an urban catchment area of 1.3 million people.

For the most part, physicians observed manning governmental facilities in rural areas, and to a lesser degree in urban areas, were young, probably trained within the past five years. This is in comparison to physicians found in the public and private sectors who, for the most part were considerably older, probably having received their training before the large influx of students into the medical faculties which began in 1974/1975.

Lest the governmental sectoral picture be represented too darkly, examples of well-run, well-staffed facilities do exist. While this investigator did not visit the Dr. Ahmed El-Din Selry Polyclinic in eastern Alexandria, reports from another team member indicate that the facility, operated by the MOH and located in a middle class area of eastern Alexandria, was recently constructed, large, spacious, and well-maintained. This polyclinic serves a catchment area of approximately 150,000, with the average income of its patients stated to be around 50 L.E./month. Staffing seemed adequate, with 40 Residents, 20 House Officers, 70 nurses and assistants, 40 technicians, 10 full-time specialists and a number of part-time specialists. The clinic runs from 8:00 a.m. to 2:00 p.m. for free services, and from 5:00 p.m. to 7:00 p.m. for "economic" services (charges include 1 L.E. for registration and additional charges as necessary for laboratory, X-ray, eyeglass prescription, dentures, etc.). Total patient load was stated at 1,400/day during winter and 2,000-2,250/day during summer.

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The assessment team member who visited the facility described its appearance and condition as "excellent". Though handling a large patient load it did not seem jammed or hasty in operation. All staff apparently had high morale which they attributed to good working conditions, very good equipment, and a management which was sympathetic to their individual needs. Laboratory and X-ray equipment all appeared new and of the "highest European and American standards". Staff "seemed to be good quality, particularly at the top leadership level in each service." These people seemed to have 10-20 years of experience, come from Alexandria and appear to be strongly identified with their communities. Medical records, on the other hand, albeit operated in an orderly manner, were typical of other MOH facilities. It was the feeling of our observer that the apparent higher quality of this polyclinic had, in large part, to do with the fact that the population served was middle class, fairly well-dressed, and better educated than the clientele of other governmental facilities observed.

Thus we observe a system with reasonably adequate distribution of facilities. Albeit in poor repair, numbers of facilities seem adequate in rural areas. Although somewhat less adequate numbers of facilities are found in urban areas, plans do exist to increase the total number of facilities.

When the Government decided to increase the numbers of physicians in order to staff these facilities, it sacrificed quality for quantity and began training large numbers of physicians with what appears to be little thought regarding quality control.

What has resulted is a system which has an adequate "anatomy" but which lacks a sufficient "physiology" to sustain it at optimum levels of output.

Public Sector

While some other providers of health care exist within the public sector, such as Railroad Hospitals and special insurance schemes of some private industry, hospitals and polyclinics of the Government Health Insurance Organization (GHIO) of Alexandria and the Cairo Health Organization for Medical Care were the only public sector facilities visited.

The Alexandria GHIO currently has some 600,000 beneficiaries in Alexandria, Beheira and Matruh Governorates, with the majority (500,000) in Alexandria itself. (Total population of Alexandria [urban] is estimated at 2.7-3.0 million, while that of Beheira [rural] and Matruh [desert] combined is estimated at another 3.0 million.) Financing schemes for the GHIO vary for private, public and governmental sector employees; there are also geographical variations in fees between Alexandria and the governorates of Beheira and Matruh. These will be dealt with in the economic analysis in the Health Policy Review paper done for the Health Sector Assessment.

The GHIO employs general practitioners and specialists of all types. Some are permanent salaried employees and others are on contract. Opportunities for additional income are provided through extra hours.

A GHIO target is one general practitioner per 1,500 beneficiaries, but the actual ratio is approximately one per 2,400. Access to specialists is only by referral from the general practitioner or another specialist. The GHIO currently serves a working population with contributions from both employer and employee providing the funding source. Average monthly wage of beneficiaries is estimated at 45-50 L.E./month (basically a working middle class clientele). Recently GHIO has expanded its coverage to include wives & dependents of some of its covered workers. These are accepted at special reduced rates. Furthermore, GHIO has been instructed by the government to assume care for pensioners and widows. Because these new classes of recipients of care have either reduced or no employer contributions this will have serious implications for the GHIO's ability to provide quality care as the number of these new beneficiaries increases. Further complicating the picture is the fact that GHIO services are currently curative only. No preventive services are offered, this falling under the aegis of the MOH. With these new groups of beneficiaries - women and children especially - it will become increasingly more necessary for GHIO to provide preventive health services, if for no reason other than to reduce its long run costs. Family planning services will have to be initiated to reduce costs of large numbers of deliveries; antenatal care and nutritional education to reduce prematurity problems during gestation; education on prevention and early identification and treatment of common diseases--especially diarrheas--to reduce costs of recurrent preventable disease treatment and hospitalization. These issues have been pointed out to senior GHIO management.

Two Hospitals (Gamal Abdul Nasser & Karmouz) and one Polyclinic (Karmouz District) of the GHIO were visited. Unfortunately, the polyclinic was not seeing patients during the hours visited. In general the facilities were clean, well maintained, and appeared to be efficiently run. Laboratories and pharmacies were well-equipped and fully stocked. The Polyclinic was well planned with regard to patient flow. Management and administration techniques are modern and well done. A superb patient record system is evident for the hospitals, with patients each having a beneficiary patient number. Separate folders are kept for each patient and terminal digit color coding is used. Further, a summary record of all illnesses, treatments, current medications, surgeries, etc. is retained by the patient should he have to be seen at a location other than his usual site of medical care.

All basic data are available on beneficiaries: registration data, patient information system, pharmaceutical audit and drug control, costing by patient/service, quality assessment, medical audit, and statistical reporting.

Patient rooms were commodious and clean. Meals appeared well-prepared and well balanced. Patients were interviewed and appeared very satisfied with both their surroundings and the quality of care they received. Because only administrative staff were interviewed, it was not possible to question physicians and nurses regarding their knowledge and practices.

Review of records at the GHIO facilities revealed that appropriate tests were performed to make diagnoses. Treatments recorded appeared appropriate as well. Laboratory staff appeared quite knowledgeable, and laboratories were adequately equipped to do all routine blood, urine, and stool exams, as well

as chemistries, enzymes, blood gases, and bacteriological examinations. Sterilization techniques uniformly appeared good. The surgical theatre was not examined as surgery was in progress and this observer was not permitted to cross a set of red lines on the floor without protective garments (a good sign!).

It appeared to this observer that the close working relationship between the GHIO and the Alexandria High Institute of Public Health's Department of Hospital Administration may well be at least part of the reason that the GHIO facilities visited were so well run, clean, and efficient.

It must also be kept in mind that the GHIO runs two major hospitals and several polyclinics, as well as having peripheral general practitioners either on site or in small offices around town to serve approximately 500,000 of Alexandria's working population. This may be a major factor in explaining the obvious differences between GHIO and MOH facilities within Alexandria. But it is not the only factor. Modern management and administrative techniques are strikingly absent in MOH facilities. Supervision and continuing education opportunities are present within the GHIO and are conspicuously poor or absent within MOH. Even though patients have no choice of physician in the GHIO system, quality control, medical audits, and what appears to be a general pride in delivery of quality service make people join the GHIO.

This observer fears, however that the planned expansion of total number of beneficiaries to serve the entire Alexandria area, will overload the GHIO system and quickly bankrupt it. New classes of beneficiaries are being added whose utilization patterns are much higher than that of the working male. Fees obtained for these people are lower and cost of care is steadily increasing. It is the prediction of this observer that GHIO will soon resemble MOH in its ability to provide care to an ever-increasing patient population.

The Curative Organization of Cairo also provides care basically to the middle class. Its facilities, like those of the GHIO, are modern, clean, well-appointed and well-equipped. Financing here is basically fee-for-service with balances and controls applied on the private sector through competitive quality services at modest fees. Payment to physicians is on a profit sharing basis and on an incentive basis for other employees. Patients enter this system from three sources; private clinics (approximately 40% of patients are obtained this way), contracts with businesses/employers, and self referral. Each polyclinic has at least two specialists in each area and patients are free to select the physician of his/her choice. Since the earnings of the physician are based on the number of patients seen (a fee is paid to the hospital, then shared with the physician) this rewards popular "good" physicians and swiftly drives evidently poorly trained/unacceptable physicians out of business. (This is in contrast to the GHIO system in which patients take whichever physician is working at the time of the visit.) Fees are posted and fixed. Theoretically, in this manner a patient would rather see his physician at the Curative Organization's facility at moderate fee than see the same physician privately at higher fee. If standards are not maintained, patients go elsewhere. The Curative Organization has 12 hospitals in Cairo, Alexandria, and Giza. The Director states that a long waiting list exists for physicians wishing to join the organization. Hospital fees range from L.E.

20/day for a suite (bedroom, waiting room, private bath, air conditioning and 3 meals) to:
1st class - bedroom, bath, A/C, meals - 12 L.E./day
2nd class - 2 beds/room, same facilities and meals - 5-7 L.E./day
3rd class - 4-6 beds/room, W.C. - 1 L.E./day

One sixth of all beds are reserved for "free" patients who are paid for by the government at 40% of the normal fee structure.

Again, facilities and equipment of the Curative Organization of Cairo were all highly acceptable. Physicians interviewed were older specialists who were knowledgeable and had good patient understanding and rapport.

Private Sector

This was the most difficult sector to access. With rare exception, government employed physicians were reluctant to be scrutinized in their private clinics. Often the joke - "Are you sure you are not from the tax office" was heard (followed by a change in subject back to the MOH services). In all, four private practices were observed. Although widely divergent in quality, it is doubtful that these are truly representative of the real picture.

One rural private surgery, one privately owned surgical hospital in Cairo, one privately owned general hospital and polyclinic in Cairo, and one conjoint clinic (multispecialty group practice) for poor people in a very crowded part of Cairo were visited. Conditions and levels of technique varied widely as did motivation for provision of service.

The rural surgery clinic was located in the first floor of the surgeon's home. He and his family lived above. Physically, the building was old but in fairly good repair. His operating theatre consisted of a rusting operating table, a surgical lamp, and a few instruments. His sterilization apparatus was covered with dust. Windows were not screened. He performed all kinds of major surgery. His two nurses were from the local district hospital, as was his first assistant (a resident) when needed. He had six post-surgical patients in three rooms. The rooms were dark, poorly ventilated, and had no beds. Patients were on blankets on the floor and were attended by their families who provided food. Cases included hysterectomy, mastectomy, appendectomy, and several other major surgical procedures. While this surgeon's operating techniques were not observed, several clues belied his attention to aseptic technique. He had very long fingernails (a "no-no" for surgeons), which were quite dirty and, when kindly offering this observer a soft drink, he produced a large piece of cotton, first wiping of the mouth of the bottle, then proceeding on down to clean off the bottle itself; he then wiped back up the length of the bottle and gave the mouth one more wipe for good measure. While very polite, this was exceedingly poor style for someone who is expected to practice aseptic surgical technique.

By contrast, the two private hospitals in Cairo were run in the most up-to-date, sanitary and proper manner seen anywhere in Egypt by this observer. Surgical theatres were sealed from the outside, no one was allowed in without protective clothing and shoes. Autoclaves and sterilizers were working. Personal care was conscientiously given to the patient to insure comfort and rapid recovery.

One hospital, while small and housed in several older apartment buildings was, in every way up to the standard of any international hospital, replete with the most modern diagnostic and therapeutic equipment. This hospital had 160 beds, 6 operating rooms, a delivery room, an X-Ray unit, ultrasound scanner, full laboratory, premature infant section with 12 incubators, a rehydration unit for pediatrics, a liver unit, renal dialysis, plastic surgery section, physiotherapy, chronic pain unit, dermatology section, 8 ICU beds for coronary and surgical care, and two ambulances. The ambulances were staffed by physicians, whose specialty was dependent upon type of case to be served.

The hospital is staffed with 24 specialist residents, working under the supervision of Section Heads for each of the specialities. These Section Heads are all professors in their specialities, from all of Cairo's leading university hospitals. These consultants usually come in for 2 - 3 hours each day to perform procedures, surgery, etc. About 70 private physicians and surgeons in Cairo and its suburbs refer their patients into this hospital. Fees generated by each department are split 50/50 between the hospital (which provides all the equipment, from needles and IV sets through EKG's and ultrasound diagnostics) and the Section Head. Payment for the residents is by independent contract with the Section Head, who has complete autonomy over the staffing and running of his section.

Room fees ranged from L.E.35 for a suite (bedroom, sitting room private bath, A/C, telephone and television) to L.E. 10 for 3rd class with 2-3 beds per room. Polyclinic/Emergency sees 40-60 patients per 24 hours, with fees of L.E.2 during day time and L.E. 5 during the night. If patients present to emergency department, the hospital policy is that no one is turned away even if they can't pay.

Quality of care was first-class. This investigator made rounds with the pediatrician and saw 3 premature infants and approximately 5 children with conditions as varied as mild-to-severe diarrhea (for rehydration), broncho-pneumonia, Empyema (for chest drainage and antibiotic therapy), Kwashiorkor, and corrosive esophagitis (apparently a fairly common condition as "Soda lime", used for washing, when mixed looks like milk and is often ingested by toddlers, causing severe chemical burns and scarring of the esophagus).

Finally, the last private practice visited was in a crowded poor section of Cairo. It was staffed by eight young physicians of various specialties --General Practice, Internal Medicine, Pediatrics, OB/GYN, General Surgery, and Dermatology. Their clinic's goal was to provide comprehensive medical care of high quality. They were exceedingly knowledgeable and well motivated young men. The clinic is staffed 24 hours a day, with a rotating call schedule. Each specialist comes at least two days per week. The clinic consists of a waiting room (which was crowded with adults and children) and two examining rooms. It was equipped with stethoscopes, blood pressure cuffs, and a few other essentials for doing OB/GYN exams. Most other equipment was the personal property of each physician. Referrals were made to Ain Shams University Hospital for Medical/Surgical and OB/GYN emergencies. Clinic fees ranged from 25 piasters to 1 L.E.

While not usually included in discussion of the private sector, in the interest of completeness, this investigator believes that a short discussion of the role of the *daya*, or traditional midwife, is in order.

Dayas, or birth attendants, have existed since time immemorial in one form or another. They probably began in a family tradition of mother or grandmother assisting daughter or granddaughter. They rely on experience, tradition and custom for their knowledge and community acceptance. Although other traditional providers exist (such as health barbers, eye specialists, specialists for curing childhood diseases and rabies, as well as for curing magical and spiritual problems) discussion will be limited to the *daya*.

In rural Egypt, estimates as to the percentage of births attended *dayas* vary from 50% to 90% of all deliveries. Between 1940 and 1969 the MOH sponsored training programs and licensed *dayas*. This was terminated in 1969 because the government felt that the *daya* would become superfluous in view of the large numbers of trained midwives that were rapidly becoming available. In reality, the midwife has not replaced the traditional *daya* in the minds of the client community. Estimates vary, but when this investigator inquired as to the number of *dayas* in each of the villages visited, the answers ranged from 4 in a village of 3,000 to "many many" in a village of 8,500. Traditionally the *daya* serves as both birth attendant and provider of advice and continuing care for mother and infant after birth. She attends the ceremony on the seventh day of life to celebrate the passing of the danger period, as well as one on the fortieth day to purify the mother. Payment is often in kind, but traditionally the celebration of the seventh day passage is a community affair at which time community members give 5 or 10 piastres each to the *daya*.

While untrained in modern techniques of child birth and cleanliness, the *daya* is respected and accepted by much of the Egyptian populace.

The surprisingly low use of hospitals and MCH facilities for child birth in Cairo may explain to some extent the unexpectedly high infant mortality observed for this urban governorate. A survey in the Greater Cairo area (in 1978) revealed that 56.9 % of the respondents delivered in hospital/MCH facilities and 36.3 % used local *dayas*. In Heliopolis, about 50% of the women reported using *dayas* to attend them during child birth.

The government is once again considering the training and licensure of *dayas* as an adjunct to existing services.

Pharmacists also represent an important source of care in the private sector. For a detailed discussion of the pharmacist's role, the reader is referred to the pharmacy section of the Health Sector assessment.

Problems Identified and Issues for Further Discussion

A definition difference exists at all levels between quantity and quality. At some point in time the decision was made that health care needed to reach the masses. Toward this goal health facilities were constructed throughout much of Egypt. These are in evidence almost anywhere one travels in Egypt. Similarly, a decision was made to increase the numbers of physicians and

nurses, in order to staff these facilities. In an effort to do so, emphasis was placed on quantity, apparently with little thought as to how increased student numbers would effect a body of medical teaching facilities which had heretofore been successful in producing a relatively small number of high quality well trained physicians.

The capacity of these medical faculties to provide high quality education was swiftly overwhelmed by student bodies of from 1000 to 1800 or more per class. The result is a large cohort of physicians and nurses who received less than adequate training and who were then assigned to rural units to provide unsupervised care in the periphery.

Training deficiencies occur at several levels. If the national goal is to provide quality health care for all (within the Egyptian context), then emphasis in professional education should be aimed at prevention of major causes of morbidity and mortality. Community approaches should be stressed, rather than problems of the individual which often are of curative nature by the time they present for care.

It must be kept in mind that if the quality of service provided is low then utilization of services might be expected to be correspondingly low. This results in wastage of precious financial and manpower resources. Physicians and nurses must be trained for the real needs of the country.

Apart from overcrowding of the schools, the teaching practices themselves must be examined. Because salaries for professors in the medical faculties are so low, several phenomena are observed to occur. Senior teaching faculty are drained from the universities into private practice. Many of Cairo's brightest and best professors spend at least 2-3 hours per day (often more), in the private practice of their speciality. This leaves lecturers and residents to provide the education.

It has come to this observer's knowledge that means, other than private practice, of meeting financial demands are available to these professors - private tutoring. This can provide 500 or more per student for private tutoring in specialty areas. Like the government physician who provides better service in his private practice than in the MOH facility, so too can the teaching faculty members augment their income with higher quality private instruction for a fee. This results in a disincentive to quality performance unless privately remunerated.

While new curricula have been introduced into all medical schools as of Fall of 1981, with inclusion of community medicine, epidemiology, and some units in social and behavioral science (See the MSA Health Manpower Training Report), all will be for naught if no standardized, nationally administered qualifying examinations are established to assure minimum standards of knowledge before licensure is granted to practice as a physician or nurse.

Government must decide what things a physician absolutely must know before being allowed to practice. Standards of care and knowledge must be set and tested before quality of care can be assured.

The MOH's Strengthening Rural Health Delivery Project has been reasonably successful at upgrading knowledge and skill proficiency of both physicians and nurses in implemented areas.

There is a need for access to continuing medical education. Physicians, working in University Hospitals have access to the most up to date information. Others, at the periphery (where the poorest students are sent to practice) do not, and currently they have little chance of upgrading their inadequate/marginal training. If periodic re-licensure examination is not possible, proof of continuing education ought to be provided pending relicensure. Further, as a source of added government revenue, licensure to practice medicine ought to expire after some specified period of time, rather than be issued for life. Fees accrued from relicensure could be utilized to support continuing education or a board of medical quality assurance.

Libraries are essential to the learning process and to the delivery of at least minimally good medical care. Without reference texts, no reinforcement or checking of diagnoses or treatment regimens is possible. All health units and centers should have at least rudimentary reference libraries. Facilities at district level ought to have larger libraries and document reproduction capability to augment dissemination of information to the local professional community.

Periodicals and journals aimed at the general practitioner need to be developed. This observer suggests that a bilingual format would simultaneously disseminate information and perhaps augment skills in English while guaranteeing comprehension in Arabic.

Having discussed shortcomings in technical expertise, one other area of training deficiency remains to be discussed: supervision, management and administrative skills appear to be lacking at almost all levels.

The concept of supervision is uniformly viewed as a punitive process, with an overseer meting out punishment. Currently, the physicians who occupy practically all supervisory positions have had no management training of any sort. Inventory controls are frequently lacking. Individual case records are often non-existent. Management data systems that would allow proper program monitoring, evaluation, and corrective feed back to service outlets are, (with rare exception, as in the SRHD project) nonexistent. Because of centralized control of limited resources, routine requests by a clinic for even modest supplies or equipment are subject to many layers of approval and require long processing times. Concepts of epidemiologic methods, applied research, analytical approaches toward problem identification and solution must be introduced into curricula. Supervision must become constructive in the minds of professionals. It must involve immediate in-service education and upgrading of techniques and skills. For this to occur a cadre of well-informed physicians and nurses must be established with supervisory, management, and teaching skills.

This lack of administrative and management skill at the governorate and district levels is considered by key MOH officials as a major constraint to improving performance at the service delivery level.

Exceptions to this pattern became apparent during the course of this investigation. In the urban setting, the operation of the GHIO of Alexandria, with input from the High Institute of Public Health, includes improved techniques of hospital administration and management, cost accounting and pharmacy control, among others.

The High Institute for Public Health's department of Hospital Administration is capable of creating high quality courses in health care administration. It is recommended that further discussion with them (Dr. Moh. El-Amin Essa) be pursued. Short 2-3 week training courses in administrative and management techniques could be offered (perhaps with AID financial assistance), targeted at administrative personnel just below the Director General at the governorate level, at supervisory positions at district level, and at physicians and nurses at rural center and unit level. This multi-level approach is felt to be necessary to prepare both the supervisor and the supervisees in techniques and expected outcomes. If lower levels are neglected, they will not receive supervision and guidance constructively. HIPH personnel interviewed feel that this approach may well have merit.

At rural level, attempts at providing management and supervisory skills, have evolved from the Strengthening Rural Health Delivery project. This has been the major non-medical contribution of this project. Subsequent quality of care in implemented areas is noticeably better than in adjacent non-implemented areas, with staff actually performing according to job descriptions.

Still within the subject of training, training for dayas in modern delivery techniques, child and maternal nutrition, and oral rehydration should seriously be considered. Licensing/certifying examinations should be provided.

With regard to facilities, the number of facilities in rural areas is probably adequate, with a rural average of 0.6 - 0.7 rural units /5,000 population. Urban facilities, however, average 0.2-0.4 units/5,000 population. Attention must be paid to this problem as urban growth is occurring at a rate three times that of the rural areas.

The problem in rural areas is one of attracting/inducing physicians to remain in rural areas after being posted there by MOH.

Suggestions toward this end have included construction of more small rural hospitals in an effort to provide adequate facilities to attract specialists into the rural countryside, to giving the physician a piece of land and a low interest loan (with a grace period before repayment) with which to start a practice.

Regarding urban facilities, a different problem exists. Hospitals, both government and private, must be brought up to minimum standards and then be periodically reinspected. Licensure should not be permanent, and relicensure should be dependent on rigorous inspection. There are many other incentives to quality of care for physicians, apart from wages. Physical surroundings and working conditions, availability of resource materials and specialty referral, ongoing education opportunities and peer recognition are only a

few. These conditions exist in only a very few hospitals. Where they do, staff are content, relate well to their patients, and are utilized by the population.

A joint committee for hospital accreditation is recommended to upgrade and maintain standards for hospitals.

Similar controls must be placed on laboratories and blood banks. Standards must be established and enforced.

Wage scales must be addressed. The concept of guaranteed employment for physicians and nurses must be questioned. The total number of these professionals is currently approaching a level wherein all meaningful positions will be saturated. Low wage scales force other employment and are disincentives to quality care and professional behavior. Possibly apocryphal reports indicate that young physicians are being sent home (with pay) from rural posts by more senior doctors who do not want the competition.

Young physicians often take jobs that could be done by trained nurses in private urban clinics and hospitals. This offers them a living wage but effectively traps them into not progressing with training as they need the money.

The possibility of nonphysician administrators must be considered, as the low wage scale and prohibitions on private practice will drive physicians away from administrative positions. Current estimates give the number of physicians in MOH administration positions at around 300. One such administrator predicted that this will decrease over the next 3-5 years to only 80-100. As physician administrators retire, it will become increasingly more difficult to recruit new ones with current financial structures. On the other hand, the excessive number of physicians in Egypt may mean that more will become interested in administrative work, especially if salaries in the future become competitive with potential earnings from clinical work.

Financing of Services is an area which requires extremely close scrutiny and continued in-depth consideration before any final decisions regarding financial assistance are made. Although this area is dealt with in other sections of this report, this observer's feelings on this subject will be summarized here as fee structure and methods of financing medical services have direct implications on quality of care. In brief, several modes are possible: free care, as currently provided by the government; uncontrolled fee-for-service, as in the private sector; controlled fee-for-service, as in the Curative Organization; and insurance mechanisms through the providers' own facilities, as is the case with the GHIO. Each will be dealt with briefly as it relates to access to care by varying segments of the population.

The private sector, with rare exception, apparently delivers care of high quality to those who can afford to purchase it. It is this observer's belief that the kind of care provided by the physician who does solely private practice can be afforded by only 5-10% of the Egyptian population. Fees for services provided by government physicians who do only part-time private practice may be a bit lower, expanding coverage to perhaps 15% or 20% of the population.

Both of the public sector providers (GHIO and Curative Organization) cater more to the middle class (average income of patient as estimated by each was 40-50 L.E./mo). This observer believes that, because of its financing structure the GHIO will not be able to continue to provide its current standard of care to an ever-increasing population of non-working women, children, pensioners, and widows. While they are doing an admirable job it seems only a matter of time before they will fail. A more sophisticated analysis will be found in the Health Policy Review done for the Health Sector Assessment.

The Curative Organizations may fare better if they are permitted by government to alter their fee structures as costs of equipment and pharmaceuticals increase.

This leaves the governmental sector to provide care for at least 60% of the population, fully bearing almost all costs. Over and above this, it ends up subsidizing the private sector through free medical education, heavily subsidized pharmaceuticals, and the policy of guaranteed employment for all physicians and nurses.

Is there equity in care? Who really has access? Who really benefits? -- These are questions which must be asked.

Government Sector = low cost to consumer =	low quality, for approximately 60% or more of the population.
Public Sector = moderate cost =	moderate-to-good quality, for approximately 30% or less of the population
Private Sector = high cost =	(usually) highest quality, for approximately 10% or less of the population.

Given the slow but steadily burgeoning and increasingly more powerful middle class, other forms of financing must be considered. Health insuring agents who do not provide care directly (non-HMO type), such as Blue Cross/Blue Shield prototypes, ought be considered.

Lastly, the process of decentralization to the Governorate and District levels which has relatively recently become policy has implications for agencies wishing to provide financial assistance. Since much of the planning and budgeting is now taking place at Governorate and District level, any plans for financial assistance must meet the needs perceived at these levels. Input from these levels is critically important in program design if success is to be likely.

If decentralization is truly taking place, increasing pressure may be brought to bear by the communities on central administration and providers alike to actually provide quality mandated services.

Egyptian community health education must be increased; instruction in endemic disease prevention and awareness, recognition of early signs of illness, and techniques of oral rehydration must reach the masses if the health of Egypt's people is to be improved.

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Dr. Samir Abu El Saad, Director, Simbelewan Health Center, Dakhaliya Governorate
Dr. Essam Attaya Shaban, Physician, Mitisaran Health Unit, Dakhaliya Governorate
Dr. Mohamed Abdel El-Ghani, Dandara Health Unit, MOH, Quena
Dr. Refaat Kamal, Professor of Hepatology and Surgery, in Shams University, Cairo
Chabrawishi, Obstetrician and Gynecologist, Cairo
Ashraf Ismail, General Practitioner, Cairo
Ahmed El-Dhary, Univ. of Michigan
Gary McCleary, Univ. of Michigan
Layton Ajello, SRHD Project, Cairo
John Gillespie, Basic Urban Services Project, Cairo
Billy Leonard, Urban Project Officer, AID/Cairo
Douglas Palmer, SRHD Project Officer, AID/Cairo
George Stathes, Project Director, HOPE, Cairo

cores of other more junior physicians, surgeons and nurses whom
I interviewed and who provide direct patient care at all levels and facilities
in the Ministry of Health, Public and Private Sectors, I express my deepest
gratitude in making a very difficult job easier and more enjoyable.