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# Health Workforce Rationalization Plan for Egypt

*December 1999*

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Partnerships  
for Health  
Reform

**PHR**



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# Abstract

This report examines the health workforce situation in all the governorates of Egypt. Analyzing future gaps between professional supply and the service requirements of the Egyptian population develops the rationalization plan. Requirements are based on several existing sources of norms for service and staffing, the primary sources of which are staffing norms (developed in the master plan for the health reform) established by the Health Insurance Organization (HIO) for its use in providing health care to its beneficiaries.

Recommendations are made for improving the usefulness of the human resource supplies in meeting the health care needs of Egyptians, for resolving gaps in under-service in Egypt's population, for resolving the critical problem of low professional productivity, and for balancing training and recruiting with population needs for health care.

In summary, Egypt's problems with physicians are not with numbers or gaps between overall supply and requirements; they are problems with distribution between urban and rural, and in training imbalances for family physicians and High Institute nurses, and with maintaining lifetime competency and quality.

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# Acronyms

<b>CAPMAS</b>	Central Agency for Population Mobilization and Statistics
<b>CC</b>	Curative Care
<b>DANIDA</b>	Danish International Development Agency
<b>DDM</b>	Data for Decision Making Project (USAID)
<b>DOP</b>	Department of Planning
<b>ENT</b>	Ear, Nose, Throat
<b>FP</b>	Family Practice
<b>HI</b>	High Institute
<b>HIO</b>	Health Insurance Organization
<b>LE</b>	Egyptian Pound
<b>MCH</b>	Maternal Child Health
<b>MD</b>	Physician
<b>MOHE</b>	Ministry of Higher Education
<b>MOHP</b>	Ministry of Health and Population
<b>NICHP</b>	National Information Center for Health and Population
<b>OBG</b>	Obstetrics/Gynecology
<b>PHC</b>	Primary Health Care
<b>PHR</b>	Partnerships for Health Reform Project (USAID)
<b>USAID</b>	United States Agency for International Development



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# Executive Summary

This report examines the health workforce situation in Egypt by analyzing future gaps between professional supply and the service requirements of the Egyptian population, and makes recommendations. The data available in Egypt at this time are not adequate to make good estimates of district<sup>1</sup> workforce supply or even the aggregate supply of physicians or nurses actually in the workforce, or to identify local pockets of unmet requirements for service. But, there are sufficient data, including conveniently available sample surveys and results from interviews conducted, to identify the priority issues of the health workforce, and to make recommendations for improving the usefulness of the health resource supplies in meeting the health care needs of Egyptians. Our general conclusion is that, except in the case of High Institute (HI) nurses, there is not a pressing need to train more (or less) doctors and other professionals. Rather, to resolve gaps in under-service in Egypt's population there are some significant geographic redistribution requirements for the health workforce, and a need to resolve the critical problem of low professional productivity, which will release untapped service deliver capacity for these highly trained professionals. There are also issues to be resolved in meeting the populations expectations for high quality training and lifetime competency, and the related issue about the lack of confidence of some segments of society in medical professionals.

The report utilizes a number of important source documents to develop norms for service and workforce requirements. The most important sources of workforce requirement information and standards for this report are:

- > Master Plan for Health Reform in Montazah
- > Data on staffing from the Health Insurance Organization (HIO) Central Headquarters
- > Data for Decision Making Project (DDM) Egyptian Provider Survey
- > DDM Egyptian Primary Care Strategy
- > DDM Household Survey of Egyptians
- > Ministry of Health and Population (MOHP) 5-year Rationalization Plan for Hospital Beds
- > Rationalization Plan and Model for Hospital Beds (Partnerships for Health Reform, PHR)
- > Central Agency for Population Mobilization and Statistics (CAPMAS) population and data on workforce supply
- > National Information Center for Health and Population (NICHP) and other MOHP data on workforce supply
- > Special requested data by PHR from governorates on workforce supply

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<sup>1</sup> Governorates in Egypt are divided administratively into districts. All governorates except Cairo, Alexandria, Suez, and Port Said (considered by CAPMAS as entirely urban) are further divided into centers (urban) and villages (rural).

- > Interviews with officials from MOHP, MOHE (the Ministry of Higher Education), major syndicates, and the Supreme Council
- > Strategic Planning Workgroups of officials in Alexandria, Sohag, and Menoufia

This report is organized into four major chapters. First we describe the methods and data used in the report (chapter 1). Then in chapter 2 we examine the existing situation for the supply and utilization of medical and nurse resources and the training program situation in Egypt for both physicians and nurses. The third chapter presents norms for care and examines the situation of adequacy of workforce supply and the future training pipeline. Chapter 4 presents the major findings and makes recommendations for rationalizing workforce resources to make most effective use of the investment being made in health professional training.

We conclude that:

- > The number of physicians and nurses in Egypt is more than adequate for meeting Egypt's needs for services, though *redistribution* to rural areas is a major priority, as is improving the productivity of existing professionals.
- > The redistribution priorities are needed to improve access in under-served areas, and to improve salaries and productivity in the urban areas with large surpluses of professionals.
- > Training volumes are not the primary policy tool for addressing distribution problems, though the vast shortage of family physicians and baccalaureate trained community health nurses requires immediate training attention if the momentum of health reform is to be maintained.

There are also urgent needs to:

- > Develop effective policies for deploying workforce in rural areas,
- > Develop a workable planning mechanism for coordinating the roles of MOHP, MOHE, and others in workforce sizing, training and deployment.
- > Collect required data, presently unavailable in Egypt, that is of significant priority for improving lifetime competency of professionals and for improving the fidelity of workforce planning.

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# 1. Background and Methods

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## 1.1 Purpose of Workforce Rationalization Planning

Rationalizing the supply of physicians and other health professionals is potentially the most important objective of health reform in Egypt. If the supply of professional service capacity is not re-deployed to favor integrated primary care and rural and other under-served populations, then health reform will have done nothing. Rationalizing hospital bed capacity, for example, will be a meaningless exercise in most cases unless doctors and nurses are redeployed to staff the new facilities in presently under-served locations.

The goal of rationalizing workforce needs is to bring training and deployment into balance with population needs for health care. To accomplish this, geographic imbalances, other access inequities, and specialty mal-distribution are situations that must be identified and prioritized. Remedies come in several forms for these situations of imbalance. Among the solutions are interventions such as:

- > Changes in the size of training programs;
- > Implementation of professional licensure/credentialing activities; and
- > Incentive programs that influence the location choices made by professionals.

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## 1.2 Background for the Workforce Rationalization Plan

Egypt has over 300,000 health care workers, or about 5 percent of the total population. The Ministry of Health employs slightly over 50 percent of these workers. Among these, the per capita supply of physicians is about 1 per 500 persons. Specialty practice is emphasized, to the point that 62 percent of the practicing physicians are specialists (with many others providing only specialty care), with little prestige afforded to generalists. Relative to other countries, the supply of health workers appears quite adequate. Comparative international data is not easy to construct, though the World Development Report contains some estimates, shown in Table 1 (World Bank, 1999). Compared to other countries in the region, Egypt has more doctors and nurses, although it is not as well endowed with human resources as the richest countries in the world (OECD). The other notable inference from this table is that Egyptian physicians are not as productive (per bed, bed day, or per outpatient visit) as physicians in other countries. We return to the issues of supply adequacy and health workforce productivity below.

**Table 1. Availability of Physicians (MDs) and Nurses in Egypt and Other Countries**

	MDs/1,000 Persons	Nurses/ 1,000 Persons	MDs/Bed	Bed Days/ Capita	Outpatient Visits/Capita	Bed Days/MD	Visits/MD
Jordan	1.6	2.0	1.0	.33	3	206	1,875
Saudi Arabia	1.3	2.4	.5	--	--	--	--
Italy	1.7	--	.3	.32	--	188	--
Turkey	1.1	1.0	.8	.36	1	327	909
UAE	.8	--	.3	.55	--	687	--
Oman	.9	--	.4	.50	4	555	4,444
Syria	.8	1.1	.7	--	--	--	--
Iran	.3	.9	.2	--	--	--	--
Iraq	.6	--	.4	--	--	--	--
USA	2.5	6.2	.6	.90	6	360	2,400
All Countries	1.4	1.4	.4	--	--	--	--
ME and N Africa	1.6	--	.9	--	--	--	--
OECD Countries	2.3	4.7	.3	--	--	--	--
Egypt	1.8	2.0	.8	.24	3.5	133	1,944

In Cairo, Alexandria, and other urban areas the supply of physicians, particularly specialist physicians, is very high. The Ministry of Health and Population (MOHP)<sup>2</sup> absorbs the influx of new physicians at minimal salaries. This situation makes it politically difficult to pay economic incentives to physicians who do more, since it appears that such incentives are not really needed to generate supply. In rural areas it is very difficult to attract physicians, particularly those with families. Programs to encourage such practice locations are not promising.

### 1.2.1 Utilization of Medical Services

The adequacy of the size and allocation of the health workforce in Egypt depends on the observed patterns of utilization of health care services, and the adequacy of those patterns. The use of health care services in Egypt is not uniform across the country, or across population groups. Table 2 below, taken from the Data for Decision Making Project (DDM) household survey done in 1996 (Nandakumar, 1998) using about 10,000 households throughout Egypt, provides some data to illustrate this inequity.

<sup>2</sup> MOHP is obliged to recruit the health workforce. New graduates of health professionals are obliged to spend two years in MOHP facilities before they are allowed to resign.

**Table 2. Utilization Disparities Across Egypt**

Population Group	Annual Outpatient Visits / Capita	Annual Inpatient Bed Days / Capita
1. All Egyptians	3.5	0.239
2. Urban Governorates	5.2	0.348
3. Upper Egypt Governorates		
3a. Rural Districts	2.6	0.135- 0.235
3b. Urban Districts	3.4	0.336-0.454
4. Lower Egypt Governorates		
4a. Rural Districts	2.9	0.173-0.38
4b. Urban Districts	4.4	0.332-0.187
5. Urban Egyptians with Income > LE 1147	5.1	0.3607
6. Urban Egyptians with Income < LE 1147	3.7	0.3305
7. Rural Egyptians with Income > LE 1147	3.8	0.3565
8. Rural Egyptians with Income < LE 1147	2.4	0.1535

Source: DDM Household Survey, 1996

Rural Egyptians, particularly when poor, do not use many healthcare services. For all urban persons, the average outpatient visit rate is about 4.5 visits per person per year. For Egyptians residing in rural districts (as classified by Central Agency for Population Mobilization and Statistics [CAPMAS]), visit frequency is less than 2.8 per year. Similarly, poor Egyptians (those earning less than LE 1114) have outpatient visit rates below 3.0 per year, while those earning more have about 4.5 visits per year. Similar patterns occur for inpatient care. These patterns reflect both access differences to service centers, and income barriers. Income is important because such a large fraction of care is paid for out-of-pocket by the nature of the current Egyptian health care systems.

These data, in summary, suggest that there are extreme differences in usage of professional health care resources in Egypt. If those Egyptians living in urban locations are less limited by access barriers than those in rural places, and Egyptians with higher family incomes are less limited by ability to pay barriers to seeking services, then the utilization patterns for the urban high-income Egyptians may suggest preferred usage patterns, or standards, for the country as a whole—about 350 days of inpatient care per capita and about 4.5 outpatient visits.

There are certainly other sources of utilization analyses that suggest that the patterns of professional health service use need improvement. PHR Technical Report No. 9: *The Reform Strategy for Primary Care in Egypt*, examines the usage patterns of basic primary care services. Using recommended norms (See Table 12 in section 1.4.5.), the authors crudely estimate that provider contacts for these services are about 2.4 visits per year per Egyptian below the standards for these services alone (Berman, 1997). While these standards and the adequacy-gap analysis which is based upon them cannot be generalized to curative services, the data shown in the report do confirm a broadly held view that the present health situation in Egypt does not emphasize the seeking of primary care services, nor is it emphasized by the training and deployment systems. As with the geographic and income disparities discussed above, the situation suggests a balance problem between primary and curative/specialist services.

The DDM provider survey done in 1997 (Nandakumar, 1999) suggests extreme access disparities in physician supply. This survey of about 800 physicians who practiced in private clinics for part or all of their time found that 81 percent of physician working hours were spent in urban areas, where about 44 percent of the population reside. About 19 percent of the professional time was spent in rural areas, where about 55 percent of the population live. By specialty, the survey found some differences, as shown in Table 3.

**Table 3. Urban & Rural Physician Productivity**

Specialty	Ratio of Rural Hours to Urban Hours
OBG	0.27
General Practice	0.90
Pediatrics	0.16
ENT	0.07
Cardiology	0.03
Orthopedics	0.05
Chest	0.29
All Physicians <sup>3</sup>	0.25

Source: DDM Provider Survey, 1997

While the ratio of rural population to urban population is about 1.25, the ratio of hours delivered by specialists in this sample is not close to this standard. General Practice hours are nearly the same in rural and urban areas. But the time allocations in other specialties are highly skewed toward urban practice. While this sample is not likely to be representative of all medical practice in Egypt, the basic message is clear: among physicians who desire to devote at least some of their time to private practice (this is the sample frame for the DDM private clinic sample), there is a strong bias to devote professional work time to locations in urban settings. For some specialties, there is virtually no service available in rural areas.

### 1.2.2 Medical and Nursing Training Background Information

Training continues to be the province of the Ministry of Higher Education (MOHE), rather than the Ministry of Health and Population. A policy for admission of students is set every year based on the scores level from secondary education and the requirements for each faculty, but the number is not fixed and such a plan for admission is subject to political and community pressure. Five years ago there was a plan to reduce student enrollment in medical institutions by 10 percent, but the opposite occurred and there was an annual increase of 5 percent in admission rates. The enrollment increase was attributed to a previous change in the basic schooling system accompanied by a significant increase in students' numbers, which also resulted in imbalance in staff/students ratio in some universities.

<sup>3</sup> The amount of time spent working by all physicians in rural areas is far less than the amount of time spent working in urban locations. For every hour in rural, four hours are spent in urban.

Training is controlled and supervised by the Supreme Council for Universities affiliated with the MOHE and a similar body under Al Azhar University. According to the Supreme Council for Universities' statistics (1995), thousands of personnel from different medical disciplines graduate from Egyptian faculties yearly. The certificate of completion of secondary education (12 years) is required for admission to these faculties

The training pipeline continues to produce about 3,500-4,000 physicians a year in Egypt (against a base supply of about 100,000), with most of these new physicians eventually settling in urban areas. The training situation and geographic imbalances are more or less the same for the other health professions, such as pharmacists, dentists, technicians, and nurses. High Institute (HI) nurses (baccalaureate trained) are possibly unique. Here, very limited training capacity (around 700 a year) has resulted in a situation of excess demand.

The training capacities in Egypt are dispersed more broadly than the population, with training programs for professions in many of the governorates and regions of the country. Table 4 shows how training is distributed across Egypt.

**Table 4. Distribution of Medical Discipline Institutions by Locality (1997)**

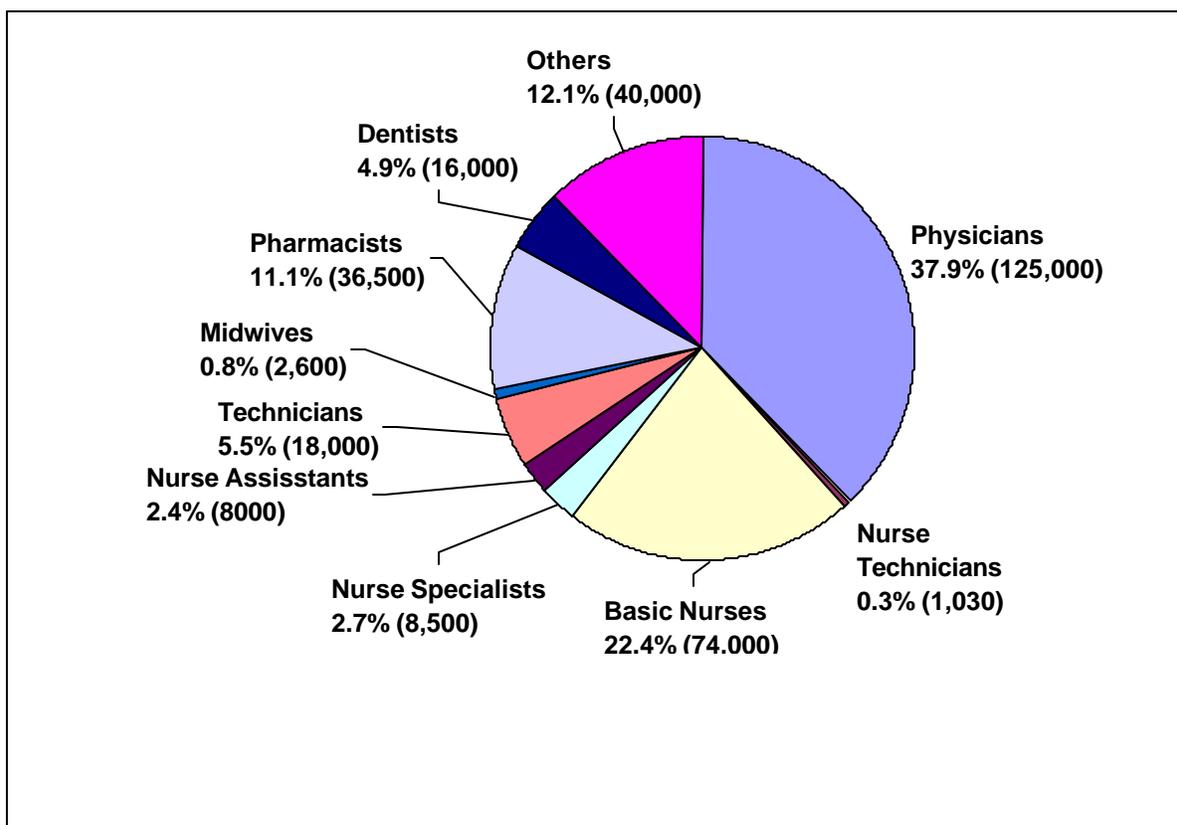
<b>Disciplines</b>	<b>Cairo</b>	<b>Alexandria</b>	<b>Lower Egypt</b>	<b>Upper Egypt</b>	<b>Suez Canal</b>	<b>Total</b>
Medicine	4	1	5	5	1	16
Dentistry	3	1	2	1	1	8
Pharmacy	4	1	3	3	1	12
Physiotherapy	1	—	—	—	—	1
Nursing (High)	2	1	5	1	1	10

Source: Supreme Council for Universities, 1995

### **1.2.3 Distribution of Health Workers in Egypt and MOHP**

The following charts describe the current health workforce of over 300,000 persons in Egypt. Figure 1 shows the distribution of the health workforce in Egypt.

**Figure 1. Distribution of Health Workforce in Egypt**



Source: Human Resource Review for Health Development in Egypt, 1998

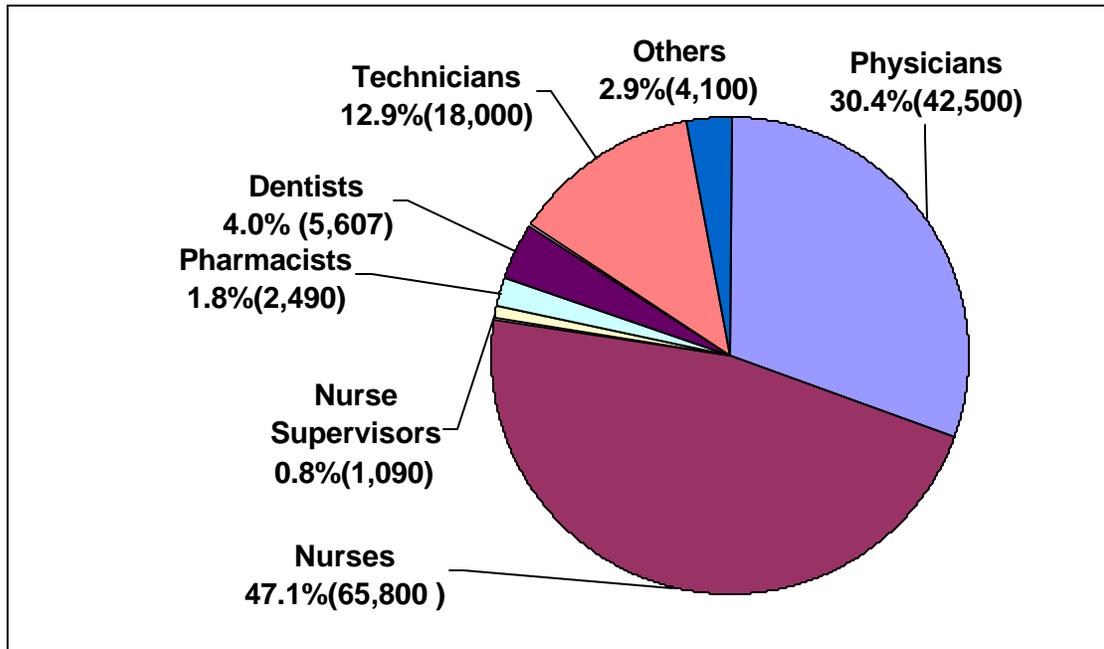
The MOHP employs more than half of the health care workforce. Table 5 and Figure 2 describe the distribution of the MOHP workforce in Egypt.

**Table 5. Population Proportion of Physicians, Dentists, Pharmacists and Nurses**

Human Resources	Proportion/10,000 Population	
	Total HR in Egypt	HR in MOHP
Physicians	21.2	10.4
Dentists	2.7	1.4
Pharmacists	6.2	0.6
Nurses	25.8	12.2

Nearly 50 percent of nurses and physicians work for MOHP, while 90 percent of pharmacists prefer to work in the private sector for better payment.

Figure 2. Distribution of Health Workforce in the MOHP



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### 1.3 Methodology for the Rationalization Plan Report

The method for rationalizing the workforce needs is composed of several activities. For each occupation, supply is compared with the forecasted population needs. For each governorate, the needs and supply are established for:

- > Rural districts (as defined by CAPMAS);
- > Urban districts;
- > Curative care (in hospitals and outpatient departments of hospitals); and
- > Primary care (private office practice and clinics).

Requirements are based on several existing sources of norms for service and staffing requirements. The primary sources of norms are:

- > Staffing norms established by HIO for its use in providing health care to its eligible members; and
- > Staffing norms developed for use in the health reform facility master plan (as confirmed by the initial experience of Seuf) coupled with norms for the numbers of other complementary specialists taken from several sources (managed care plans in the United States and HIO).

### **1.3.1 Occupations To Be Studied**

The health workforce is quite large, in the range of 300,000 workers across Egypt. This report is concerned primarily with physicians and nurses, including the adequacy of supplies of family physicians and baccalaureate trained nurses, as well as the adequacy of physician specialties. No consideration is given here to various technicians, dentists, pharmacists and midwives.

### **1.3.2 Numerical Data Sources**

The supply and distribution data used here come from a number of sources. Much of the data about utilization of physician services is taken from the DDM Household Survey of Egyptians in 1995/6 (Nandakumar, 1998). The productivity data, as well as the information about setting of employment, is from DDM's Survey of Providers in 1996/7 (Nandakumar, 1999). Other data sources are:

- > CAPMAS Medical Journal 1992-1998
- > NICHP, MOHP
- > Department of Planning (DOP), MOHP
- > Curative Care Department, MOHP
- > Primary Care Department, MOHP
- > Human Resource Development Department, MOHP
- > Governorate information centers
- > Supreme Council of Universities
- > Curative Care Organization
- > Teaching Hospitals Organization
- > HIO
- > Social Fund Project

### **1.3.3 Data from Expert Interviews**

Interviews were held with senior officials in the MOHP, syndicates, MOHE, university and medical school officials, and the Supreme Council. The general findings from these interviews are as follows:

- > MOHP policies about staffing are virtually independent from and unrelated to the enrollment decisions of the faculties of medicine and nursing. The Supreme Council has standing committees for each faculty, on which sit persons who are officials in the MOHP, but the

work of these committees appears to relate mainly to administrative issues and questions of academic equivalency of training.

- > Most hospitals must now train their physicians and nurses. Training programs are said to focus on “competencies,” but not necessarily “skills.” Training for lower level nurses is generally provided by recent trainees.
- > Governors do have significant input to both staffing and training assignments.
- > Forward-looking plans for staffing and training that are based on population requirements do not exist in the Ministry of Health, the Supreme Council of Education, or governorates.
- > Licensure renewal or credentialing policies are not highly regarded or considered workable, though the issue of lifetime competency is viewed as a problem.
- > Specialty preferences are driven by possibilities of private sector income potential, creating serious oversupply of pediatric, OBG, general surgery, and other specialties where patients commonly self refer. Recent policy to mitigate this allows persons going into the MOHP in critical shortage residencies to be given priority.
- > Getting more physicians into rural practice is an unresolved problem. Policy to allow salaries for physicians of up to LE 1,000 a month for very remote locations is viewed as somewhat effective, but not adequate to create a significant flow. One interviewee mentioned a consolidated, multi-town approach to organizing clinics into larger practices with many physicians.
- > Nursing workforce limitations (HI nurses) are severe since many do not practice in government hospitals, but leave the country to practice or work in the private sector. This appears to be a wage issue. There are insufficient supplies to expand nursing education faculty and supply.

A copy of the general interview guide and a list of interviewees is provided in Annex A.

#### **1.3.4 Workforce Norm Activities at Workshops in Menoufia, Alexandria, and Sohag**

In November 1999 rationalization planning training sessions were held with professionals in each of the three health reform pilot governorates. These two-day sessions were used to set rationalization plan norms for both bed needs (all three sites) and workforce (Sohag and Menoufia only). While these norms are not used explicitly here, the report does make occasional reference to the numeric norms for service utilization and worker productivity.

The agenda for the sessions were somewhat tailored, but generally followed the sequence shown here. The intent was to conduct a structured, population based planning process using small groups (two small groups in each site) to create separate planning scenarios. Reporting-out and discussion immediately followed small group discussions on each component. The components of the sessions were:

## **Day One**

- > Developing a set of principles of the health system to guide the rationalization planning process
- > Developing a set of very specific priority health and health system problems in the governorate today
- > Developing a set of standards/norms for the population's use of health services (inpatient and outpatient)
- > Developing a set of standards/norms for health system/provider productivity
- > Developing a set of standards/norms for health system geographic referral patterns (urban-rural, other governorate, in and out migration for care)

## **Day Two**

- > Computing the requirements for resources and magnitudes of imbalance between supply and requirements for 5- and 20-year scenarios using the bed need computer support tool—each governorate has a copy of the tool, the tutorial, and staff now trained able to be able to use it to support planning activity
- > Analysis of the gap between supply and requirements
  - ↑ Developing the top priorities for closing gaps in resource supplies
  - ↑ Developing the corresponding barriers to be overcome in meeting the gap priorities
- > Developing a set of next steps and associated responsibilities
- > Developing a set of priority data needs for completing the local rationalization plan
- > Demonstration of the Construction Project Clearinghouse tool for managing the flow of candidate projects and for setting priorities

Lectures and discussions were interspersed with these planning topics and included subjects like rationalization planning methods, early health reform results from Seuf, definitions of key terms, and reviews of household and provider DDM survey findings for Egypt and each of the three governorates.

The attendees for these workshops are included in Annex B.

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## 1.4 Norms for Assessing the Adequacy of Supply

Determining the adequacy of physician and nurse supply in Egypt requires norms, or benchmarks, that reflect the workforce size required to provide needed services. There are no international standards for workforce needs. The comparisons shown earlier in Table 1 help calibrate the overall situation in Egypt, but are not directly applicable as standards, given that usage is, at least partly, a product of: economic development (it would make no sense to include workforce standards from the USA or Switzerland here), training program content, factors that determine how productive workers can be, the care seeking situation, and geography of the country.

Developing norms for the workforce would typically begin by specifying norms for the “desired levels” of outpatient visit volumes and inpatient bed days. Applying these norms to the expected future size of the population would yield total service requirements which would then be divided by levels of desired “productivity” of physicians and nurses to arrive at the “requirements” for workforce. These levels of “population-based” requirements would be compared to forecasts of supply to arrive at “gaps” or distribution inequities. Unfortunately, little is known about service utilization for specialists, and proper supply forecasts are not possible with existing data resources. Consequently, the “service-utilization-and-productivity-standard” approach for establishing the workforce requirements and the gaps with supply cannot follow the typical approach due to data limitations. Rather, we rely more on norms in the form of workforce-to-population ratios. This is a simpler and cruder approach, though still based on external benchmarks or norms. The two main sources of norms are the HIO and the DANIDA (Danish International Development Agency) Master Plan. Several other sources are used as well, including the bed requirement norms as derived from the *5-Year Rationalization Plan for Hospital Beds* (MOHP, 1999) and other sources, as detailed below.

It is very important to understand that these norms are reflections of particular care models. The master plan norms reflect assumptions about the use of physician training in family medicine and a hierarchical referral scheme that includes units, centers, district hospitals, and other facilities where providers are managing the referrals. The HIO norms reflect a more traditional self-referral model of access, though one where the staffing productivity is more carefully managed than the current situation.

The computation of workforce requirements in hospital care will utilize the bed requirements given by the modest reform scenario of the Bed Need Requirements Model, represented in the MOHP 5-year plan. This assumes total requirements of about 1.5 beds per 1,000 persons.

### 1.4.1 HIO Norms for the Health Workforce; Traditional Care Model Norms

The norms presented in Tables 6-8 were taken from documents at the HIO headquarters in Cairo.

**Table 6. HIO Standards for Clinic Care**

<b>Specialty</b>	<b>Number of Physicians/Number of Beneficiaries</b>
General Office Care	1 physician / 2,000 persons
Medicine	1 physician / 15,000 persons
Ophthalmology	1 physician / 15,000 persons
Neurology	1 physician / 15,000 persons
Tropical/Infection	1 physician / 15,000 persons
General Surgery	1 physician / 20,000 persons
Orthopaedics	1 physician / 20,000 persons
Chest	1 physician / 40,000 persons
Dermatology	1 physician / 40,000 persons
Urology	1 physician / 40,000 persons
OBG	1 physician / 10,000 persons
ENT	1 physician / 30,000 persons
Total Physicians	1 physician / 926 persons

**Table 7. HIO Standards for Inpatient Care**

<b>Health Professional</b>	<b>Number of Physicians/Number of Beneficiaries</b>
Physicians	1 physician / 2,000 persons
Nurse (HI)	1 nurse / 33,000 persons
Pharmacist	1 pharmacist / 10,000 persons

**Table 8. HIO Actual Performance Data**

<b>Health Professional</b>	<b>Number of Physicians/Number of Beneficiaries or Beds</b>
Physicians	1 physician 2,300 persons
Nurses	1 nurse /1.75 beds

## 1.4.2 Master Plan Norms for the Health Workforce; Health Reform Scenario Norms

The master plan for health reform facility construction in the Montazah district done by DANIDA, and funded by the World Bank, provides norms which can be used to determine workforce requirements. These norms presume, of course, that the hierarchical referral system from the health reform model is the care model used. We use these norms to specify scenarios that include assumptions about the penetration of health reform in the Egyptian health care system.

**Table 9. Master Plan Workforce Norms**

Facility Type roster size assumption	Family Physicians	High Institute Nurses	Other Trained Nurses	Other Physicians	Inpatient Beds
<b>Units</b> (roster size=10,000 persons)	1.5/2,500 persons (1/2500 persons 1/10,000 director 1/10,000 rotating)	4/10,000 persons (1/10,000 head nurses 3/10,000 family nurses)	2/10,000 persons (1/10,000 dental 1/10,000 immunization)	None	None
<b>Centers</b> (n=75,000, and includes only center services)	None	4/75,000 persons (1/75,000 head nurses 3/75,000 specialists)	16/75,000 persons (8/75,000 delivery/inpatient 8/75,000 assistant nurses)	6/75,000 persons (1/75,000 in each of the following: director, OBG, pediatricians, IM, radiology, lab	8 beds/ 75,000 persons (6/75,000 obstetrics 2/75,000 surgery)
<b>District Hospitals</b> (n=150,000)	None	6/150,000 persons (1/150,000 head nurses 5/150,000 charge nurses)	75/150,000 persons (1/2 beds)	41/150,000 persons (1/150,000 directors 1/150,000 assistant directors 39/150,000 specialists)	1/1,000 persons
<b>Other Hospitals</b>	None	Assumed 1\25 beds	Assumed 1\2 beds	Assumed .28- .42\1,000 persons (.28 is the same as 41\150,000)	Assumed 0.5\1,000 persons (1.5 - 1.0 = 0.5)

The master plan norms need to be augmented for referral requirements for hospital care above the level of the district. The master plan norms provide about 1 bed and 1 physician per 1,000 persons for primary care and referrals up through the district hospital. The master plan assumes about .25 days of district hospital care per 1000, which is about 70 percent of presumed utilization from the bed need norms (where total bed days = .35 per person). Consequently, the district bed supply (1 per 1,000) would need to be augmented by about .5 beds per 1,000 persons and the staffing to support the care delivered in those beds. We assume that these bed days require the same staffing levels as district

hospitals. This would calculate to be .28 physicians per 1,000 persons. Alternatively, we provide for an assumption that these “higher level” hospitals will require 50 percent more intensive medical staffing—at the rate of .42 per 1,000.

### 1.4.3 University Hospital Staffing Patterns

The university hospitals provide a source of data for staffing norms to supplement the HIO data. Specifically, the norms for nurse and HI nurse staffing are of interest here, where occupancy is high and a full range of Casmir is seen. The data from the university sector show that the (weighted) average nurse staffing is about .73 per bed, with HI nurse staffing about one tenth of that (at .071 per bed).

**Table 10. University Hospital Staffing in 1996**

<b>Governorate</b>	<b>Beds</b>	<b>Physician/Bed</b>	<b>HI Nurse/Bed</b>	<b>Nurse/Bed</b>
Cairo	7,540	0.20	0.02	0.39
Alexandria	2,795	0.39	0.18	0.80
Ismailia	498	0.40	-	-
Dakahlia	1,512	0.17	0.08	0.55
Sharkia	1,152	0.22	0.08	1.46
Kaliubiah	812	0.25	-	-
Gharbiah	1,253	0.50	0.12	2.33
Menoufia	413	0.18	0.10	0.49
Menia	453	0.26	0.04	0.67
Asyout	1,498	0.17	-	-
Sohag	390	0.73		0.41
<b>TOTAL</b>	<b>18,316</b>	<b>0.27/bed</b>	<b>0.071/bed</b>	<b>0.73/bed</b>

### 1.4.4 Specialty Standards from the U.S. Managed Care Industry

The table below contains standards from one of the major U.S. managed care organizations that contracts with networks of physicians throughout the United States. These standards include a family practice assumption of 1/2,000 enrollees, and very carefully controlled access to other specialists. Overall, this complete set of norms represents about 160 physicians per 100,000 population, or about 96,000 physicians for the 60,000,000 Egyptians.

**Table 11. Physician Specialty Standards**

<b>Specialty</b>	<b>Persons / Physician</b>	<b>Physicians / 100,000 Persons</b>
Primary Care	1018	98.2 ( 60%)
Family Practice	2000	50
Internal Medicine	3500	29
Pediatrics	8000	12.5
OBG	15,000	6.7
Allergy Immunology	30,000	3.3
Anesthesiology	30,000	3.3
Cardiovascular/Thoracic Surgery	100,000	1
Cardiology	30,000	3.3
Colon Rectal	100,000	1
Dermatology	45,000	2.2.
Emergency Medicine	20,000	5
Endocrinology	100,000	1
ENT	30,000	3.3
Gastroenterology	50,000	2
General Surgery	25,000	4
Hematology/Oncology	60,000	1.7
Transplant	250,000	.4
Infectious Diseases	25,000	4
Internal Medicine	100,000	1
Mental Health	50,000	2
Neonatology	100,000	1
Nephrology	75,000	1.3
Neurology	75,000	1.3
NeuroSurgery	100,000	1
Nuclear Medicine	50,000	2
Ophthalmology	35,000	2.9
Oral/Max Surgery	300,000	.3
Orthopaedics	25,000	4
Pathology	60,000	1.7
Plastic/Reconstructive	300,000	.3
Physical Medicine	100,000	1
Podiatry	75,000	1.3
Pulmonary	75,000	1.3
Radiology	30,000	3.3
Rheumatology	100,000	1
Urology	35,000	2.9
Vascular Surgery	100,000	1
<b>TOTAL</b>	<b>608 persons / physician</b>	<b>164.3 physicians / 100,000 persons</b>

### 1.4.5 Policy Scenarios for Assessing Adequacy of Supply

The rural/urban segments of each governorate are evaluated for approximate “balance” with respect to supply versus requirements for three scenarios. The first two scenarios are consistent with full *health reform implementation*. They reflect the likely impacts of universal adoption of family practice and the health reform care model being piloted in Montazah. This reform utilizes a carefully defined set of roles and referral patterns for serving patients, and is aimed at integrating all primary care activities—many of which are traditionally offered in various vertical programs—under the direction of units, staffed by teams of family doctors and community health nurses. The roles of the doctors and nurses and the referral assumptions are much different here than in the traditional Egyptian care model. The role of the district hospital is also more carefully integrated with the units and centers. This scenario uses the standards reflected in the master plan, including those for staffing district hospitals.

The calculations, offered in chapter 3, provide two versions of the health reform scenario. One version calculates requirements for workforce if all districts were self sufficient in all care up to and including district hospital services (as specified in the master plan). Other referral care is assumed to be provided in the urban center of the Governorate—essentially making all Governorates fully self-sufficient. While this is not necessarily a reasonable scenario, it provides a view of the implications of a fully implemented health reform program in Egypt. We refer to this as scenario 1.1. The second reform scenario (scenario 1.2) also computes requirements for a fully implemented health reform situation. But this version provides for the urban portion of each governorate to serve some fraction of the rural needs. It also allows some portion of the higher level care to be referred from governorates to the urban governorates (Cairo, Alexandria, Port Said, and Suez). The exact assumptions for this scenario are shown below.

The second type of scenario is called the *improved rationalization* scenario (scenario 2.0). It utilizes HIO standards for physician supply (which are similar to U.S.HMO standards). The scenario also presumes the pattern of bed supply rationalization as reflected in the 5-Year Rationalization Plan of MOHP to which the requirements for specialty physicians are linked. University hospital staffing patterns are used as norms for nurse staffing in hospitals. From a policy standpoint, this scenario assumes higher medical productivity, and some additional controls over specialty referrals, but no basic changes in the training and practice of medicine in Egypt.

The reform scenarios use more HI nurses and fewer physicians in total than the improved rationalization scenario. The specialty distribution of doctors is also different, with vastly more family doctors required in the health reform scenario.

The differences in the norms for these scenarios are shown in Table 12.

**Table 12. Scenario Norms**

	<b>Scenario 2: Rationalization</b>	<b>Scenario 1: Reform</b>	<b>Reference</b>
<b>Professional</b>	<b>HIO Norms</b>	<b>Master Plan Norms</b>	<b>U.S. Managed Care</b>
Physicians (office-primary care)	1 / 2,000	1 / 1,670 (FP)	---
Other Office Specialist Physicians	1 / 1,800	1 / 12,500 (center only)	---
Hospital-Based Specialist Physicians	1 / 2,000 or .45/bed urban .33/bed rural	41 / 150,000 (district)	---
Primary Specialties (FP, IM, OBG, PED)	1 / 1,429	.7 / 1,000	1 / 1,000
All Non Primary Specialties	1 / 1,176 or 2/3 MDs / bed	---	1 / 1,667
All Physicians	1.55 / 1,000	.94 / 1,000 (district) .28 -.42 / 1,000 (higher)  1.22 - 1.36 / 1,000 total	1.6 / 1,000
HI Nurses	0.071 nurses / bed (university norm)  no norm for office setting	.453 / 1,000 (units and centers) .04 / 1,000 (district) .02 / 1,000 (higher)  0.513 / 1,000	---
Other Nurses	0.73 nurses / bed (university norm) 1 office nurse / office doctor (1 / 2,000 in rural; 1 / 948* urban pop; 1 / 1,800* rural pop in urban)	.413 / 1,000 (units and centers) .5 / 1,000 (district) .25 / 1000 (higher)  1.15 / 1,000	---

### **1.4.6 Referral Pattern Norms for Scenarios**

The scenarios require assumptions about cross-area referral requirements. Unfortunately, little is known about care-seeking behavior in this regard. The travel patterns for use of hospital care can be

estimated from the DDM household survey data—but the travel patterns for office care is not known. Of course, significant travel is known to occur from rural areas to population centers within governorates, and from most governorates to the urban areas of Cairo, Alexandria, Port Said, and Suez. The reform care model, with high dependence on family practice and a hierarchy including units, centers, and district hospitals, will have profound impacts on these travel patterns—and these patterns are not known nor assumed in the master planning activity. For purposes of this planning activity, we assume the following geographic travel patterns. They assume that significant portions of care will be delivered within the district of residence, displacing much of the travel that now occurs.

The assumptions about referral patterns for the rationalization scenario are different. The location of specialty care is assumed to follow the pattern reflected in the Egyptian *5-Year Rationalization Plan for Hospital Beds* (2001-2005) authored by MOHP. Using the methods and assumptions used in that plan, the requirements for medical and nursing workforce follow the bed needs.

**Table 13. Assumptions About Travel for Medical Care Between Regions for the Health Reform Scenario**

**Scenario 1.1: Full Implementation of Health Reforms**

	<b>Upper Egypt</b>	<b>Lower Egypt</b>
Basic primary care up through the district hospital	All care delivered at district level—no travel to urban areas or to other governorates	All care delivered at district level—no travel to urban areas or to other governorates
Specialty care including specialist office and hospital care	All specialty care delivered at urban center level—but no travel to other governorates	All specialty care delivered at the urban center level—no travel to other governorates

**Scenario 1.2 Health Reforms with Access Limits in Rural Areas**

	<b>Upper Egypt</b>	<b>Lower Egypt</b>
Basic primary care up through the district hospital	30% of basic care needs of rural persons is delivered in urban area of the same governorate	20% of basic care needs of rural persons is delivered in urban area of the same governorate
Specialty care including specialist office and hospital care	25% of specialty care is delivered elsewhere—in the urban governorates	35% of specialty care is delivered elsewhere—in the urban governorates

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## 2. Situation of the Supply and Training of Physicians and Nurses in Egypt

Physicians and nurses work in both primary<sup>4</sup> (ambulatory) and curative settings in Egypt, in both urban and rural districts in most governorates. Using data from MOHP, HIO, and other sources the following data was compiled. Tables 14 and 15 are a best estimate of current supply, and the basis for examining most of the distribution issues regarding the health workforce.

There are few conclusions to be drawn directly from these data, shown in both absolute numbers and per capita. It is easy to see that an important policy concern is geographic inequities in the distribution of physicians and nurses. This is a universal problem of health care policy—rich and poor countries alike suffer the problem of getting adequate numbers of professionals to practice in places that are unattractive to them and to their families. Some of this inequity, of course, is due to logical and preferred patterns of referral—it make sense to concentrate high level specialty care and beds in urban locations. Some of the observed inequity is also a real problem, creating situations where access to highly trained professionals for basic services is restricted or is simply unavailable. The differentials in usage rates (shown earlier) suggest that Egypt has a serious geographic distribution problem for health professionals. The norms for showing how serious the situation may be are shown in chapter 3.

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<sup>4</sup> Primary care physicians are those working in MOHP units and centers, HIO polyclinics, private, and NGO clinics while curative care physicians are those working in hospitals of all sectors. Physicians in outpatient clinics of hospitals are counted under curative as they are not identified separately.

**Table 14. Total Physicians and Nurses in the Primary Health Care and Curative Care Sectors in Egypt 1998**

Governorate	Urban					Rural					Total Governorate	
	Curative Care			Primary Care		Curative Care			Primary Care			
	Physicians	Nurses	Beds	Physicians	Nurses	Physicians	Nurses	Beds	Physicians	Nurses	Physicians	Nurses
Cairo	18,354	15,957	30,012	3,192	1,908	0	0	0	0	0	21,546	17,865
Alexandria	7,328	9,740	10,978	3,124	1,257	0	0	0	0	0	10,452	10,997
Port Said	1,048	1,127	1,603	151	233	0	0	0	0	0	1,199	1,360
Suez	669	578	1,021	63	337	0	0	0	0	0	732	915
Ismailia	1,306	1,200	1,390	66	259	10	11	632	30	201	1,412	1,671
Domiat	1,558	2,464	1,723	501	2,402	36	40	1,170	52	1,114	2,147	6,020
Dakahlia	5,018	5,367	3,494	541	1,009	250	200	3,596	1,073	1,423	6,882	7,999
Sharkiah	3,546	5,929	2,744	496	1,670	144	160	3,270	292	1,755	4,478	9,514
Kaliubiah	3,927	4,668	6,762	268	461	37	103	1,401	159	1,626	4,391	6,858
Kafr El Sheikh	2,128	3,274	1,388	113	316	81	60	1,562	245	1,562	2,567	5,212
Gharbiah	4,995	9,632	5,972	475	1,586	210	936	1,847	489	3,854	6,169	16,008
Menoufia	2,552	4,313	2,177	785	2,454	91	684	2,009	204	2,163	3,632	9,614
El Behira	2,962	5,639	2,074	297	1,813	60	182	2,438	387	2,257	3,706	9,891
Giza	6,705	6,501	8,474	984	520	86	127	1,303	797	986	8,572	8,134
Benisuef	1,113	2,281	1,433	115	647	60	50	1,120	165	748	1,453	3,726
Fayium	886	2,195	928	115	437	222	160	1,062	193	621	1,416	3,413
Menia	2,429	3,091	2,308	388	150	123	150	2,674	180	1,231	3,120	4,622
Asiut	2,445	4,794	3,750	215	737	19	16	1,796	170	1,383	2,849	6,930
Sohag	2,098	1,525	1,875	1,240	290	76	72	2,185	318	432	3,732	2,319
Kenna	1,374	868	1,092	317	565	87	64	1,499	413	250	2,191	1,747
Aswan	651	1,111	1,486	635	502	162	200	797	129	779	1,577	2,592
Matrouh	268	201	448	38	127	36	40	171	44	119	386	487
Wadi el Gadid	143	504	346	13	68	36	30	344	24	256	216	858
Red Sea	212	260	232	12	45	0	0	122	23	98	247	403
Shamal Sinae	262	438	268	97	244	15	9	174	47	175	421	866
Ganoub Sinae	87	71	70	4	21	67	70	123	0	82	158	244
Luxor	540	254	378	73	75	12	10	24	12	53	637	392
Total	74,604	93,982	94,426	14,318	20,133	1,920	3,374	31,319	5,446	23,168	96,288	140,657

**Table 15. Supply Data Converted to Per Capita Basis to Show Relative Inequities Across Places in Egypt**

Governorate	Urban					Rural					Total Governorate	
	Curative Care			Primary Care		Curative Care			Primary Care			
	Physicians	Nurses	Beds	Physicians	Nurses	Physicians	Nurses	Beds	Physicians	Nurses	Physicians	Nurses
Cairo	2.7	2.35	4.42	0.47	0.28	0	0	0	0	0	3.17	3
Alexandria	2.2	2.93	3.3	0.93	0.38	0	0	0	0	0	3.14	3
Port Said	2.23	2.41	3.41	0.32	0.5	0	0	0	0	0	2.55	3
Suez	1.6	1.38	2.44	0.15	0.81	0	0	0	0	0	1.75	2
Ismailia	3.83	3.52	4.08	0.19	0.76	0.03	0.029	1.69	0.08	0.54	1.98	2
Domiat	6.21	9.81	6.86	1.99	9.57	0.05	0.06	1.76	0.078	1.68	2.35	7
Dakahlia	4.27	4.57	2.97	0.46	0.86	0.08	0.066	1.18	0.352	0.47	1.63	2
Sharkiah	3.66	6.12	2.83	0.51	1.72	0.04	0.048	0.99	0.088	0.53	1.04	2
Kaliubiah	2.92	3.47	5.02	0.19	0.34	0.02	0.053	0.72	0.081	0.83	1.33	2
Kafr El Sheikh	4.17	6.42	2.72	0.22	0.62	0.04	0.035	0.91	0.143	0.91	1.15	2
Gharbiah	4.72	9.11	5.65	0.44	1.5	0.08	0.399	0.79	0.208	1.64	1.81	5
Menoufia	4.65	7.86	3.97	1.43	4.47	0.04	0.31	0.91	0.092	0.98	1.31	3
El Behira	3.25	6.19	2.28	0.32	1.99	0.02	0.059	0.79	0.126	0.74	0.93	2
Giza	2.59	2.51	3.27	0.38	0.2	0.04	0.058	0.6	0.364	0.45	1.79	2
Benisuef	2.54	5.21	3.27	0.26	1.48	0.04	0.035	0.79	0.116	0.53	0.78	2
Fayium	1.98	4.91	2.08	0.25	0.98	0.14	0.104	0.69	0.125	0.4	0.71	2
Menia	3.78	4.81	3.59	0.60	0.23	0.05	0.056	1	0.068	0.46	0.94	1
Asiut	3.2	6.28	4.91	0.28	0.97	0.01	0.008	0.88	0.083	0.68	1.02	2
Sohag	3.07	2.23	2.74	1.81	0.42	0.03	0.03	0.9	0.13	0.18	1.19	1
Kenna	2.66	1.68	2.11	0.61	1.09	0.05	0.033	0.78	0.215	0.13	0.89	1
Aswan	1.56	2.67	3.57	1.52	1.2	0.29	0.359	1.43	0.232	1.4	1.62	3
Matrouh	2.38	1.79	3.99	0.33	1.13	0.36	0.402	1.72	0.442	1.2	1.82	2
Wadi El Gadid	2.09	7.37	5.06	0.19	0.99	0.49	0.409	4.69	0.327	3.49	1.52	6
Red Sea	1.53	1.88	1.67	0.08	0.32	0	0	7.12	1.343	5.72	1.58	3
Shamal Sinae	1.76	2.93	1.8	0.65	1.64	0.14	0.087	1.68	0.454	1.69	1.66	3
Ganoub Sinae	2.97	2.42	2.39	0.13	0.72	2.66	2.781	4.89	0	3.26	2.89	4
Luxor	1.5	0.70	1.05	0.20	0.21	0	0	0	0	0	1.767	1
Total	2.97	3.743	3.76	0.57	0.8	0.0568	0.1	0.93	0.161	0.69	1.634	2

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## 2.1 The Situation for Doctors

### 2.1.1 Supply of Physicians

The table above shows the supply of doctors to be about 1 per 500-600 Egyptians. Table 16a below shows the number of physicians by setting of practice (primary, curative) and Table 16b shows the number of physician by primary employer (MOHP, others). The total number of physicians in Egypt in 1996, as registered by NICHP, is 125,000. CAPMAS Medical Journal (1996) records physicians in the curative sector in MOHP, public, private, universities etc. at about 76,992 (about 60,651 of these work outside the ministry).

According to 1996 NICHP data, 44,503 physicians are working in all the MOHP sites. The Curative Care Department in the MOHP has 16,341 physicians working in the curative section (i.e., general and central hospitals, rural hospitals) including residents, assistant specialists, specialists, and consultants. There are about 26,162 primary care physicians, not all of whom are necessarily actually working. Most take leave to quit working in the units and centers as they prefer working in the curative section. Thus the data from the NICHP is not completely reliable, as NICHP registers physicians who are supposed to be working in primary care, not those who are actually working there. Governorates had to be contacted to obtain the actual numbers of physicians.

**Table 16a. MOHP Physicians**

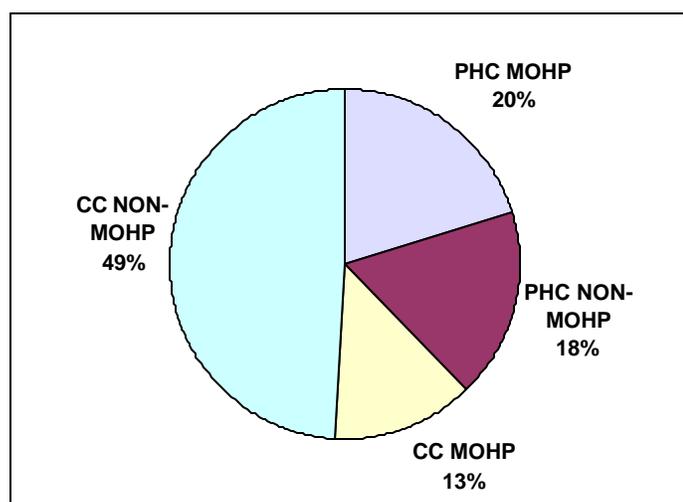
Sector		Primary Care Physicians	Curative Care Physicians	Total Physicians
<b>MOHP</b>	Number	26,162	16,341	42,503
	Percent of primary care and curative care out of all MOHP physicians	60.1%	39.9%	100%
	Percent of primary care and curative care out of total physicians in Egypt	20.9%	13%	34%
	Percent of physicians in MOHP out of total primary care and curative care physicians in Egypt	54.5%	21.2%	
<b>Total Egypt</b>	Number	48,008	76,992	125,000

**Table 16b. Non-MOHP Physicians**

Sector		Primary Care Physicians	Curative Care Physicians	Total Physicians
<b>Non-MOHP</b>	Number	21,864	60,651	82,497
	Percent of primary care and curative care out of all non-MOHP physicians	26.4%	73.6%	100%
	Percent of primary care and curative care out of total physicians in Egypt	17.4%	48.5%	66%
	Percent of physicians in non-MOHP out of total primary care and curative care in Egypt	45.5%	78.8%	
<b>Total</b>	Number	48,008	76,992	125,000

The distribution of physicians in Egypt between sectors (MOHP and non-MOHP) and type of setting (primary health care/PHC and curative care/CC) is depicted in Figure 3. Curative care outside the ministry is the largest single type of employment, with overall curative care representing about two thirds of the workforce.

**Figure 3. Distribution of Physicians by Area and Location of Practice**



### 2.1.2 Curative Care Supply of Physicians

Curative care facilities are numerous and affiliated to the different sectors all over Egypt. Most of the physicians and nurses prefer to work in hospitals in general and urban hospitals in particular.

The MOHP divides its curative care sector into rural and urban facilities. Urban facilities are the various general central and specialized hospitals (223). There are 2,139 health facilities providing hospital beds, with 2.1 beds per 1,000 population. The curative care workforce includes 42,500 physicians and 65,000 nurses. Rural curative care is provided exclusively through the 267 MOHP rural hospitals (5,400 beds). Curative care is therefore defined as hospital-based care.

HIO provides health care to government employees, public and private sector employees, widows, pensioners, and school children. The total insured population is 21,110,844. HIO is an independent organization, but it is supervised by the MOHP. According to HIO statistics, in 1996 there were on average .5 physicians and .03 nurses per 1,000 beneficiaries across Egypt, however, Cairo and lower Egypt have more of the medical personnel available than upper Egypt.

Curative care organizations and teaching hospitals provide subsidized fee-for-service health programs. The teaching hospitals participate in education and training of the different medical discipline graduates.

The private sector provides a significant proportion of health services providers either for outpatient (PHC) or curative care. According to DDM, the national estimate of private providers varies from a low estimate of 34,447 to a high estimate of 48,403. Because multiple employment is so common, there is no exact figure for the number of physicians. Fifty-three percent of MOHP physicians have a private practice or are practicing at a private hospital. Table 17 on the next page contains counts of curative physicians in Egypt.

### **2.1.3 Primary Health Care Supply**

PHC services comprise an extensive network that is distributed all over the country. According to the MOHP, primary care is provided through rural health units, urban health centers, and maternal and child health (MCH) units. There are 2,370 rural health units providing PHC services, which are considered the only PHC providers in the rural parts of the country. There are also rural health groups and rural hospitals, once primarily the responsibility of the primary care department in the ministry. Since 1996, responsibility for both has been transferred to the curative care department because rural health groups and rural hospitals provide primary care services as well as curative care services. This was supposed to be integrated services provision.

While the MOHP is the only provider of primary health care in the rural parts of the country, there are several urban PHC providers. The ministry provides PHC services through separate entities (347 health offices for registration of births and deaths, immunizations etc., 244 maternal and child health centers, and 211 urban health centers). These facilities provide PHC exclusively. However, all the hospitals have outpatient clinics that provide PHC services. In addition to the MOHP facilities, there are HIO polyclinics, private clinics, and the outpatient clinics of all curative facilities.

**Table 17. Curative Care Physicians, 1996**

<b>Governorate</b>	<b>MOHP</b>	<b>Curative Organization</b>	<b>HIO</b>	<b>Teaching Hospital</b>	<b>University</b>	<b>Other</b>	<b>Total CC</b>
Cairo	1,829	1,424	1,424	1,222	1,513	10,942	18,354
Alexandria	2,268	149	566	0	1,077	3,268	7,328
Port Said	340	29	140	0	0	539	1,048
Suez	219	0	56	0	0	394	669
Ismailia	208	0	57	0	200	851	1,316
Domiat	533	24	142	0	0	895	1,594
Dakahlia	1,977	0	624	0	257	2,410	5,268
Sharkia	1,084	0	228	0	258	2,120	3,690
Kaliobiah	587	79	120	105	200	2,873	3,964
Kafr El Sheik	42	0	146	0	0	2,021	2,209
Gharbia	1,727	0	456	0	622	2,400	5,205
Menoufia	952	0	136	205	75	1,245	2,613
El Behira	716	0	170	298	0	1,838	3,022
El Giza	253	0	1,501	0	0	5,037	6,791
Benisuef	438	0	186	0	0	549	1,173
Elfaium	523	0	171	0	0	414	1,108
El Menia	695	0	136	0	119	1,602	2,552
Asiut	493	0	220	0	260	1,491	2,464
Sohag	882	0	557	111	283	395	2,174
Kena	321	0	0	0	0	1,140	1,461
Aswan	211	0	0	128	0	474	813
Matrouh	39	0	0	0	0	265	304
ElWadi el Gadid	57	0	0	0	0	122	179
Red Sea	212	0	0	0	0	0	212
Shamal Sinae	119	0	0	0	0	158	277
Ganoub Sinae	54	0	0	0	0	100	154
Luxor	137	0	0	0	0	415	552
<b>Total</b>	<b>16,341</b>	<b>1,705</b>	<b>7,036</b>	<b>2,069</b>	<b>4,864</b>	<b>9,564</b>	<b>76,494</b>

**Table 18. MOHP PHC Physicians in All Governorates of Egypt 1996**

Facility Type Governorate	Urban				Rural
	Urban Health Centres	MCH	Health Offices	Total Urban	Rural Units and Groups
Cairo	1,203	267	435	1,905	53
Alexandria	279	435	168	882	162
Port Said	70	37	14	121	6
Suez	28	11	3	42	12
Ismailia	43	2	4	49	30
Domiat	38	35	8	81	52
Dakahlia	170	186	127	483	1,073
Sharkiah	158	87	28	273	292
Kaliubiah	108	80	22	210	159
Kafr El Sheik	53	20	10	83	245
Gharbiah	126	216	39	381	489
Menoufia	74	51	13	138	204
Behira	57	137	42	236	387
Giza	111	262	33	406	797
Benisuef	26	47	9	82	165
Fayium	59	14	4	77	193
El Menia	85	209	34	328	180
Asiut	90	40	50	180	170
Sohag	61	64	26	151	358
Kenna	53	26	15	94	413
Aswan	12	90	99	201	129
Matrouh	23	4	7	34	44
Wadi el Gadid	2	4	2	8	24
Red Sea	0	4	3	7	23
North Sinae	8	6	9	23	47
South Sinae	1	1	0	2	0
Luxor	8	5	3	16	12
Total	2,946	2,340	1,207	6,493	5,719

Source: NICHIP Data, 1999

## 2.1.4 Productivity of Physicians

The background chapter of this report referenced the fact that Egypt's endowment of physicians is comparable to or higher than many countries in the region, though the volume of services (in terms of bed days and outpatient visits) is not as great per physician. Data from the DDM provider survey corroborate this suggestion of low provider productivity. These data come from surveys of facilities and physicians who devote some, or all, of their time in private clinics. Table 19 summarizes these data, by region, in Egypt.

**Table 19. Physicians Productivity**

	Physicians In Clinics			Hospitals
	Patients/Week	Patients/Hour	Physicians/Bed	Nurses/Physician
Urban Governorates	98	2	1.02	1.05
Rural/Lower Egypt	117	2	.42	3.94
Urban/Lower Egypt	90	2	80	1.73
Rural/Upper Egypt	162	3	.36	2.48
Urban/Upper Egypt	117	2	.70	1.10
All Egypt	108	2	.77	1.75

The pace of serving patients is very slow, with only about two patients seen per hour spent in clinics by Egyptian physicians. (In rural upper Egypt, where there are fewer physicians, the productivity is higher.) Hospital productivity is also low. Since occupancy rates in hospitals are considerably less than 50 percent, the number of physicians per occupied bed is more than twice the ratio shown here—averaging about 2 physicians per patient.

The average physician with work in a private clinic spends 9.2 hours per day and 50 hours per week seeing 108 patients. Productivity is very low in private clinics, and highest in the HIO setting. About 42 percent of this clinic time is spent in private clinics, where physicians see only 19 percent of all the patients. About 36 percent of the time is in MOHP settings, where physicians see about 50 percent of the patients. HIO time is most productive, where physicians see about 14 percent of the patients, but spend only 6 percent of their time.

The number of patients seen per week by physicians varies considerably across specialties. orthopedics, dermatology, fever, and pediatrics are the highest (133 to 185 patients per week). Specialties with the fewest patients per week are psychiatry, OBG, neurology and surgery (48 to 88 patients a week).

The number of physicians per bed varies considerably by affiliation of the facility. Relative to the average for all surveyed facilities of .77 physicians per bed, MOHP facilities average 0.53 physicians per bed; HIO uses 1.14 physicians per bed, and private facilities have 1.01 physicians per bed. These differences reflect, in part, the average size and mission of the facilities.

## 2.1.5 Physician Training

There are 16 faculties of medicine (Table 20a), all but three are affiliated with MOHE (two affiliated with al Azhar and one private university established in 1996). The duration of study is six years and the Supreme Council of Universities sets learning objectives and the curricula.

**Table 20a. Physician Training Programs in Egypt**

Medical School	Governorate	Admitted	Graduated
Cairo	Cairo	1,231	882
Ain Shams	Cairo	1,190	509
Al Azhar	Cairo	920	430
Alexandria	Alexandria	1,033	605
Benisuef	Benisuef	122	55
Al fayum	Faium	181	78
Assiut	Assiut	679	191
Tanta	Gharbiah	820	247
Al Mansoura	Dakahlia	844	324
Al Zagazig	Sharkiah	673	275
Benha	Kaliubiah	265	73
Al Minya	Menia	441	84
Menoufia	Menoufia	308	96
Suez Canal	Ismailia	241	39
South Valley	Sohag	125	44
Total		9,073	3, 932

Source: Supreme Council of Universities, 1998-99

Medical graduates have to work for one year as house officers before they are permitted to practice medicine. After completion of this seventh year, the graduate holds a medical degree. Before practicing professionally, university graduates from different medical disciplines must register with the respective syndicate. Licensees are granted by the MOHP after completion of the house office practice year to physicians, nurse specialists and dentists. For other categories, such as pharmacists, physiotherapists and non-university nurses, licensure procedures are carried out after graduation. Paramedical technicians do not require licensing—this license is given once per lifetime without further monitoring.

Choice of postgraduate study and specialty depends on the desire of the graduate physician rather than the needs of MOHP or other organizations. As a result, there are surpluses in some specialties and shortages in others. More interest is shown in clinical curative practices than in primary health care or family medicine, as these are considered more prestigious and rewarding. After specialization, reregistering of physicians occurs at the syndicate with their specialty association.

There has been consideration of lengthened residencies for physicians to improve clinical practice. This is particularly a problem for physicians in training positions.

### **2.1.6 Family Medicine Training for Physicians and Nurses in Egypt**

There is only one family medicine program in Egypt, at Suez Canal University. The program has had a masters program since 1981, from which a total of only 46 persons have graduated. A newer diploma program, started in 1997, has graduated a total of 88 persons through 1999.

Since 1997, the MOHP has also been training family doctors and nurses by sending them abroad for three months of training. This program was designed to support the Social Fund Programs in Primary Care and Dr. Laila Soliman's program for working in rural health units. At this writing, there are no data on the number of these trainees, though it is estimated to be no more than 100.

The MOHP started the Egyptian Board in 1998 to provide advanced training and to credential specialists, but this program has no graduates yet. It offers doctoral degrees (without thesis) for physicians in family medicine, surgery, anesthesiology, and OBG. Training sites are now at teaching hospitals in Suez and Menoufia, with Cairo and Alexandria to be added in 2000. In these programs, candidates are expected to attend 75 percent of the lectures and seminars, and pass final written, oral, and clinical exams. Nurses are not included in the Egyptian Board at this time.

### **2.1.7 Trends and the Future Supply of Physicians in Egypt**

Training program trends, and the workforce participation rates of all physicians, drives the trends in physician supply. No data exist in Egypt on workforce participation of physicians (including death and retirements). No data exist on the location patterns of graduates or practice moving trends across governorates. The only real data available to suggest trends in physician supply come from the size of graduating classes of new physicians. This number has definitely increased in recent years across all schools in all locations, as shown by Table 20b.

These data suggest that overall increases in the number of new graduates in this period is between zero (if the most recent year is an anomaly) and 16 percent (if we assume that the difference between the first and last year is a reflection of the trend). Annually, the rate of increase in new graduates is, therefore, between zero and about 5 percent per year. This increase contributes very little to an overall increase in physician supply, however, since the new graduate pool is only about 3.5 percent of the total stock of physicians.

**Table 20b. Physician Training**

Medical School	Governorate	Graduates			
		95-96	96-97	97-98	98-99
Cairo	Cairo	760	661	752	882
Ain Shams	Cairo	439	381	434	509
Al Azhar	Cairo	371	322	367	430
Alexandria	Alexandria	522	453	516	605
Benisuef	Benisuef	47	41	47	55
Al Fayum	Faium	67	58	67	78
Assiut	Assiut	165	143	163	191
Tanta	Gharbiah	210	183	208	247
Al Mansoura	Dakahlia	278	242	275	324
Al Zagazig	Sharkiah	234	203	231	275
Benha	Kaliubiah	61	53	60	73
Al Minya	Menia	71	62	70	84
Menoufia	Menoufia	81	71	80	96
Suez Canal	Ismailia	31	27	30	39
South Valley	Sohag	37	32	37	44
Total		3,390	2,946	3,353	3, 932

There have been trends toward an increased supply of physicians in Egypt for several decades. However, the overall increase in supply of physicians cannot be computed directly, since we do not know if there have been changes in retirement or other workforce participation trends among previously trained physicians. The following plausible scenarios warrant consideration.

- > One supply scenario could be drawn using World Bank data showing that physician supply in Egypt increased faster than Egypt's population during the period from 1980 to 1994, causing the ratio of physician per 1,000 population to increase from 1.1 to 1.8 over the same period. This is an average annual decrease in physician productivity of about 4 percent, as measured by the ratio of population per physician.
- > A second supply scenario would assume that the current size of the new graduate pipeline (3,500-3,900) replaces retirements and deaths, and that productivity of physicians improves at a rate of about 4 percent a year (patient visits per doctor and bed days per physician increase by 4 percent a year). This would result in a modest increase in population served per physician of about 2 percent per year, since population itself is increasing at a rate of about 2 percent a year.
- > These two supply scenarios provide upper and lower bounds (" 2 percent) in the growth of citizens served per doctor per year.

## 2.1.8 Specialty Distribution of Physicians

The supply of physicians by specialty is a reflection of training opportunity and demand by trainees, who are driven, to some degree, by the opportunities in the private sector. Severe shortages of specialists are observed among anesthetists, cardiac and neurosurgeons, endocrinologists, and cardiologists

Tables 21 and 22 show the distribution of physicians, by specialty, in different geographical localities across Egypt and in the MOHP.

**Table 21. Distribution of MOHP Physician Specialists According to Specialty in Three Urban Governorates (1996 per 100,000 population)**

Specialty	Cairo	Alexandria	Giza	Other	Total
Population	6,789,479	3,328,196	4,779,865	44,374,842	59,272,382
General Surgery	4.67	12.26	6.11	5.81	6.07
Cardiac & Neurosurgery	0.6	0.78	0.4	0.11	0.23
Urology	2.02	3.76	3.22	1.95	2.16
Orthopedics	2.53	2.91	3.2	1.64	1.94
ENT	2.61	4.6	3.45	1.95	2.3
OBG	6.85	10.13	9.21	5.26	6.03
Ophthalmology	3.53	5.80	3.79	1.29	2.00
Medicine	5.48	10.28	6.42	3.70	4.49
Cardiology	1.03	1.14	0	0.36	0.45
Psychiatry	0.96	3.76	0.92	0.3	0.62
Paediatrics	5.39	10.13	4.77	3.45	4.16
Chest	1.99	4.54	3.08	1.07	1.53
Dermatology	3.34	2.94	2.55	1.58	1.93
Lab	2.09	4.21	3.98	0.6	1.25
Endocrinology	0.16	0	0	0	0.02
Tropical	0.6	5.29	1.72	1.39	1.54
Anaesthesia	2.87	5.35	3.79	1.35	1.95
Radiology	1.1	2.85	1	0.49	0.74
Physiotherapy	1.1	1.92	0.9	0.41	0.61
Percent of total	14 %	13 %	11.79 %	61.20 %	100 %

**Table 22.Total Curative Care Specialists in All Egypt 1996**

Governorate	Surgeons	Internists	OBG	Pedia- trician	Anaeth- esists	Orthop- aedics	ENT	Urolo- gists	Plastic Surgeons	Radio- logists	Ophthal- mologists	Dentists	Other	Total
1-Cairo	891	833	815	620	472	262	324	174	223	202	285	1,011	1,361	7,473
2-Alexandria	354	290	419	232	135	56	100	59	68	50	135	457	795	3,150
3-Port Said	47	56	54	34	13	10	12	1	11	2	33	73	67	413
4-Suez	19	35	39	17	8	13	12	0	4	4	13	32	109	305
5-Domiat	60	64	72	56	34	23	27	13	13	11	29	125	71	598
6-Dakahlia	278	312	314	176	84	84	71	2	71	35	104	180	246	1,957
7-Sharkiah	294	197	209	155	49	48	54	7	45	15	29	165	133	1,400
8-Kalioubia	246	157	188	110	68	68	69	5	73	22	46	219	169	1,440
9-Kafr El Sheik	131	111	114	97	44	35	36	0	35	18	10	87	98	816
10-El Gharbia	321	210	217	126	69	60	77	1	64	44	43	243	283	1,758
11-Menoufia	141	131	138	112	39	49	34	0	46	8	31	151	133	1,013
12-El Behira	245	184	133	93	57	41	40	2	39	13	15	148	158	1,168
13-Ismailia	70	57	52	45	28	24	26	10	24	21	8	48	60	473
14-Giza	236	407	320	300	173	110	116	11	94	62	124	429	374	2,756
15-Beniseuf	63	65	63	43	16	21	14	0	17	5	14	72	42	435
16-Fayium	64	72	56	54	15	12	15	1	22	5	18	50	27	411
17-El Menia	96	97	81	74	25	52	42	1	37	9	20	93	250	877
18-Asiut	86	117	114	62	32	34	34	2	55	11	46	94	213	900
19-Sohag	113	81	114	74	21	42	32	0	38	16	21	100	96	748
20-Kena	66	116	73	48	18	16	21	0	27	4	26	85	57	557
21-Aswan	41	45	48	22	9	10	14	0	15	1	10	48	35	298
22-Luxor	23	35	26	31	5	9	10	1	11	2	11	25	35	224

<b>Governorate</b>	<b>Surgeons</b>	<b>Internists</b>	<b>OBG</b>	<b>Paedia- trician</b>	<b>Anaeth- esists</b>	<b>Orthop- aedics</b>	<b>ENT</b>	<b>Urolo- gists</b>	<b>Plastic Surgeons</b>	<b>Radio- logists</b>	<b>Ophthal- mologists</b>	<b>Dentists</b>	<b>Other</b>	<b>Total</b>
23-El Bahr El Ahmar	6	7	13	8	1	5	2	0	2	0	1	12	4	61
24-El Wadi El Gadid	8	9	9	8	2	3	4	0	4	0	2	24	5	78
25-Matrouh	12	8	6	3	4	2	1	0	5	0	2	27	30	100
26-Shamal Sinae	10	13	16	11	4	0	5	1	6	0	3	15	4	88
Ganoub Sinae	7	9	10	10	1	1	3	0	3	0	0	8	2	54
<b>Total</b>	<b>3,928</b>	<b>3,718</b>	<b>3,713</b>	<b>2,621</b>	<b>1,426</b>	<b>1,090</b>	<b>1,195</b>	<b>291</b>	<b>1,052</b>	<b>560</b>	<b>1,079</b>	<b>4,021</b>	<b>4,857</b>	<b>29,551</b>

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## 2.2 Situation for Nurses

There are three levels of nurse training in Egypt. The high institute (HI) nurses have baccalaureate degrees from one of 10 programs in Egypt. The nurse has a three-year diploma from one of 10 programs in Egypt. The certificate nurse has a nursing certificate from a two-year program, of which there are 231 in Egypt. Nursing is a female-dominated profession in Egypt.

### 2.2.1 Supply of Nurses

It is difficult to know the numbers of nurses practicing in Egypt. Many of the HI nurses work abroad or in private clinics and hospitals and. Workforce participation is impossible to study with available data, making supply projections tenuous. Table 23 represents the best available summary data on the number of working nurses in Egypt.

**Table 23. Summary of Nurse Supply in Egypt 1997**

Training Program	Total Active Supply	MOHP Employees	Other Employment	New Graduates/Year
High Institute	8,500	1,303	7,197	742
Diploma	8,000	824		NA
Secondary Schools	124,157	69,085	67,909	NA
All Nurses	140,657	71,212	69,445	NA

Highly trained nurses are not plentiful in Egypt. About half of all highly trained nurses are MOHP employees, though MOHP is not the primary employer of highly trained nurses. These nurses tend to work in sectors able to pay higher salaries. In the private sector, HI nurses are reportedly able to earn more than physicians—a reflection of the shortage of such nurses and the relative surplus of physicians. This situation is important, and will be discussed again in the conclusion chapter 4.

Tables 24-26 describe the nurse supply situation in Egypt in greater detail.

**Table 24. Curative Care Nurse in the MOHP 1998**

Governorate	Urban			Rural			Total CC MOHP
	Supervisors	Other Nurses	Total Urban	HI	Other Nurses	Total Rural	
Cairo	45	2,671	2,716	0	0	0	2,716
Alexandria	314	2,080	2,394	0	0	0	2,394
Port Said	13	1,067	1,107	0	0	0	1,080
Suez	14	314	328	0	0	0	328
Ismailia	4	591	595	0	11	11	606
Domiat	27	1,900	1,927	0	40	40	1,967
Dakahlia	60	1,782	1,842	0	200	200	2,042
Sharkiah	141	2,416	2,872	0	160	160	2,717
Kaliubiah	11	1,853	1,864	0	103	103	1,967
Kafr el Sheik	39	1,482	1,521	0	60	60	1,581
Gharbiah	60	1,695	2,025	0	936	936	2,691
Menoufia	40	3,993	4,033	0		0	4,033
El behira	114	1,431	1,545	0	182	182	1,727
Giza	25	2,333	2,358	0	127	127	2,485
Benisuef	5	1,880	2,320	0	50	50	1,935
Fayium	25	1,344	1,369	0	160	160	1,529
El menia	17	1,227	1,244	0	150	150	1,394
Asiut	11	1,059	1,070	0	16	16	1,086
Sohag	7	672	679	0	72	72	751
Kena	1	386	387	0	64	64	451
Aswan	7	607	614	0	200	200	814
Matrouh	15	186	205	0	40	40	241
Wadi el Gadid	7	307	314	0	30	30	344
El Bahr el Ahmar	4	162	166	0	0	0	166
Shamal Sinae	5	250	255	0	9	9	264
Ganoub Sinae	0	71	97	0	70	70	141
Luxor	4	63	67	0	10	10	77
Total	1,015	33,822	35,914	0	2,690	2,690	37,527

Source: NICHIP data,<sup>5</sup> 1998

<sup>5</sup> Note that there are no HI nurses in rural hospitals (only rural curative facilities) according to NICHIP data.

Table 25. Curative Care Nurses in Other Sectors 1998

Governorate	Curative Organization		HIO		University		Teaching Hospitals		Others	Total		Total Nurses
	HI Nurse	Nurses	HI Nurse	Nurses	HI Nurse	Nurse	HI Nurses	Nurses	Nurses	HI	Nurse	
Cairo	68	1,878	33	792	134	2,904	59	2,198	4,237	294	8,710	9,004
Alexandria	83	544	61	852	513	2,234	0	0	3,059	657	3,630	4,287
Port Said	13	34	0	0	0	0	0	0	0	13	34	47
Suez	0	0	0	0	0	0	0	0	250	0	0	0
Ismailia	0	0	0	0	0	0	0	0	605	0	0	0
Domiat	0	177	9	191	0	0	0	0	160	9	368	377
Dakahlia	0	0	0	888	116	835	0	0	1,686	116	1,723	1,839
Sharkiah	0	0	5	1,599	91	1,677	0	0	0	96	3,276	3,372
Kaliubiah	2	74	18	233	0	0	4	284	2,189	24	591	615
Kafr El sheik	0	0	11	194	0	0	0	0	1,548	11	194	205
Gharbiah	0	0	20	2,308	151	2,920	0	0	2,478	171	5,228	5,399
Menoufia	0	0	9	140	41	202	22	679	-129	72	1,021	1,093
Behira	0	0	0	670	0	0	42	463	2,919	42	1,133	1,175
Giza	0	0	0	1,164	0	0	0	0	2,979	0	1,164	1,164
Benisuef	0	0	0	396	0	0	0	0	0	0	396	396
Fayium	0	0	0	386	0	0	0	0	440	0	386	386
El Menia	0	0	0	472	18	304	0	0	1,053	18	776	794
Asiut	0	0	0	0	0	0	0	0	3,724	0	0	0
Sohag	0	0	6	209	0	160	3	197	271	9	566	575
Kenna	0	0	0	0	0	0	0	0	449	0	32	32
Aswan	0	0	0	0	0	0	4	240	253	4	240	244
Matrouh	0	0	0	0	0	0	0	0	0	0	0	0
Wadi el Gadid	0	0	0	0	0	0	0	0	190	0	0	0
Red Sea	0	0	0	0	0	0	0	0	94	0	0	0
North Sinae	0	0	0	0	0	0	0	0	183	0	0	0
South Sinae	0	0	0	0	0	0	0	0	0	0	0	0
Luxor	0	0	0	0	0	0	0	0	187	0	0	0
Total	166	2,707	309	16,395	1,064	11,236	134	4,061	57,598	1,536	29,468	37,042

Table 26. PHC Nurses in MOHP 1998

Governorate	Urban			Rural			Total Governorate MOHP PHC
	Supervisors	Other Nurses	Total urban	Supervisors	Other Nurses	Total Rural	
Cairo	10	1,866	1,876	0	32	32	1,908
Alexandria	132	915	1,047	2	208	210	1,257
Port Said	0	207	207	0	26	26	233
Suez	2	284	286	1	50	51	337
Ismailia	1	258	259	0	201	201	460
Domiat	13	486	499	0	1,114	1,114	1,613
Dakahlia	8	1,001	1,009	8	1,415	1,423	2,432
Sharkiah	0	833	833	0	1,755	1,755	2,588
Kaliubiah	0	443	443	2	1,624	1,626	2,069
Kafr el Sheik	1	315	316	0	1,562	1,562	1,878
Gharbiah	11	1,575	1,586	0	3,854	3,854	5,440
Menoufia	0	566	566	0	2,163	2,163	2,729
El behira	65	928	993	9	2,248	2,257	3,250
Giza	1	474	475	0	986	986	1,461
Benisuef	1	646	647	0	748	748	1,395
Fayium	2	435	437	1	620	621	1,058
El Menia	0	0	0	0	1,231	1,231	1,231
Asiut	9	728	737	0	1,383	1,383	2,120
Sohag	4	185	189	0	526	526	715
Kena	0	140	140	0	250	250	390
Aswan	0	113	113	0	779	779	892
Matrouh	3	124	127	0	119	119	246
Wadi El Gadid	1	67	68	0	256	256	324
El Bahr El Ahmar	0	45	45	0	98	98	143
Shamal Sinae	0	68	68	0	175	175	243
Ganoub Sinae	0	21	21	1	81	82	103
Luxor	0	33	33	0	53	53	86
Total	264	12,756	13,020	24	23,557	23,581	36,601

Source: NICHIP data, 1998

## 2.2.2 Nurse Training

As shown in Table 27, there are 11 high institutes of nursing all over the country. The distribution of nurse graduates is presented in Table 28 below.

**Table 27. High Institutes of Nursing**

Name of Institute	Name of Governorate
Cairo HI of Nursing	Cairo
Ain Shams HI of Nursing	Cairo
Alexandria HI of Nursing	Alexandria
Assiut HI of Nursing	Assiut
Al Minya HI of Nursing	Minya
Tanta HI of Nursing	Gharbiah
Al Mansoura HI of Nursing	Dakahlia
Benha HI of Nursing	Kaliubiah
Al Zagzig HI of Nursing	Sharkiah
Menoufia HI of Nursing	Menoufia
Suez Canal HI of Nursing	Ismailia

**Table 28. Distribution of Nurse Graduates in 1996 According to Qualifications**

Nursing Institution	Duration of Study	Qualification	Percent Of Graduates	Number of Institutes
High Nursing	4 years	Bachelor	9%	10
Technical	2 years	Diploma	2%	10
Nursing Schools	3 years	Nursing school certificate	89%	231

## 2.2.3 Trends in High Institute Training and Nurse Supply

The High Institute training programs graduate approximately 700-800 nurses yearly (1995/96 CAPMAS, 1997). According to interviews with facility managers and other experts, the number of trainees falls far short of demand. A frequently cited problem with proposals to expand training capacity of these programs concerns the inability to attract qualified faculty. The general view is that the university faculty positions pay so little that they cannot attract more nursing faculty staff. This same problem also creates difficulty for the other nurse training programs, where quality of faculty is often poor because of limited access to high institute-trained faculty.

The output of the HI training programs has not been subject to a trend during the 1990s. Table 29 shows training volumes (new graduates) in Egypt based on available data.

**Table 29. Training Volumes of New Graduates**

<b>1990 – 91</b>	<b>1991 – 92</b>	<b>1992 – 93</b>	<b>1993 – 94</b>	<b>1994 – 95</b>	<b>1995 – 96</b>
634	770	708	705	858	742



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## 3. Supply and Adequacy of Physicians and Nurses

This chapter of the rationalization plan compares supply with requirements that are derived from assumptions in the form of scenarios. The scenarios are composed of norms for physician and nurse staffing. The scenarios are the same for physicians and nurses. Three scenarios are used to compute requirements:

- > Scenario 1.1 Universal Health Reform—based directly on master plan norms for units, centers, and district hospital staffing patterns. Each urban and rural region is assumed to be self sufficient in providing care at levels including units, centers and district hospitals. Higher level care is assumed to be provided on a self-sufficient basis within each governorate.
- > Scenario 1.2 Health Reform With More Realistic Access Assumptions—full use of master plan assumptions, but rural regions are not fully self sufficient in providing care at higher levels. The governorate, however, is presumed to be self-sufficient in the unit, center and district levels of basic care. Higher level care is assumed to be only partially provided within each governorate, with the balance going to the urban governorates in proportion to their population (Cairo=62 percent, Alexandria=30 percent, Port Said and Suez=4 percent each).
- > Scenario 2.0 Rationalized Traditional Care—HIO norms for workforce are used along with the current five-year bed rationalization plan, around which specialty requirements and nursing requirements are computed.

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### 3.1 Physicians

#### 3.1.1 Overall Adequacy and Imbalances

The overall adequacy of supply of all physicians is presented here in a chart, a graph, and a table. The situation, overall, is fairly simple to describe—the number of physicians in Egypt is adequate, and possibly in excess of, the numbers needed to meet the requirements of the scenarios of reform and rationalization. There are, however, specialty and distribution problems. The future may or may not aggravate this overall condition.

Figure 4, based on data from the master plan and the HIO, compares the overall levels of supply with the norms used for overall adequacy. Norms from a U.S. managed care plan are also shown for reference.

**Figure 4. Current Physician Supply and Requirements**

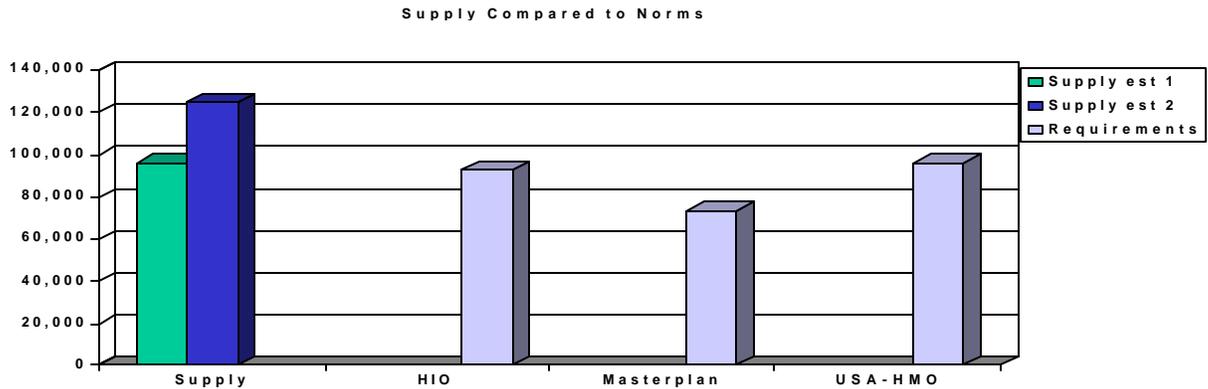
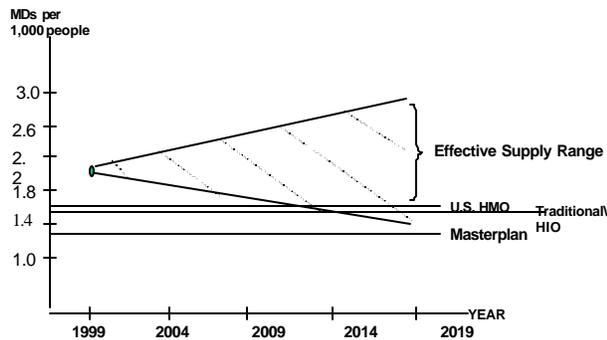


Figure 5 points to the obvious finding that the number of physicians in Egypt is sufficient to satisfy the norms of the HIO, the reform master plan, and norms used to staff managed care organizations in the United States. This means that if both the utilization assumptions and the productivity assumptions of those situations are met, there are adequate numbers of physicians to meet requirements. These assumptions about use rates and productivity are not explicit. As noted earlier, the productivity of physicians is known to be low, so current levels of supply of physicians (somewhere in the range of 1.6-2.1 per 1,000 persons) should be able to support higher inpatient care requirements. The days per 1,000 persons should go from .28 to .35 per person—a 25 percent increase. Outpatient visits, now about 3.5 per person per year, would increase by about 20 percent (to 4.2) if the rural poor use rate (now 2.8 visits per year) were brought up to the level of the rural high-income persons or the urban poor (both about 3.5 visits). These 20-25 percent utilization increases should be possible within the current supply.

The future relationship between supply and requirements is not clear, due to the difficulty in making supply projections. The earlier discussion of supply provided two bounding estimates of persons served per doctor: one growing at a rate of 2 percent a year, the other shrinking at a rate of 2 percent a year.

**Figure 5. Future Physician Supply and Requirements 1999 to 2000**

Supply Exceeds Requirements



The requirements for all physicians and for family physicians for urban and rural regions of Egypt are shown in Table 30. The table shows:

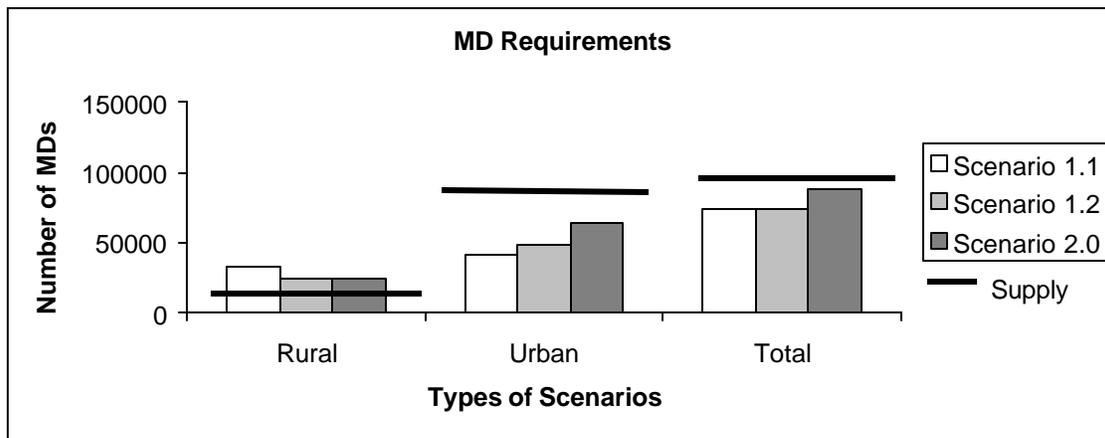
- > The scenarios of reform with access limitations (1.2) and rationalization (2.0) are similar in some ways—showing distribution imbalances between urban and rural governorates of the same size. The reform scenarios (1.1 and 1.2) do require fewer physicians.
- > Large shortages of family doctors in all regions will accompany attempts to implement reforms.
- > There are no explicit family medicine requirements for the rationalization scenario since those norms assume only traditional Egyptian specialty training. (This scenario is based on HIO norms and bed needs.)
- > Urban areas outside the urban governorates (Cairo, Alexandria, Port Said and Suez) have significant oversupplies of physicians, though not as large as in the urban governorates taken as a group.

**Table 30. Supply and Requirements for Physicians in Egypt (1999)**

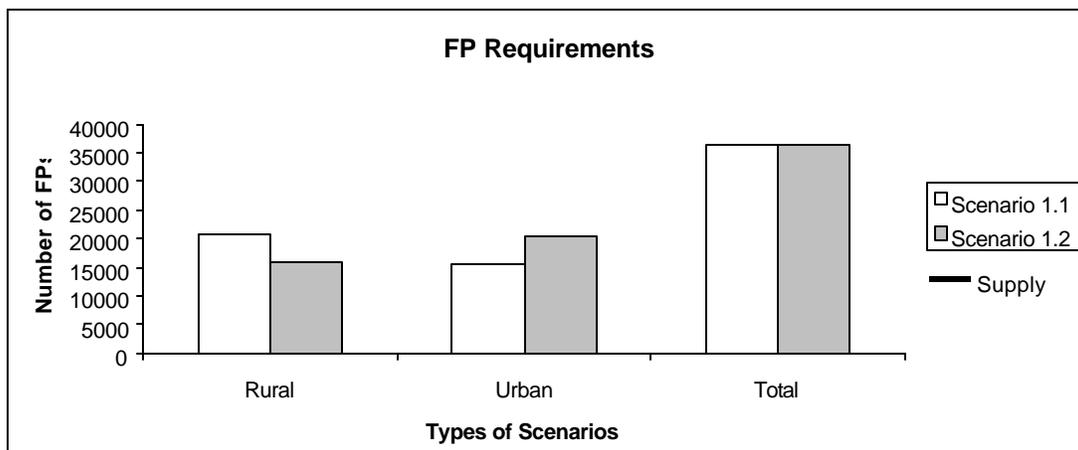
	<b>Family Practitioners (FP)</b>	<b>All Physicians (MD) (including FP)</b>	<b>Comments</b>
<b>Urban Governorates</b>			
Supply	–	33,929	
Required-Reform Scenario 1.1	6,671	13,114-14,622	Vast oversupply if governorates are self sufficient
Required-Reform Scenario 1.2	6,671	17,810-19,858	Oversupply of MDs, but vast shortage of FPs
Required-Rationalization Scenario 2	–	19,411	Surplus
<b>Other Urban Areas</b>			
Supply	–	54,993	
Required-Reform Scenario 1.1	8,869	27,711-30,898	Vast surpluses of MDs, vast shortages of FPs
Required-Reform Scenario 1.2	13,596	30,438-33,938	Same, though urban supply of primary care is larger and FP shortage is bigger
Required-Rationalization Scenario 2	–	44,937	Slight shortage
<b>Rural Areas of Egypt</b>			
Supply	–	7,336	
Required-Reform Scenario 1.1	20,696	32,490-36,226	Vast shortages of MDs and FPs
Required-Reform Scenario 1.2	15,969	25,067-27,950	Same, but smaller due to travel
Required-Rationalization Scenario	–	23,798	Shortage of MDs
	Family doctors	All MDs (including FPs)	Comments
<b>All Egypt</b>			
Supply	+/- 200	96,258-125,000	
Required-Reform Scenario 1.1	36,236	73,315-81,746	Slight oversupply, but vast shortage of FPs for reforms
Required-Reform Scenario 1.2	36,236	73,315-81,746	Same

Figures 6-8 and Tables 31 and 32 show gaps in physician availability for urban and rural areas. Figure 6 summarizes the data from the above chart in graphical form, depicting the supply of providers as a horizontal line and the requirement scenarios as bars. Rural areas have fewer physicians than required in all scenarios and urban areas have more than required in all cases. The compelling finding here is that, regardless of the scenario, the situation is the same.

**Figure 6. Requirements for and Supply of Urban and Rural MDs**



**Figure 7. Requirements for and Supply of Urban and Rural FPs**

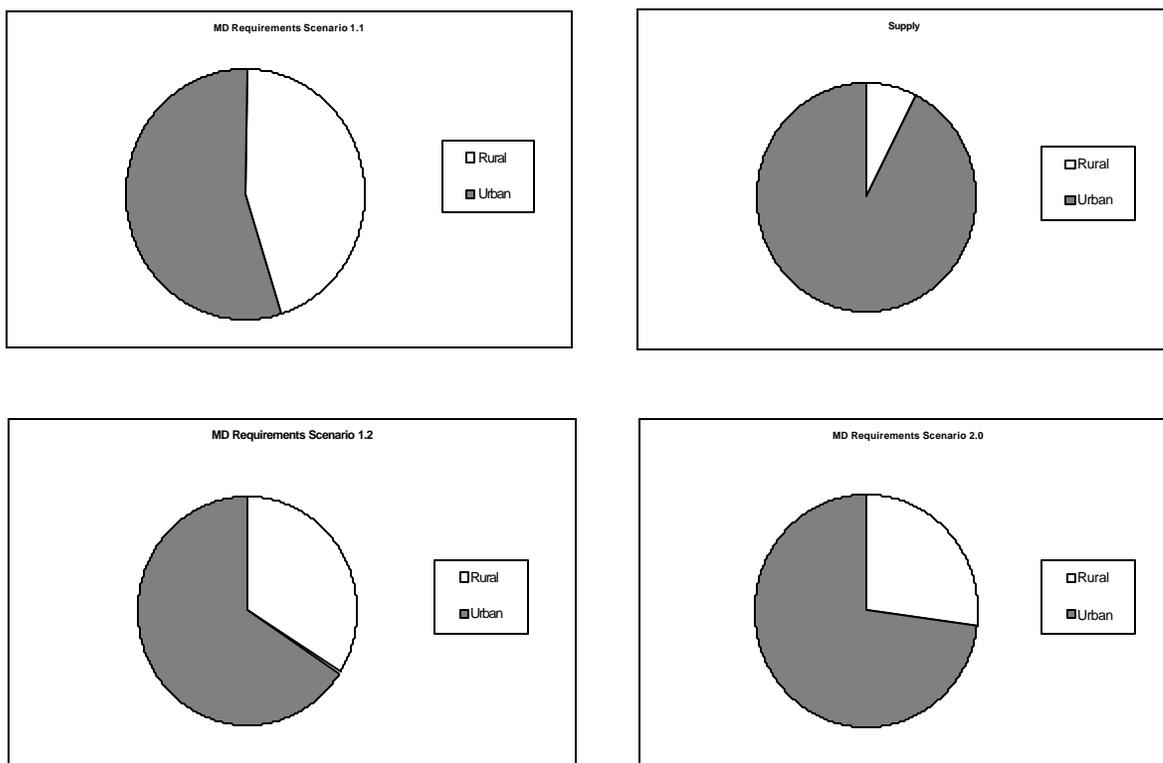


**Table 31. Requirements for and Supply of Urban and Rural Physicians**

MD's	Rural	Urban	Total
Scenario 1.1	32,490	40,803	73,293
Scenario 1.2	25,067	48,248	73,315
Scenario 2.0	23,798	6,4348	8,8145.7937
Supply	7,336	8,8922	9,6258

Family Practitioners <sup>6</sup>	Rural	Urban	Total
Scenario 1.1	20,696	15,540	36,236
Scenario 1.2	15,969	20,267	36,236
Supply	0	0	200

**Figure 8. Urban and Rural Mix of Physicians**



Scenario 1.1 Full reform, governorate self sufficiency  
 Scenario 1.2 Full reform, governorates sufficient for basic care only  
 Scenario 2.0 Improved distribution, traditional care model (HIO)

<sup>6</sup> Supply of family physicians is less than 200 all over Egypt.

**Table 32. Urban and Rural Physician Distribution Requirements**

<b>MDs</b>	<b>Rural</b>	<b>Urban</b>
Scenario 1.1	32,490	39,403
Scenario 1.2	25,067	48,248
Scenario 2.0	23,798	64,348
Supply	7,336	88,922
Total Supply	96,258	

### **3.1.2 Imbalances by Governorate**

There are significant differences in the situation across governorates in these same types of analysis. The scenarios were used to create requirements for the urban and rural component of each governorate. This division was based on CAPMAS districts.

The results are shown on the next two pages. Table 33 shows all physicians; Table 34 presents family practice only. The family practice table is shown to allow readers to see the requirements for such physicians in the health reform scenario—there are no supply data to compare to these requirements.

The last column in the tables provides an assessment of the situation in each area. The characterization is:

- > Shortage supply is less than 75 percent of average requirements (where the average of scenarios 1.2 and 2.0 are used to get an average). These scenarios yield similar requirements in most cases.
- > Surplus supply is more than 125 percent of average requirements.
- > Balance supply is between 75 percent and 125 percent of average requirements.

Some of the governorates are characterized in a bold font. The bold signifies that the governorate is in approximate balance taken as a whole (using the same rules as above), that is, shortages are offset by surpluses within the same governorate. Table 35 summarizes the tabular data and the situation in all the governorates.

**Table 35. Governorate Balance Situation for All Physicians**

Rural Areas	Urban Areas			
		Shortage	Balance	Surplus
	Shortage			Asyout, El-Menya, Kaliuobya Baniswef, <b><u>El-Monofia</u></b> , Kena <b><u>Dakahlia</u></b> , <b><u>Giza</u></b> , Sharkia <b><u>Domyat</u></b> , <b><u>Ismailia</u></b> , Sohaag El- Beheira, Kafr El-Sheikh, Fayum <b><u>El-Gharbia</u></b>
	Balance			<b><u>Aswan</u></b> El-Wadi Al-Gadid <b><u>Matrooh</u></b> <b><u>Nor Sainai</u></b>
Surplus			Luxor Red Sea South Sainai	
Governorates w/o rural areas			Alexandria Cairo Port Said Suez	

Bold and underlined text represents governorate in approximate balance, though redistribution between urban and rural areas may be required.

**Table 33. Physician Supply and Requirements by Governorate**

Governorates	Urban/ Rural	Supply	Scenario 1.1		Scenario 1.2		Scenario 2.0		Balance*
			Required	Gap	Required	Gap	Required	Gap	
Alexandria	Urban	10,452	4,111	6,341	5,390	5,062	5,470	4,982	Surplus
	Rural	0		0		0	0	0	Shortage
Aswan	Urban	1,286	676	610	766	520	964	322	Surplus
	Rural	291	533	-242	373	-82	392	-101	Balance
Asyout	Urban	2,660	1,538	1,122	1,926	734	2,464	196	Surplus
	Rural	189	1,964	-1,775	1,375	-1,186	1,379	-1,190	Shortage
Banisweif	Urban	1,228	955	273	1,086	142	1,558	-330	Surplus
	Rural	225	13,71	-1,146	1,097	-872	975	-750	Shortage
Cairo	Urban	2,1546	6,457	15,089	11,024	10,522	12,290	9,256	Surplus
	Rural	0		0		0	0	0	Shortage
Dakahlia	Urban	5,559	2,331	3,228	2,493	3,066	3,818	1,741	Surplus
	Rural	1,323	2,922	-1,599	2,338	-1,015	2,199	-876	Shortage
Domyat	Urban	2,059	503	1,556	538	1,521	901	1,158	Surplus
	Rural	88	637	-549	510	-422	545	-457	Shortage
El-Wadialgadid	Urban	156	107	49	107	49	211	-55	Surplus
	Rural	60	71	-11	57	3	82	-22	Balance
El Beheira	Urban	3,259	2,012	1,247	2,207	1,052	3,160	99	Surplus
	Rural	447	2,949	-2,502	2,359	-1,912	1,956	-1,509	Shortage

El Gharbia	Urban	5,470	1,980	34,90	2,090	3,380	3,022	2,448	Surplus
	Rural	699	2,246	-1,547	1,797	-1,098	1,625	-926	Shortage
El Menya	Urban	2,817	1,567	1,250	2,100	717	3,595	-778	Surplus
	Rural	303	2,565	-2,262	1,795	-1,492	1,633	-1,330	Shortage
El Monofia	Urban	3,337	1,316	2,021	1,465	1,872	2,143	1,194	Surplus
	Rural	265	2,124	-1,859	1,699	-1,434	1,427	-1,162	Shortage
Fayum	Urban	1,001	1,002	-1	1,100	-99	1,559	-558	Surplus
	Rural	415	1,488	-1073	1,190	-775	966	-551	Shortage
Giza	Urban	7,689	3,879	3,810	3,821	3,868	5,181	2,508	Surplus
	Rural	883	2,111	-1,228	1,689	-806	1,529	-646	Shortage
Ismailia	Urban	1,372	536	836	536	836	837	535	Surplus
	Rural	40	362	-322	290	-250	309	-269	Shortage
Kafr Elsheikh	Urban	2,241	1,125	1,116	1,232	1,009	1,874	367	Surplus
	Rural	326	1,645	-1,319	1,316	-990	1,188	-862	Shortage
Kaliuobya	Urban	4,195	2,252	1,943	1,953	2,242	3,901	294	Surplus
	Rural	196	1,892	-1,696	1,514	-1,318	1,737	-1,541	Shortage
Kena	Urban	1,691	1,167	524	1,545	146	1,963	-272	Surplus
	Rural	500	1,848	-1,348	1,293	-793	1,270	-770	Shortage
Luxor	Urban	613	451	162	425	188	508	105	Surplus
	Rural	24		24		24	0	24	Surplus
Matrooh	Urban	306	170	136	168	138	298	8	Surplus
	Rural	80	96	-16	77	3	99	-19	Balance
Nor Sainai	Urban	359	219	140	213	146	318	41	Surplus
	Rural	62	101	-39	81	-19	84	-22	Balance
Port Said	Urban	1,199	582	617	753	446	930	269	Surplus
	Rural	0		0		0	0	0	Shortage
Red Sea	Urban	224	184	40	171	53	257	-33	Surplus
	Rural	23	17	6	14	9	11	12	Surplus
Sharkia	Urban	4,042	2,160	1,882	2,369	1,673	3,629	413	Surplus
	Rural	436	3,194	-2,758	2,555	-2,119	2,578	-2,142	Shortage
Sohaag	Urban	3,338	1,556	1,782	2,037	1,301	2,706	632	Surplus
	Rural	394	2,351	-1,957	1,646	-1,252	1,792	-1,398	Shortage
South Sainai	Urban	91	45	46	40	51	71	20	Surplus
	Rural	67	3	64	2	65	21	46	Surplus
Suez	Urban	732	522	210	693	39	721	11	Surplus
	Rural	0		0		0	0.00	0	Shortage
*Balance Key:									

Shortage = supply is less than 75% of average requirements (scenarios 1.2 and 2.0)

Surplus = supply is greater than 125% of average requirements

Balance = supply is within 25% of average requirements

Shaded = governorate in approximate balance, though redistribution between urban and rural areas may be required

**Table 34. Family Practitioner Supply and Requirements by Governorate**

Governorates	Urban/Rural	Scenario 1.1	Scenario 1.2
		Required	Required
Alexandria	Urban	2,019	2,019
	Rural		
Aswan	Urban	254	356
	Rural	340	238
Asyout	Urban	468	843
	Rural	1,250	875
Banisweif	Urban	268	443
	Rural	873	698
Cairo	Urban	4,110	4,110
	Rural		
Dakahlia	Urban	717	1,089
	Rural	1,860	1,488
Domyat	Urban	154	235
	Rural	406	325
El-Wadialgadid	Urban	42	51
	Rural	45	36
Elbeheira	Urban	557	932
	Rural	1,877	1,502
Elgharbia	Urban	644	930
	Rural	1,430	1,144
Elmenya	Urban	394	884
	Rural	1,633	1,143
Elmonofia	Urban	336	606
	Rural	1,352	1,082
Fayum	Urban	274	463
	Rural	947	758
Giza	Urban	1,590	1,859
	Rural	1,344	1,075
Ismailia	Urban	210	256
	Rural	230	184
Kafr Elsheikh	Urban	312	521
	Rural	1,047	838
Kaliuobya	Urban	829	1,070
	Rural	1,204	963
Kena	Urban	316	668

	Rural	1,176	824
Luxor	Urban	222	222
	Rural		
Matrooh	Urban	69	81
	Rural	61	49
Nor Sainai	Urban	93	106
	Rural	64	51
Portsaid	Urban	286	286
	Rural		
Red Sea	Urban	88	90
	Rural	11	9
Sharkia	Urban	593	1,000
	Rural	2,033	1,626
Sohaag	Urban	420	869
	Rural	1,497	1,048
South Sainai	Urban	19	22
	Rural	16	13
Suez	Urban	256	256
	Rural		

Note: The supply of family physicians in Egypt is very low and their distribution in the governorates is unavailable. The gap cannot be determined with the data currently available.

### 3.1.3 Specialty Priorities

The specialty supply of physicians by area of practice is not known in Egypt. There are data showing specialty for certified specialists in curative care and for the MOHP. There are also data in the form of impressions of top managers about areas of surplus and shortage.

Unfortunately there are no data about specialty-of-practice (as contrasted with specialty of training). For example, the curative specialists' number about 25,000 across Egypt; while the number of curative sector physicians is about 73,000. It is not possible to know what the practice area is for persons who have yet to obtain a specialty degree (a masters or doctorate). For purposes here, the authors allocate the 73,000 across the specialties by the same as for the 25,000 specialists.

Another way of looking at the specialty distribution situation is to examine the percentage of all physicians in each specialty (rather than trying to notice an absolute gap in physicians in a particular specialty. To do this, Table 36 has been prepared. It shows the number of total physicians in each specialty and group of specialty types (surgery, medicine, etc.). The categories used in the various data sets do not align very well. The easiest comparison is between the MOHP specialty distribution and the United States HMO norm. It seems clear that the MOHP is a reasonable reflection of the situation in all curative care in Egypt.

This comparison shows the following about the specialty composition of the MOHP and Egyptian specialty workforce:

- > Primary care physicians are too small a fraction of the specialty workforce.

- > The number of OBG specialists are too large, and if these are reduced, the deficiency in primary care is even larger.
- > There are too many surgeons relative to primary and medical specialties—every surgical specialty (except cardiovascular/neurology) seems over-represented.
- > Family practice physicians are not available in Egypt.

**Table 36. Distribution of Specialists, Percent of All Physicians**

	<b>Egypt</b>	<b>Egypt-MOHP</b>	<b>HIO Norm</b>	<b>U.S. HMO</b>
<b>All MDs</b>	100%	100%	100%	100%
Primary Care	39.5%	36.8%	43.0%	53.6%
-Family Practice	0	0	32.2 (generalists)	31.2
-Internal Medicine*	14.6	11.2	4.3	10.4
-Pediatrics*	10.3	10.4		7.8
-OBG*	14.6	15.2	6.5	4.2
<b>All Surgery</b>	48.4%	56.6%		21.8%
-General Surgery	15.4	15.2	3.2	2.5
-OBG	14.6	15.2	6.5	4.2
-Cardio/Neurology		0.5		3.3
-Urology	1.1	5.4	1.6	1.8
-Orthopaedics	4.3	4.8	3.2	2.5
-ENT	4.7	5.7	2.1	2.1
-Ophthalmology	4.2	5.0	4.3	1.8
-Dermatology		4.8	1.6	1.4
- Other	4.1			2.2
<b>All Medicine</b>	24.9%	28.1%		44.4%
-Internal Med	14.6	11.2	4.3	19.4
-Pediatrics	10.3	10.4		7.8
-Cardiology		1.1		2.1
-Psychiatry		1.6		1.3
-Pulmonary		3.8	1.6	0.9
-Endocrine		.05		0.6
-Infectious		3.9	4.3	2.5
-Physical Med		1.5		0.6
-other			4.3	9.2
<b>Others</b>	7.8%	9.8%		6.0%
-Radiology	2.2	1.9		3.2
-Anesthesia	5.6	4.8		1.9
-Pathology		3.1		0.9
<b>Others</b>	19.0%	-	32.2% (hospital-based)	-

\* Double counted in both primary care and other categories.

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## 3.2 Nurses

The requirements for all nurses and for HI nurses for urban and rural regions of Egypt are shown in Table 37. As with physicians, three scenarios are used. HI nurses are dealt with separately from all nurses, which are treated as a group. The basic comparisons between supply and requirements for the three scenarios are shown on the table shown below.

The basic situation is somewhat confused by the data quality issues surrounding who is being counted as a nurse in the supply data. Overall, the data suggest a surplus of nurses in Egypt, though the supply of HI nurses is vastly smaller than the health reform scenarios will require. Basically, the data suggest:

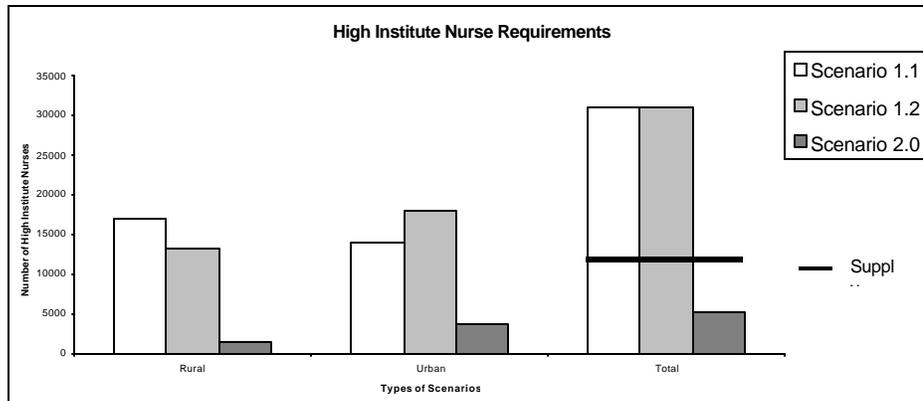
- > The rationalization plan scenario (2.0) shows only a modest surplus of nurses.
- > That same scenario includes only norms for inpatient HI nurses—consequently, the supply of these nurses looks to be a bit higher than requirements—with some norms for office practice, the requirements for HI nurses under this scenario would likely be above the supply.
- > In the reform scenarios, the requirements call for a significant substitution between HI nurses and other nurses. Consequently, we see a significantly lower requirement for all nurses, and a high level of need for HI nurses.

The urban and rural situation for gaps in nurse availability is also shown in Figure 9. It summarizes the data from the other chart in graphical form, depicting the supply of providers as a horizontal line, and the requirement scenarios as bars. There is no compelling urban/rural distribution finding here. Rural areas have more or less the number of nurses that the scenarios suggest are needed. Urban areas seem to have more than required.

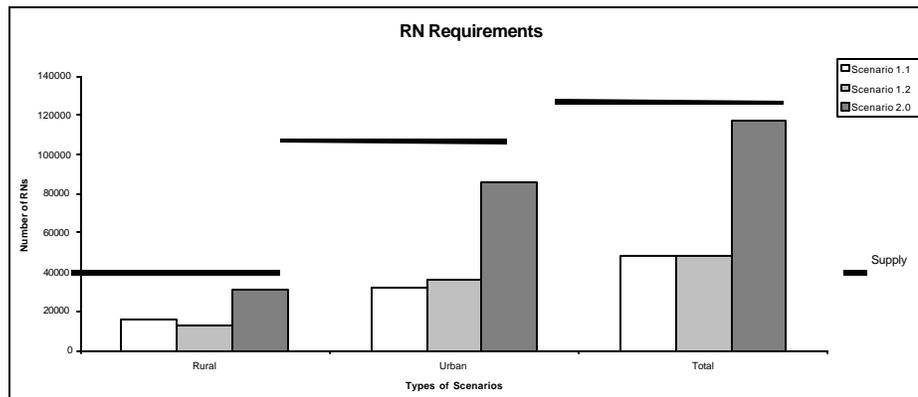
**Table 37. Supply and Requirements for Nurses in Egypt (1999)**

	<b>High Institute Nurses</b>	<b>Diploma and Technical Nurses</b>	<b>Comments</b>
<b>Urban Governorates</b>			
Supply	-	31,137	
Required-Reform Scenario 1.1	5,580	12,590	Excess supply of nurses and shortage of HI nurses
Required-Reform Scenario 1.2	5,999	16,533	Same
Required-Rationalization Scenario 2	1,650 None for office care	28,509	Adequate supply of nurses
<b>Other Urban Areas</b>			
Supply	-	74,478	Possible data quality problem
Required-Reform Scenario 1.1	8,286	19,643	
Required-Reform Scenario 1.2	11,775	19,357	
Required-Rationalization Scenario 2	1,131 None for office care	56,947	Nearly adequate supply
<b>Rural Areas of Egypt</b>			
Supply	-	26,542	
Required-Reform Scenario 1.1	17,044	16,022	Vast shortages of community health nurses in both
Required-Reform Scenario 1.2	13,136 None for office care	12,365	Overall numbers of nurses are adequate
Required-Rationalization Scenario 2	1,388	31,550	Small surplus of nurses
<b>All Egypt</b>			
Supply	+/- 8500	132,157	Data quality problem
Required-Reform Scenario 1.1	30,910	48,255	Vast shortages of HI nurses
Required-Reform Scenario 1.2	30,910	48,255	Vast shortages of HI nurses
Required-Rationalization Scenario 2	5,169 None for office care	117,006	Slight surplus of nurses

**Figure 9. Urban and Rural Nurse Requirements and Supply**



High Institute Nurses			
	Rural	Urban	Total
Scenario 1.1	17044	13866	30910
Scenario 1.2	13136	17853	30989
Scenario 2.0	1388	3781	5169
Supply	0	0	8500



RNs			
	Rural	Urban	Total
Scenario 1.1	16022	32236	48258
Scenario 1.2	12365	35890	48255
Scenario 2.0	31550	85456	117006
Supply	26542	114115	140657

Scenario 1.1 Full reform, governorate self sufficiency  
 Scenario 1.2 Full reform, governorates sufficient for basic care only  
 Scenario 2.0 Improved distribution, traditional care model (HIO)

### 3.2.1 Imbalances by Governorate

Across governorates there are significant differences across the situation in these same types of analysis. The scenarios were used to create requirements for the urban and rural components of each governorate. This division was based on CAPMAS districts.

The results are presented in tables 38 and 39. Table 38 shows all nurses. Table 39 includes HI nurses only. The HI table is shown to allow readers to see the requirements for such nurses in the health reform scenario—there are no supply data to compare to these requirements.

The last column on the tables provides an assessment of the situation in each area. The characterization is:

- > Shortage supply is less than 75 percent of average requirements (where the average of scenarios 1.2 and 2.0 are used to get an average). These scenarios yield similar requirements in most cases.
- > Surplus supply is more than 125 percent of average requirements.
- > Balance supply is between 75 percent and 125 percent of average requirements.

Some of the governorates are characterized in a bold font. The bold signifies that, taken as a whole, the governorate is in approximate balance (using the same rules as above). This means that shortages are offset by surpluses within the same governorate. Table 40 summarizes the tabular data and the situation in all the governorates.

**Table 40. Governorate Balance Situation for Nurses**

		Urban Areas		
		Shortage	Balance	Surplus
Rural Areas	Shortage		Kena Sohaag	
	Balance		El-Menya	<b><u>Asyout, Kaliuobya, Baniswef, Dakahlia, Sharkia, Ismailia, Fayum, Giza</u></b>
	Surplus	Luxor	Matrooh	Aswan, El-Monofia, Domyat, Red Sea, Kafr El-Sheikh, North Sinae, South Sinae, El-Beheira, El-Gharbia, El-Wadi Al-Gadid
	Governorates w/o rural areas			Alexandria Cairo Port Said Suez

Bold and underlined text represents governorate in approximate balance, though redistribution between urban and rural areas may be required

**Table 38. Requirements and Supply of Nurses by Governorate**

Governorates	Urban/	Supply	Scenario 1.1		Scenario 1.2		Scenario 2.0		Balance
	Rural		Required	Gap	Required	Gap	Required	Gap	
Alexandria	Urban	10,997	3,875	7,122	4,930	6,067	7,743	3,254	Surplus
	Rural	0		0		0	0	0	Shortage
Aswan	Urban	1,613	444	1,169	461	1,152	1,202	411	Surplus
	Rural	979	264	715	185	794	521	458	Surplus
Asyout	Urban	5,531	1,080	4,451	1,191	4,340	3,033	2,498	Surplus
	Rural	1,399	966	433	676	723	1,778	-379	Balance
Banisweif	Urban	2,928	880	2,048	892	2,036	1,884	1,044	Surplus
	Rural	798	695	103	559	239	1267	-469	Balance
Cairo	Urban	17,865	3,178	14,687	10,257	7,608	18,288	-423	Surplus
	Rural	0		0		0	0	0	Shortage
Dakahlia	Urban	6,376	1,630	4,746	1,541	4,835	4,802	1,574	Surplus
	Rural	1,623	1,438	185	1,150	473	2,968	-1,345	Balance
Domyat	Urban	4,866	352	4,514	333	4,533	1,204	3,662	Surplus
	Rural	1,154	313	841	250	904	791	363	Surplus
El-Wadi al Gadid	Urban	572	68	504	63	509	324	248	Surplus
	Rural	286	35	251	28	258	135	151	Surplus
El Beheira	Urban	7,452	1,446	6,006	1,380	6,072	,679	3,773	Surplus
	Rural	2,439	1,451	988	1161	1,278	2,419	20	Surplus
El Gharbia	Urban	11,218	1,364	9,854	1,282	9,936	3,688	7,530	Surplus
	Rural	4,790	1,105	3,685	884	3,906	2,139	2,651	Surplus
El Menya	Urban	3,241	1,151	2,090	1,318	1,923	5,244	-2,003	Balance
	Rural	1,381	1,263	118	884	497	1,954	-573	Balance
El Monofia	Urban	6,767	965	5,802	927	5,840	2,495	4,272	Surplus
	Rural	2,847	1,046	1,801	837	2,010	1,781	1,066	Surplus
Fayum	Urban	2,632	722	1,910	689	1,943	1,793	839	Surplus
	Rural	781	732	49	586	195	1,174	-393	Balance
Giza	Urban	7,021	2,554	4,467	2,333	4,688	6,526	495	Surplus
	Rural	1,113	1,039	74	831	282	2,013	-900	Balance
Ismailia	Urban	1,459	346	1,113	318	1,141	1,138	321	Surplus
	Rural	212	178	34	142	70	448	-236	Shortage
Kafr El Sheikh	Urban	3,590	808	2,782	772	2,818	2,293	1,297	Surplus
	Rural	1,622	810	812	648	974	1,560	62	Surplus
Kaliuobya	Urban	5,129	1,489	3,640	1,381	3,748	5,475	-346	Surplus
	Rural	1,729	931	798	745	984	2,606	-877	Balance
Kena	Urban	1,433	868	565	985	448	2,337	-904	Balance
	Rural	314	909	-595	636	-322	1,613	-1,299	Shortage

Governorates	Urban/ Rural	Supply	Scenario 1.1		Scenario 1.2		Scenario 2.0		Balance
			Required	Gap	Required	Gap	Required	Gap	
Luxor	Urban	329	426	-97	403	-74	647	-318	Shortage
	Rural	63		63		63	0	63	Surplus
Matrooh	Urban	328	107	221	97	231	441	-113	Balance
	Rural	159	47	112	38	121	156	3	Surplus
North Sinae	Urban	682	138	544	125	557	429	253	Surplus
	Rural	184	50	134	40	144	120	64	Surplus
Port Said	Urban	1,360	548	812	701	659	1437	-77	Surplus
	Rural	0		0		0	0	0	Shortage
Red Sea	Urban	305	109	196	95	210	366	-61	Surplus
	Rural	98	8	90	6	92	13	85	Surplus
Sharkia	Urban	7,599	1,556	6,043	1486	6,113	4,457	3,142	Surplus
	Rural	1,915	1,572	343	1,258	657	3,626	-1,711	Balance
Sohaag	Urban	1,815	1,125	690	1,272	543	3,391	-1,576	Balance
	Rural	504	1,157	-653	810	-306	2,438	-1,934	Shortage
South Sinae	Urban	92	15	77	13	79	98	-6	Surplus
	Rural	152	13	139	11	141	31	121	Surplus
Suez	Urban	915	492	423	645	270	1,041	-126	Balance
	Rural	0		0		0	0	0	Shortage

\*Balance Key: Shortage = supply is less than 75% of average requirements (scenarios 1.2 and 2.0)

Surplus = supply is greater than 125% of average requirements

Balance = supply is within 25% of average requirements

Shaded = governorate in approximate balance, though redistribution between urban and rural areas may be required

**Table 39. High Institute Nurse Supply and Requirements by Governorates**

<b>Governorates</b>	<b>Urban/ Rural</b>	<b>Scenario 1.1 Required</b>	<b>Scenario 1.2 Required</b>	<b>Scenario 2.0 Required</b>
Alexandria	Urban	1,730	1,821	407
	Rural			0
Aswan	Urban	229	308	43
	Rural	280	176	23
Asyout	Urban	442	737	102
	Rural	1,029	720	71
Banisweif	Urban	259	382	58
	Rural	719	575	52
Cairo	Urban	3,385	3,711	1,075
	Rural			0
Dakahlia	Urban	677	953	176
	Rural	1,532	1,226	138
Domyat	Urban	145	205	54
	Rural	334	267	44
El-Wadi al Gadid	Urban	38	45	20
	Rural	37	29	9
El Beheira	Urban	539	820	93
	Rural	1,546	1,237	83
El Gharbia	Urban	599	810	119
	Rural	1,177	942	92
El Menya	Urban	392	777	295
	Rural	1,345	941	57
El Monofia	Urban	333	536	63
	Rural	1,114	891	63
Fayum	Urban	267	409	42
	Rural	780	624	37
Giza	Urban	1,407	1,594	241
	Rural	1,107	886	87
Ismailia	Urban	188	221	54
	Rural	189	151	25
Kafr Elsheikh	Urban	302	458	75
	Rural	862	695	67
Kaliuobya	Urban	750	924	282
	Rural	993	797	156
Kena	Urban	310	589	67
	Rural	969	678	61

<b>Governorates</b>	<b>Urban/</b>	<b>Scenario 1.2</b>	<b>Scenario 1.2</b>	<b>Scenario 2.0</b>
	<b>Rural</b>	<b>Required</b>	<b>Required</b>	<b>Required</b>
Luxor	Urban	190	188	25
	Rural			0
Matrooh	Urban	61	70	25
	Rural	50	40	10
North Sinae	Urban	81	90	20
	Rural	53	42	6
Port Said	Urban	245	246	91
	Rural			0
Red Sea	Urban	75	76	20
	Rural	9	7	0
Sharkia	Urban	576	880	148
	Rural	1,674	1,339	188
Sohaag	Urban	410	764	123
	Rural	1,232	862	116
South Sinae	Urban	16	18	5
	Rural	13	11	2
Suez	Urban	220	221	57
	Rural			0

Note: The supply of HI nurses is low and their distribution in the governorates is unavailable.  
The gap cannot be determined with the data currently available.



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## 4. Summary and Recommendations

This chapter of the report describes our general findings about rationalization of the health workforce in Egypt. Some of these findings come directly from the analysis of the numerical gaps between supply and requirements. Others represent a synthesis between those numeric findings and the issues raised in interviews with senior officials in the MOHP, governorates, and educational programs. We also identify some options for dealing with the rural shortages and the dearth of family physicians, whose availability is vital for the scaling-up the health reforms currently being implemented in Alexandria.

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### 4.1 Findings

We have summarized the findings and recommendations into nine major points.

1. Like other developed countries, Egypt's problems with physicians are not so much with numbers, or gaps between overall supply and requirements, but with distribution (between urban and rural, and in training imbalances for family physicians and HI nurses) and with maintaining lifetime competency (quality).

The current supplies of physicians are adequate to provide the volumes of inpatient and outpatient care required for the Egyptian population. Current productivity levels are so low, particularly in urban areas, that substantial increases in service volumes and *effective supply* (50 percent or more) are possible—this is a problem in organization of care, not a problem of too few numbers or inadequate training output.

The number of physicians in Egypt is at least adequate, and possibly in excess of the number needed to meet the requirements of the scenarios of reform and rationalization. The future growth of population may or may not aggravate or alleviate this overall condition. While the problem of excess may not be as important as the problem of shortage—it is a potential problem nevertheless. Excess supply, particularly in urban areas, creates and supports a condition of low salaries in these areas. This is the case in Egypt, where so much of the consumption of medical care is done in the private sector. Low wages, low productivity, and possibly poor customer service quality can be expected to result from chronic surpluses. Certainly, efforts to promote better pay for physicians in many areas will require attention to surpluses, when they exist.

2. One of the two training supply inadequacies in Egypt concerns the HI nurse workforce. The workforce includes only about 8,500 HI nurses and about 6,000 of these work in the private sector or abroad. HI nurse supplies need to be increased, both to satisfy training capacities for other nurses (in order to improve quality of training), and to staff hospital and ambulatory sites. Current shortage levels are difficult to quantify. However, under the reform scenario, the requirements for Egypt are so large (as is the case for family physicians) that any modest plan for rollout of the reforms would be threatened by lack of HI nurse availability. The scenarios presented in chapter 3 suggest that the national gap between supply and requirements may be in the range of 22,000. Improvements in salary and other incentives may be useful in retaining trained nurses in the clinical sector and

stem the drain to other countries, but this alone will not be adequate to create a material increase in supply. With only 700-850 nurses graduating from academic programs each year, there is a clear need to expand training.

To succeed, the health reforms need nurses trained in community health, an applied area of nursing practice. HI graduates are the most qualified for this training, though some diploma or technical nurses may also be trainable. The need for community health nurses will require *both* an expansion of the HI programs of education, and an immediate expansion of community health nurse training activities in the health reform sites themselves (internships) and in some of the teaching institutions with extensive outpatient practices. These needs may best be met by joint training programs with family medicine. (See the discussion in section 4.2 below.)

3. The supply of qualified family physicians is inadequate to support the expansion of reforms beyond a pilot program. At present there are less than 200 trained and practicing family physicians in Egypt. Reforms require about 600 qualified family physicians per every additional 1,000,000 persons covered by the reform care model—or about 36,000 to fully implement the health reform program. Egyptian capacity for such advanced specialty training (at Suez Canal University) is less than 100 graduates per year.

The training solution is a conversion problem in the short term: helping qualified but under-employed physicians acquire skills and orientation to family medicine and the reform care model. In the long run, more formal training opportunities will be required in Egypt for specialty training of new MDs. These options are discussed further below.

4. Beyond family practice, there are several areas of physician specialty supply that seem under represented. These are: anesthesiology; specialized surgeries, such as neurosurgery and cardiac-surgery; radiology; and oncology. The problem appears to be one of insufficient interest among new graduates in pursuing these specialties, rather than the availability of specialty training programs. This lack of interest is due to the poor potential for generating private sector business (e.g., self-referrals from people directly to these kinds of physicians).
5. Advanced training for qualified diploma and technical nurses is needed to fill reform expansion needs and to fill the gap of inadequate supplies of HI nurses. This is not a need for expanded numbers of new graduates from diploma schools or technical programs, but a need for supplemental clinical training. As noted in the master-planning documents (*National Health Planning Standards and Guidelines*, 37), there are two basic options for providing the necessary training: a supplemental specialty diploma course, and an on-the-job training program in clinical settings.

As recommended for family practice physicians, the governorates and the local care sites (the teaching hospitals and the health reform sites) need to be active in planning the programs, selecting trainees, offering the clinical opportunities for gaining experience side-by-side with qualified caregivers, and providing sufficient scale for training to support care delivery needs.

6. The quality of doctors entering the workforce needs improvement. Clinical training must be improved and programs for ensuring continuing competence must be instituted. Senior officials identified this as an issue in interviews; it is not a numerical finding from the analysis of gaps between supply and requirements. In many discussions, leaders point

to the lack of standardized quality in new physicians, and the poor care practices of experienced doctors. The MOHP care sites, particularly those in rural areas, suffer the brunt of this problem. Citizens' lack of confidence in the quality of service often results in their reluctance to seek care in such facilities.

Training output has expanded in some programs quickly—often faster than the ability of the clinical sites to provide adequate opportunities. The university programs provide specialty training opportunities for only about 20 percent of the specialists entering practice. Reports of inadequate clinical experience in specialty programs are common.

There needs to be some way of regulating the quality of services provided by health workers. Institutional regulation (accreditation, for example) is one way of transferring responsibilities for this to the institutional manager. This does not work for office practices or very small institutions. Some form of licensure and periodic re-licensure, as is used in many other countries, could be workable and effective. These re-licensing situations (possibly every 3-5 years) would require evidence of continuing education courses or even re-examination. If the syndicates or the MOHP implemented a system of re-licensure (or the MOHP granted deemed status to syndicates that take on the responsibility as a form of privatization), data could be gathered that would also remedy a major deficiency in the workforce rationalization planning data (noted below).

The MOHP has implemented the Egyptian Board, a ministry credentialing program for doctors that might form the basis for a modern program of continued competency. The board provides residency opportunities and specialty certifications. It is possible to emphasize the specialties like family medicine and community nursing, and to provide incentives for specialty training and rigorous programs of continuing education (or rectification) that would promote quality—and promote the image of MOHP as a organization that sets higher standards for its professionals. This kind of program could then be extended to other specialties.

There is an urgent need for improvement in and consistency of professional service quality. Clearly this matter cannot be resolved simply by changing training volumes, or by adopting a more aggressive implementation program of reforms. The issues, however, do relate to the sustainability of reforms and the overall objective of bringing better and more appropriate services to all Egyptians. It is also unlikely to be a problem best addressed at the governorate level. One potential next step is to form a senior, possibly presidential-level working group/commission, to address the issues and prepare options.

7. From an operational perspective, this plan cannot be implemented because there is no workable authority and no program for planning workforce needs in Egypt at this time. Getting more appropriate supplies of professionals in the proper settings and locations is a ubiquitous problem in countries around the world. There are two problems. One is that the institutions for training are not controlled by the organizations that deploy health workers. The second problem is that these various and separate organizations do not coordinate in a planning process. Any planning processes that do exist, do not necessarily put the service requirements of Egyptians in a primary role.

One way of solving the problem would be to create training programs controlled by those institutions that deploy health workers in every governorate, so that the supplies of particular specialties and health workers could be modulated against needs as defined at the governorate level. Unfortunately, this is not possible given the scale requirements of

training programs and the difficulties associated with attracting capable faculty and clinical mentors to all training site. Governorate self-sufficiency is not really an option.

Planning systems need to be improved in order to bring together, in a more coordinated fashion, the requirements and employment opportunities for professionals, and the supply of new graduates. Currently, facilities, districts or governorates do not have multi-year plans for workforce requirements. Consequently, national-level plans are not made—nor are they able to be made—for future flows of workforce requirements in MOHP for curative or primary sectors. There is no integrated national plan for health workers that brings together any useful calculations about requirements for services and/or workers and the plans for educational programming required for meeting these needs.

There is a need for a standardized way of coordinating workforce needs (both numbers and skills) among the organizations deploying the workers, the organizations responsible for reforms and policy, and the organizations providing training opportunities. This includes syndicates, the Supreme Council on Higher Education, the MOHP, the leaders of other care systems (HIO, CCO, Private), the governorates, and senior health leadership around the country. This lack of coordination and planning results in wasted investments in training and/or underutilized professional capacity.

As with the issue of continued competency, this is a large and national issue—not an issue within the MOHP. In order to achieve a more effective process of transferring priorities from the service delivery sectors to the educational and training centers (both at the MOHE and at the specialty training facilities), some organizational reforms are needed. Planning this solution will require high level leadership, possibly at the presidential level.

8. The primary unmet need for health workers in Egypt is: delivery of accessible services to rural populations. Utilization rates are far below urban Egyptian standards. Highly qualified professionals (physicians and trained nurses) are often unavailable in these locations. This is a general problem (a ubiquitous one around the world) and a specific problem for extending the health reform care model to populations in places that professionals with families find unattractive. The requirement for reallocating workers from urban areas is, at the moment, only a theoretical objective. The organizational mechanisms and the incentives are yet to be defined for implementing and sustaining a redistribution of the scale required to achieve these rationalization plan objectives (shifting about 20 percent of the urban physicians to rural care sites).

The solution to this problem is not clear. Certainly the health reform care model does not, within itself, offer a solution. While financial incentives are important, it is well known that locational choices by physicians and other professionals are dependent on other factors such as: interesting work, availability of collegial/professional relationships at work, access to new knowledge, and family priorities, among others.

The concept of a “district-centered” health system could be considered, where the staffing patterns are set by a single manager who has incentives to find a care model that works to deliver services in the region. Possibly “larger” clinics that consolidate staff in one place would be more effective than the village-level care model used today. Maybe better transportation is a necessary part of these solutions. Selecting trainees from underserved sites is also a tool that has worked elsewhere.

This is a long-term problem with few opportunities for easy, quick solutions. A “rural underservice workforce” strategy is needed. Possibly this will be a part of the next phase of the health reform planning as it moves from Alexandria to places like Sohag and even Menoufia.

9. Planning workforce needs is a process that begins with this plan. The plan needs to be revised and refined, and its implementation needs to be monitored. The data available now are not adequate to support careful planning of future requirements and supply. The data are certainly not adequate to monitor the results of implementation activities. Improvements in data resources need to be considered part of this workforce rationalization plan. The priority data are:
  - > workforce supply data for physicians and nurses at the district and village level—this kind of data is needed to identify and to track the adequacy of access to care;
  - > data on lifecycle productivity of doctors and nurses gathered via regularized sample surveys of providers, probably in each governorate (workforce participation rates, employment patterns, hours of work);
  - > data on usage of health services in each governorate from periodic sample surveys—this is needed to identify access problems to primary, specialty, and hospital services;
  - > data on each doctor and nurse licensee, not just new graduates, needs to be maintained to calculate the number of practicing professionals that actually exist—this could be combined with a new licensure and continuing education (re-licensure) system; and
  - > from each education program, data needs to be routinely reported about the location choice of graduates, so that budget decisions can be made (in part) on the basis of the effectiveness of the training program in meeting health care priority needs in Egypt.

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## 4.2 Options for Expanding the Number of Family Physicians and Community Health Nurses

Adequate numbers of family practice physicians and community health nurses are not available to support broader scaling-up of the care model being used in the pilot health reform units in Alexandria. As the universal reform scenario (above) demonstrated, serious shortages of trained family physicians and public health nurses will limit reform expansion. The reform scenarios above suggest over 30,000 community health nurses and over 35,000 family physicians will be needed to replicate the care model now being used in Montazah. This represents numbers that are many multiples of the annual training capacity in Egypt—a situation that will pose a fundamental barrier to achieving significant scale of the reforms.

The number of family physicians in Egypt is in the range of 100-200; the exact number is not known. The only active training program exists in Suez Canal University in Ismailia (for family medicine). About 8,500 HI nurses are in Egypt today, though it is not known how many practice community nursing. No known programs for advanced training in community nursing exist at this time. Implementation of the reforms now underway in Alexandria requires one full-time family physician for every 2,500 persons. The Montazah district alone, with about a million residents, would

require 400 family doctors to provide universal coverage. Clearly, the numbers of trained doctors limits health reforms.

Community health nurses are as important to the success of the reform care model as the family doctors. With only 8,500 baccalaureate-trained nurses in Egypt, most of whom prefer to work outside the MOHP, the number of nurse staff for the reform is a serious problem. There are no explicit expansion plans for the reforms in terms of population coverage by year. However, projections that bring five units on-line every year in each of the three governorates (each with a roster of 50,000 persons), would result in a total of about 750,000 enrollees rostered every year. This would require about 450 new family physicians and over 300 trained HI/public health nurses every year! The challenge is even greater if reforms are extended to Luxor (the fourth pilot governorate) and to other governorates.

There are several options for dealing with such a requirement.

- > *Include training as part of the mission of the reform care model.* The most obvious and immediate option is to provide expanded opportunities for off-shore basic academic preparation for physicians, and clinical practicum experiences for both qualified three-year trained nurses and these physicians (possibly for 3 months) at each of the existing health reform units. Each of the existing health reform units would have a training mission. That mission would be to provide mentoring and clinical experience every year to some number of family physicians and public health nurses. Certainly the volume of clinical opportunity could sustain a flow of annual trainees equal to the number of physicians and nurses on staff. For example, if a unit has 12 physicians and public health nurses on staff, then a flow of 12 trainees per year (but only three at any one time) could be the target. This would not meet the need for expansion, but would allow the scale of the reform to essentially double capacity every year. Faster growth (and replacement for turnover) would require this option to be augmented with other forms of training.

There are several obvious advantages to this training concept. Off-shore training can be initiated quickly (though too expensive to operate at great scale) and provide time for the domestic training options to be developed (see below). Second, it utilizes a role model/mentor who is a real, full-time clinician, treating Egyptians in the exact manner and setting in which the trainee will practice. The third reason for proposing to use the units as a training ground is that it will speed the implementation of the new sites. This scaling-up process for the pilot has not been fully planned yet, but the idea of using the existing physicians and nurses practicing in the existing facilities as seed staff in the new sites may be the best way to ensure that the expansion proceeds smoothly. Having trainees who are familiar with operations, data systems, care protocols and procedures, etc. will also be helpful.

- > Expanding Port Said and MOHP training programs, adding a community nursing program component, and extending family practice training to other sites, particularly where reform priorities will be greatest. Certainly a strong program in Upper Egypt would be a priority.
- > *Developing MOHP retraining programs of significant size at the teaching hospitals.* Certainly, the initial priorities for doing this (noted above) are focused on particular skill needs and clinical experiences of the trainees. Beyond this, however, is a long-term need to develop more self-sufficient programs of retraining to each governorate. This would include skills training as well as the fundamental education necessary to the family practice concept.

This is not the same as the Egyptian Board initiative, which provides graduate training in family medicine (among other specialties) as currently structured. The board may be helpful in filling the need, but retraining is separate matter that cannot be limited to the demand for graduate degrees, which may grow too slowly. There is, however, a complementary of the retraining needs and the Egyptian Board program, which should be explored immediately.

- > There must be an immediate effort to develop registries for family physicians and community health nurses in Egypt. The health reforms cannot proceed without a feasible and widely supported plan for training these vital professionals, and planning is impossible without accurate counts of supply. The reforms will also require some form of continuing education and quality control mechanisms that document the actions of these professionals. Consequently, it is important to begin now to:
  - ↑ Ask training programs (Suez Canal, special MOHP training activities, CHN training programs, etc.) to report the details of their programs (size, nature, etc.), and the names of graduates and their contact information. (Schools should report this information each year).
  - ↑ The MOHP should send a letter every year (or every 2-3 years) to each person on the registry to confirm contact information, to establish when they are practicing (or if they are practicing), and to monitor other education activities they are taking.



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# Annex A: Interview Guide and Interviewees

## Workforce Interview Guide

### A. About Physicians

1. Are there any notable trends you see in the supply of physicians (the size, duration and location of training programs—retirement or workforce participation of trainees, etc.)?
2. Are there current problems with the supply and availability of physicians in Egypt (shortages, maldistributions, skill mix)?
3. How are the systems of education and supply addressing these issues and trends?
4. Other than previously discussed, do you see needs changing for the specialty distribution of physicians supply?
5. What will be the future trends in public/private sector (dual) employment of physicians? Specifically, it would be very useful to know how the dual employment will be viewed (positively or negatively).
6. Is it money or pension and health benefits that drive the dual employment? Is it the case that physicians will not leave public sector jobs, even if they can make an adequate salary, because of the benefits attached to them?
7. What would be the impact of a requirement for periodic re-licensure on physicians? Would this be a solution for maldistribution?
8. How would specialists be reallocated if there is an oversupply of them.

### B. About Nurses

1. Are there any notable trends you see in the supply of nurses (the size, duration and location of training programs—retirement or workforce participation of trainees, etc.)?
2. Are there current problems with the supply and availability of nurses in Egypt (shortages, maldistributions, skill mix)?
3. How are the systems of education and supply addressing these issues and trends?
4. What is the future of the two levels of nursing, and what will be the impact of licensure?

### **C. Physicians and Nurses**

1. What important future trends do you see in the types of services and the intensity of services being consumed in Egypt—what are the implications of these trends for the health workforce in the future?
2. In rural areas, what is the likely future policy about health care delivery and what are the implications for workforce needs? Are these needs part of the plans for educating/paying for health worker training?
3. What is happening to the factors that will attract and keep nurses and MDs in remote rural areas?
4. Other than previously discussed, do you see explicit opportunities for using more nurses or others in lieu of doctors changing in any way?
5. Other than previously mentioned, what are the most important policy changes being worked on in the MOH and the Egyptian government? In your opinion, how might these policies create changes in workforce requirements?
6. Will private sector health delivery assume a larger role in the future in Egypt? How might this affect demand for health workers?
7. Visualizing the Egyptian health care system of 2010, how do you see it being different from today? What implications are there for workforce needs?
8. What new health worker categories might develop in the next 10 years?
9. What is the likely impact of the health reform project on workforce requirements?

### **Interviewees**

The interviewees included:

#### **Cairo**

Ahmed El Labban, HR, Healthy Mother Healthy Child  
Dr. Ashraf Nabil, Neonatologist, Healthy Mother Healthy Child  
Dr. Hoda Zaki, Professor of Nursing, Cairo University and Director, Hope Project  
Dr. Azza El Hosiny, Director General, Human Resource Development  
Dr. Galal Abd El Hamid, Secretary General of The Supreme Council of Universities  
Dr. Saied Hamoud, Director General, Rural Health Development  
Isamil Fetih, Director of Obligatory Service Department  
Dr. Bassiony, Director of Social Fund

#### **Menoufia**

Dr. Ezzat Abd El Khalik, Head of the Syndicate, Menoufia and Director, Shbeen Teaching Hospital

## **Alexandria**

Dr. Gawad Hamada, Director General, University Hospitals, Alexandria

Dr. Mahmoud Agamia, Director of the Curative Sector, University Hospital

Dr. Mohamed El Shazely, Deputy Dean for Medical Students Affair, University Hospital



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## Annex B: Workshop Attendees

Professionals attending the rationalization planning training sessions at each of the three health reform pilot governorates in November 1999 are listed below.

### **Alexandria**

Mahdeya Ali, Director, Technical Support Team (TST)  
Magdy Sharaf, MIS, MOHP  
Mahmoud El Damaty, Director, Abou Qir Hospital  
Mostafa Shaheen, TST  
Nagwa El Bestawi, TST  
Ismaeil Abd El Fadil, Director of DOP Alexandria, MOHP  
Marwan Omarah, Director of CC Alexandria, MOHP  
Samir Fouad, DOP, MOHP  
Sonia Hanna, TST, HIO

### **Sohag (Luxor)**

Fathy El Badry, Director, TST  
Mohamed Abd El Al, TST  
Marghany Taha  
Samir Moussa, MOHP  
El Sayed Oeida  
Ragab Saied Mohamed  
Khalid Abd El Galil  
Mostafa Wasfi  
Mohamed Salah El Din  
Salah Mahran  
Atef Nassar, TSO  
Mohamed Mekky, HIO, Luxor  
Ahmed, Undersecretary for Health, Luxor

### **Menoufia**

Redda El Gendy, Undersecretary for Health  
Samy Allam, Director, TST  
Fathy Omran, Hospital Administrator  
Ahmed Nasr Ismail, DOP, Menoufia  
Mohamed Nasser, TST  
Taghreed Farahat, Professor of Public Health, University  
Saeid El Barbary, Private  
Mohamed Nassar, HIO  
Salah El Saied, TST  
Ahmed Redda El Farghany, TST  
Mohamed Ahmed, TST  
Magda Refaat, TST

**Menoufia** (continued)

Khaled Hablasy, MIS, MOHP  
Ezzat Abd E Khalik, Teaching Hospital Director  
Mona Ezzat, TST  
Hala Zanaty, TST  
Abd Eol Moneim Ebeid, TSO  
Nadia Rizk, TSO

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