Health Care System in the Islamic Republic of Iran

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1.General information

1.1. Socioeconomic status

1.1.1. Geographic setting, population, religion

The Islamic Republic of Iran covers an area of 1,648,000 square kilometers in south western Asia.

Topographically, Islamic Republic of Iran is a diverse country: over half of it is mountainous, a quarter is desert and less than a quarter is arable land.

Iran, with over 90 % of the people being Shiite Moslems, is considered to be the focal centre for the sect and the remaining Moslems are of Sonit Sect. The known minority religions are Zoroastrians, Christians and Jews who compose about 1 % of the population.

Iran is one of the most populous countries in the Middle East. According to the 2005 Iran's population amounted to 69 515 000, of which 68 % are settled in urban areas and the remaining 32 % in the rural communities. Average population density is around 36 per square kilometer.

The country faces the common problem of other young demographic nations in the region, which is keeping pace with growth of an already huge demand for various public services. Iran has rather a young population, with 39,5 % (29 % in 2005) under 15 years of age, 56,1 % between the ages of 15-64 and 4,4 % over 65 years of age (1).

Based on statistics released in 1998, 67,4 % of the female and 81,7 % of the male aged 15 and above are literate.

1.1.2. Political structure and government

After the glorious victory of the Islamic Revolution in February 1979, Iran's revolutionary people took part in a referendum on April 1, 1980, voting for the establishment of the Islamic Republic system in the country with a decisive majority of 98,8 %.

Islamic Republic of Iran is constitutionally composed of three branches of: Executive, Judiciary and Legislative which are independent, separate powers from each other.

The constitution envisages a democratic system of government in which all top political positions are elected either directly (in the case of the President of the Republic, Members of the Council of Experts overseeing the Leader, and Members of the Islamic Consultative Assembly) or indirectly (in the case of the Spiritual Leader and institutions under his supervision). The legislative power rests with the Islamic Consultative Assembly (parliament). Laws passed by the latter have, however, to be reviewed and ratified by the Guardians' Council before they can be enforced. To solve differences between the Islamic Consultative Assembly and the Guardians' Council, an Expediency Council–appointed by the Rahbar– has been created whose verdict in case of any conflict between the two houses is considered as final. The head of government is the President of the Republic, directly elected by the people. He appoints a cabinet of ministers ratified by the Islamic Consultative Assembly. All citizens aged 15 years and above are eligible to vote. Armenians, Assyrians, Jews and Zoroastrians are officially recognized as ethno-religious minorities and separately represented in the parliament (1).

1.1.3. Administrative structure

Administratively the country is divided into 28 (ostans), 278 districts, and over 70,000 villages (1). Each provinces run by an Ostandar (Governor General) appointed by the Ministry of Interior. Each province is in turn divided into a number of Shahrestans (districts) administered by a Fannandar (Governor) appointed by the Minister of Interior. Each district includes a number of urban centers (cities/towns) and villages. The constitution also envisaged elected local councils to ensure community participation in running local affairs. Since 1997, this part of the constitution has been implemented and currently there are provincial, city and village councils in all parts of the country (1).

1.1.4. Demography

The Islamic Republic of Iran has experienced dramatic changes in fertility and population growth rates during the past 25 years (see Table 1). A change in population policy immediately after the revolution resulted in the suspension of the family planning program and led to a huge rise in fertility and population growth rates. Following the revival of this program in 1989, the fertility rate has fallen significantly and by late 2000 there were indications that the fertility rate had dropped to around replacement level (a total fertility rate of 2.1) in all urban areas as well as some rural districts (1).

Nevertheless, the growth rate during the first 15 years after the revolution was high enough to lead to a doubling of the country's population during 1975–2000. The huge cohort of 31 million children born during 1979–1991 continues to present the country with enormous problems (1). It has caused per capita GDP to remain at a low level despite encouraging signs of economic growth over the past decade. The current unemployment crisis is also largely due to the gradual entry of this cohort into the job market. Their ultimate entry into marriage and family formation will not only present a high demand for housing but is also likely to lead to a rise in fertility rate and repeated cycles of baby boom. Meanwhile, since the late 1990s the proportion of the elderly (age group 65+) in the population has risen above 4.5% and may soon pose the fledgling social security system with major problems (1). The past 25 years have also seen a significant rise in the urbanization rate of the population. Currently about two-thirds of the population lives in urban areas. The proportion of the population that is rural is expected to fall further to about 25% over the next two decades (1). While facilitating accessibility and provision of social services, including health, urbanization is associated with social and health problems of its own which are likely to present the health system with new challenges. The urban population lives in some 676 cities and towns, while the rural population is living in over 60 000 villages scattered across the vast area of the country (1).

Providing health and other social services to this large number of small and hard to reach villages remains a major challenge facing the Government. The past quarter century has also witnessed a considerable rise (from 19.7 to 22.4 years for women and from 24.1 to 25.6 years for men) in age at first marriage (1). The rise, which is seen in both urban and rural areas, has happened despite government efforts to promote marriage as a basic Islamic value and to provide a variety of incentives for the newly-wed.

Table 1: Demographic indicators, 2002, 2005

	2002 (1)
Total population	65 657 000
Sex ratio (male/female)	103
Percentage aged 0—14 years (youth index)	30,8
Percentage aged 60+ (ageing index)	4.74
Median age (years)	22.3
Mean age (years)	26.5
Total fertility rate (per woman)	2.2
Crude birth rate (per 1000 population)	1.7
Crude death rate (per 1000 population)	5.0
Annual population growth rate (%)	1.6
Dependency ratio (%)	55.1
Urbanization rate (%)	65,2

Sources: 1. Management and Planning Organization, Islamic Republic of Iran. *Economic report for the year 1381 (2002), volume 2*. Teheran, Management and Planning Organization Press, 2003.

2. United Nations Population Division

1.1.5. Economic and social development

The eight –year war with Iraq during the 1980-s resulted in a protracted period of economic stagnation for Iran. However, since 1989, the Iranian government has taken major efforts to liberalize the economy, reduce government deficits, and encourage foreign trade and investment. Despite efforts to diversify the economy, oil still occupies a central position in Iran and contributes 75 percent of Iran's GDP (World Bank, 2000). GNP after a decline in the years 1978-1989, had an average yearly growth rate of 6.55 % during the years 1989-1995 (14). The adjusted Business Environment Rankings for the Middle East & Africa reveal that Iran is in 12$_{th}$place, ahead only of Nigeria and Zimbabwe. This is primarily due to political and economic uncertainty in the country, coupled with poor intellectual property standards. However, Iran's market is experiencing robust growth, although the dominant position of local manufacturing provides a substantial obstacle to investment.

1.1.6. Education

The Islamic Republic of Iran has taken great strides in the area of public education. Total government spending on education has in recent years fluctuated between 4% and 5% of the national income and between 10% and 20% of the government's budget (7). This is slightly higher than the world average and about equal to the average for middle-income countries. Public education, particularly at the primary level, is entirely free and consumes more than half of government spending on education. Iranian families also spend some 2% of their income on education and training. Salient indicators concerning education for 2003 are given in Table 3.

Despite these achievements, education, like other aspects of social development, suffers from urban bias and there are wide regional disparities in terms of adult literacy and access to educational opportunities. Generally speaking, provinces with the lowest levels of development (e.g. Sistan and Baluchistan, West Azerbaijan, and Kurdistan) are behind the rest of the country with respect to all measures of educational development. Women are particularly likely to be disadvantaged in these underdeveloped provinces. In 2000, for example, 94.2% of women in Teheran were literate compared with only 45.1% of rural women in Sistan and Baluchistan. While overall primary enrolment rate had reached 97% by 1991, it remained at 76.7% (71.5% for girls and 81.8% for boys) in Sistan and Baluchistan.

Table 2: Education indicators (%) (2003)

Total Literacy	84.6
Male	88.8
Female	80.2
6–24 years	96.0
Combined primary, secondary and tertiary education enrolment	75.0

Source: Statistical Centre of Iran. *Household survey on the characteristics of employment and unemployment* Teheran. Statistical Centre of Iran Publications, 2004

1.1.7. Human development and poverty

During the past 25 years, Islamic Republic of Iran's human development index (HDI) has grown at an annual rate of 0.95%, rising from 0.562 in 1975 to 0.721 in 2002. Yet, it ranked 106th among other nations in 2001, having dropped from 90th in 1999 (8, 9). However, this figure has been contested on the grounds that it is based on an estimated life expectancy of 69.8 years and a rather low adult literacy rate. Using a life expectancy of 70.6 years and an adult literacy rate of 80% (75.5% for women and 84.3% for men) for 2001, the HDI would rise to 0.736 and to 94th place among other nations (10).

The poverty situation in the IslamicRepublic of Iran was analaysed mainly on the basis of two indicators: extreme poverty and the national (food) poverty line. The percentage of the population with an income of under US$ 1 (PPP) per day has fallen sharply to 0.62% in 2002 from 2.24% in 1995. However, once the indicator is estimated on the basis of an income of US$ 2 (PPP) per day, which is closer to the practical minimum for middle-income countries, more than 6% of the population remained in a situation of extreme poverty in 2002, creating a challenge for poverty alleviation. An even more important challenge is to reduce the food poverty line, known as the "national poverty line". According the latest data, the food poverty line has significantly decreased from 12.75% in 1995 to 8.99% in 2002 for the section of the population unable to take in the minimum threshold of dietary energy set by nutrition standards. The trend of the poverty gap ratio (1995–2002) indicates that the poor are in a better position because the gap narrowed dramatically to 0.113 in 2002 from 0.558 in 1995 (on the basis of US$ 1 PPP per day). The poverty gap ratio for the food poverty line has also been significantly reduced from 4.116 in 1995 to 2.238 in 2002. The rise in the share of total consumption of the poorest quintile from 6.8% in 1995 to 7.4% in 2002 proves that the poorest households have also benefited from a higher share. Nevertheless, reducing the poverty gap further and increasing the poorest quintile share continue to be notable challenges for the future(11).

1.1.8. Unemployment

One of the major social and economic challenges currently is the high level of unemployment, due to entry of this birth cohort into the job market. The unemployment rate, which fell significantly from 14.2% to 9.1% during 1986–1996, had jumped back to 14.6% by 2001 (12). The problem is partly due to

the increased number of unemployed, which rose from about 1.5 million to about 3 million, an annual rate of increase of nearly 9%.

The situation was worsened further by the relative stagnation of the economy, and relatively low foreign investment and creation of the job opportunities needed. A study undertaken by the government indicated a link between poverty and unemployment; 37% of poor households in the poorest first deciles having no working member. The unemployment rate is particularly high for those aged 15–24 years. In 2001, it amounted to 35% of men and 40.6% of women in this age group; a recent labour survey (2003) found that the rate has decreased to 11,2 % in men and 22,5 % in women (13). Due to the increased production of various categories of health workers over the past two decades, the health profession is also facing the problem of unemployment. In fact, for the first time in recent history the high unemployment rates of medical doctors, nurses and technicians have become a matter of national issue and debate. In response to these concerns, the MOHME has established a special bureau to deal with the problem. Solutions proposed range from a reduction in the admission of new students to finding employment opportunities abroad. Both of these options are open to question and may take a long time to produce any noticeable impact.

2. Health care system

2.1. Structure and organization

Based on the law on the centralization of the country's health institutions, which was ratified on the February 2, 1927, "all health institutions of the country were to be governed centrally by the General Department" for Health (14). Then in an amendment to the country's budget law it changed its name to Ministry of Health on October 30, 1941 (14). In 1976, in order to provide health, social welfare, medical services, rehabilitation, social security, family planning to the people, Ministry of Health and Welfare was established (14). Again in order to make desirable and coordinated usage of the medical potentials of the country in providing and extending medical health, welfare, education and research to all and in order to fulfill the paragraphs 4, 12, 13 of the third Article and part of 29th Article of the Islamic Republic of Iran's constitution the establishment of the Ministry of Health and Medical Education was ratified in the Consultative Assembly in 1985 (14).

After the victory of the Islamic Revolution by taking advantage of the experiences gained from the initial scheme and in order to distribute health resources equally on the basis of primary health care perspective and based on the vast researches which had been carried out on 10 % of the whole population, the MOH & ME embarked on the establishment and expansion of health networks throughout the country. Through revising essential health policies and later on by integrating medical educations in the health care system and adopting suitable methods, the Islamic Republic of Iran has established an advanced health care system which is considered to be one of the successful primary health care systems in the world. The system was established in three levels of: district, province and the country.

Health for all is the people's right which is one of the elements stipulated in the constitution and government is bound to provide for everybody (article 29) (1). To fulfill this obligation, the MOHME finances and delivers the primary health care (PHC), while secondary and tertiary care is increasingly financed through compulsory public sector and private insurance schemes. The MOHME is, nonetheless, responsible for regulating both private and public sector health care delivery. District level is the smallest independent unit in the health system of the country. Its executive units are: Health House; Health Base; Urban Health Centre; Rural Health Centre; Behvarz Training Center; District Health Centre; District

Hospital; District Health Network Management. The network of rural health houses is supported by rural health centres which are staffed by technicians and administrative personnel working under the supervision of a physician. In urban areas, the urban health centres provide ambulatory care. Health posts are the urban equivalent of health houses.

This network of urban and rural PHC facilities is supported by district hospitals. Located in cities, these general hospitals offer a variety of specialist services. In large cities, which often act as provincial capitals, provincial hospitals affiliated with the MOHME, Ministry of Welfare and Social Security and the private sector provide secondary and tertiary care. The PHC network is administered by district health centres (DHCs), one in each district. Most of the latter also have an affiliated Behvarz Training Centre.

Table 3: Overview of Health Care System in Iran

Key Features and Issues	Sources of Health Financing	Financing Intermediaries	Providers	Insurance Schemes
Offers comprehensive public primary health care services for all citizens. Multiple government insurance plans for secondary and tertiary level care. Largely government providers Private hospitals own only 10 % of hospital beds	· Households · Donors · Firms · Government (MOF)	***Fully Public Sector*** · Ministry of Health and Medical Education (MOHME) · Social Security Org. (SSO) · Emmam Khomeini Foundation (EKF) · Medical Services Insurance Org. (MSIO) · Ministry of Oil (MO) ***Semi-public Sector*** · Banks · Radio and Television Network (RTYN)	***Fully Public Sector*** · MOHME facilities, hospitals, health centres, etc · SSO ***Private Sector*** · Private hospitals · NGO and charity facilities	***Fully Public Insurance*** Providers secondary & tertiary care: · MSIO – covers gov. employees, rural households, selfemployed, others · SSO – formal sector employees · EKF – gov. plan for the poor · Armed Forces – cover own employees · Ministry of Oil – cover own employees ***Semi-public Sector*** · Banking System – cover wpn employees · Radio and TV Network – cover own employees ***Private Sector*** · Minimal – provides supplemental to public insurance

Source: Susna De, Ibrahim Shehata, Comparative Report of National Health Accounts Findings from Eight Countries in the Middle East and North Africa, Partners for Health Reform. 2001.

2.2. The primary health care system

The Iranian primary health care (PHC) system was established to improve access to health care for the disadvantaged and reduce the gap between health outcomes in urban and rural areas. To improve access in remote areas in the face of shortages of human and capital resources, the system has relied on three main components:

· establishing *health houses* in remote and sparsely populated villages;
· staffing the health houses with health workers, known as *behvarzan*, recruited from local communities;
· developing a simple but well-integrated health information system.

Table 4: Primary Health Care facilities (2001)

Type of health facility	Number
Health houses	16 278
Rural health centres	2 361
Urban health centres	2 261
Health posts	1 176

Sources: Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006.

2.2.1. Health House

The health house, usually the only health facility accessible to the rural population, is the most periphery and basic unit of the Iranian PHC network and is the first point of contact between the primary health care system and the community in rural areas. Located in individual villages, it is designed to cover a target population of about 1,500; each health house also serves several satellite villages selected with careful attention to their cultural and social compatibility. The distance between the village in which the health house is located and the satellite villages served by it is typically, by design, no more than a one-hour walk.

Tasks performed by the health house include:

- record keeping and data collection;
- public health education and promotion of community participation;
- antenatal, perinatal, and postnatal care;
- care of children under five and of school-age children;
- family planning services;
- immunization;
- disease control services.

The second and third levels in the hierarchy of the rural health network provide backup for the rural health houses, offer diagnostic and treatment services, and refer those needing more specialized care to district health centers or hospitals. There are also urban counterparts of these organizations. One male and one or more female health workers, called *behvarzan* run each rural health house. The health workers are chosen from among local people familiar with the households in the village. Such a close relationship between the *behvarz* and his or her community facilitates the accurate collection of health information, among other things. *Behvarzan* have had a pivotal role in the success of Iran's PHC network.

Although the primary responsibilities of the health workers are divided along gender lines, with the female *behvarz* generally responsible for tasks performed within a health house and the male *behvarz* for tasks outside the health house, both genders are trained for and expected to cover all duties, as necessary. Training occurs at the district level; students receive free training and financial support throughout the

two-year training period. In return, they are formally obliged to remain and serve at the village health house for a minimum of four years after completing their study.

The health information system (HIS) enables the *behvarzan* to collect detailed information on rural communities. The main components of the HIS are the household file (containing demographic and health information), various logbooks in which daily activities are recorded, and monthly report forms.

2.2.2. Rural House

The second and third levels in the hierarchy of the rural health network provide backup for the rural health houses, offer diagnostic and treatment services, and refer those needing more specialized care to district health centers or hospitals. There are also urban counterparts of these organizations.

Rural Health Centre is a unit which supervises 5 health houses with a population of about 7500 people. In the center a group consisting of a physician, health technicians and logistic personnel operating under the physician, visit the referred patients and supervise the operation of Houses under the centre. Each Health House is regularly visited every week by the medical team.

2.2.3. Urban Health Centre

Urban Health Centre is a unit located in the city which gives health services to a population of about 12 500. This centre is giving primary health services to urban population exactly like a rural health center but with a more number of personnel. Though execution of health volunteers amongst the same population, under coverage to render health service more actively.

2.2.4. Health Base

Since 5 years ago, in order to reduce the expenses and make better use of available potentials in delivery of health care services to urban communities, it has been decided to establish health bases in marginal areas which are almost similar to rural health houses in function. These bases have exclusive responsibility of rendering preventive services such as mother and child care, family planning, environmental health, disease control and patient referrals to urban health centres. Health bases are administered by midwives or health technicians and the follow-up service renderings are pursued by health volunteers.

2.2.5. Behvarz Training Centre

Behvarz Training Centre which is located in each district has the duty of behvarz training schools, and assumes the ones already in service.

2.2.6. District Health Centre

District Health Centre is an autonomous unit which has responsibility of planning as well as supervision over the activities of the health centres, training new Behvarzes and retraining of their logistical support. This centre includes units such as disease control, environmental health, family health, occupational health, oral health and etc.

2.2.7. The impact of the PHC system

If we judge the effectiveness of resources invested in the PHC system by reference to the improvements in the health status of the Iranian population in general, and the rural population in particular, the results are impressive.

The PHC system is funded entirely by the national government, and the pattern of public health spending is oriented toward rural public health services—a fact that may partly explain the good performance with respect to rural infant mortality rates. The specific measures taken by the PHC system are almost certainly responsible for reducing infant and child mortality, eliminating major infectious diseases of childhood, and improving the health of mothers. These measures include the promotion of healthy attitudes and behaviors; the universal immunization of children; and encouraging mothers to breastfeed, use iodated salt, and provide appropriate treatment for children suffering from diarrhea and acute respiratory infections (ARI). A Multiple Indicators Cluster Survey (MICS) conducted in 1997 suggested a narrowing gap between urban and rural areas in terms of basic health interventions, including immunization coverage and infant, child, and maternal health care intervention. Despite these advances, however, some disparities remain, for instance in areas such as health insurance coverage.

The presence of the community-friendly *behvarz*an in the village, with their constant interaction with the community, has helped to ensure that health messages have not gone unheeded. Moreover, the ability of the PHC system to support the health messages by providing easy access to the means needed (vaccines, oral rehydration therapy, essential drugs, and so on) where and when they were required has also helped to bridge the gap often found between knowledge, attitudes, and practice.

The family planning program in existence before the 1979 Revolution was revived in 1989. The program has been extremely successful. By 1996, more than 74 percent of eligible couples were using a contraceptive, and the total fertility rate had dropped from 6.5 to 2.6. The traditional gap between urban and rural areas has also been substantially narrowed. Iran is making good progress toward the Millennium Development Goals, especially Goal 4, which aims to reduce child mortality and Goal 5, which aims to improve maternal health.

2.2.8. Factors for success of the PHC system

Two factors have been critical to the success of the Iranian experience. The first is the political commitment for change after the Revolution, expressed in a Constitutional mandate to provide universal access to basic health services. This political commitment has been combined with institutional innovation and the broader involvement of communities and local governments in rural health system decisions.

These factors have helped Iran to develop a primary health care system distinguished by culturally sensitive and cost-effective service delivery features—rural health houses, the *behvarzan*, and the simple health information monitoring system. Each of these institutional elements has been adapted and implemented in a way that has improved the chances of success. Without the locally recruited *behvarz,* staff turnover, absenteeism, and lack of knowledge about local circumstances could have rendered the physical facilities of the health houses much less effective. Simple health status tracking methods have made it possible to keep up with the evolving health needs of individuals as well as to detect village-level trends and disparities.

2.2.9. Problems to overcome

There are some weaknesses in Iran's PHC system. Most of the improvements seen so far are the result of outstanding efforts of the workers and health houses; other facilities are lagging behind. Also, institutions at the second and third tiers of the system do not support the health houses sufficiently. Urban health centers must tackle even more serious constraints, and the problem of limited building space in

cities can be overcome only with increased government support. Finally, there is no transparent policy for collaborating with the private sector, training managers, and providing a sustainable mechanism for improving the quality of services.

2.2.10. District Health Network

District Health Network is the coordinating unit between the hospitl and the health centre of the district. It has overal health responsibility over the district. Its manager is the representative of the Ministry of Health and Medical Education in the district.

2.3. Hospital Care

2.3.1. District Hospital

District Hospital is an autonomous unit which has at least 7 specialized wards of: surgery, internal, pediatrics, obstetrics and gynecology, anesthetics, radiology, laboratory, specialized policlinics, and emergencies. This hospital admits the patients referred to through the referral system.

According to the last census that Statistical Centre of Iran undertook in 2003, Iran possesses 730 medical establishments (eg. hospitals, clinics) with a total of 110,797 beds, of which 488 (77,300 beds) are directly affiliated and run by the MOHME and 120 (11,301 beds) owned by the private sector and the rest belong to other organizations, such as the Social Security Organization of Iran (SSO). There were about seven nurses and 17 hospital beds per 10,000 populations.

Table 5: Number of hospitals & hospital beds

	1988	1995	2003
hospitals	525	609	730
hospital beds	77805	96402	110797

2.4. Health care network system

After the victory of the Islamic Revolution one of the basic policies of the Islamic Republic of Iran to maintain and promote community's health and social justice, was to adopt the pilot plan to expand health care network system throughout the country. This decisive step was first taken by the establishment of health network expansion headquarters in the MOH & ME.

At present, after about a decade, this network system, running by the native manpower, has spread to the remotest parts of the country and has been able to bring about immense changes in promotion and maintenance of the community's health.

Table 6: Health and Treatment Units, Behvarz and Health Volunteers by 1997

Unit	Network expansion on plan	Existing in 1985	Existing in 1990	Existing in 1997	Coverage percentage in 1997
Health House	17072	1800	11200	14666	85,9
Rural H. & T. Centre	2802	1200	2090	2181	77,8
Maternity Facilities	-	-	-	452	-
Urban H. & T. Centre	3196	1220	1520	1890	59,3
Behvarz Training Centre	247	-	-	238	-
Health Base	500	-	-	306	61,2
Town Health Centre	247	-	-	247	-
Behvarzes	-	-	-	30000	-
Health Volunteers	-	-	-	31980	-

Source: Health & Medical Education in the Islamic Republic of Iran, General Department of Public Relations and International Affairs Ministry of Health & Medical Education, 1998.

Table 7: Human resources at the primary health care level (2001)

Health staff	Total number
Doctors	17 634
Male behvarz (community health worker)	19 804
Female behvarz (community health worker)	2 563
Midwives	8 121
Family health technicians	1 686
Environmental health technicians	125
Disease control technicians	3 252
Oral health technicians	1 518
Laboratory technicians	1 786
Radiology technicians	708

Source: Ministry of Health and Medical Education, Undersecretary for Logistic Affairs (2001)

Table 8: Health care human resources

Indicator	Year
Physicians (number)	60,791 (2004)
Physicians (density per 1 000 population)	0.87 (2004)
Nurses (number)	83,175 (2004)
Nurses (density per 1 000 population)	1.19 (2004)
Midwives (number)	13,087 (2004)
Midwives (density per 1 000 population)	0.19 (2004)
Dentists (number)	13,135 (2004)
Dentists (density per 1 000 population)	0.19 (2004)
Pharmacists (number)	14,140 (2004)
Pharmacists (density per 1 000 population)	0.20 (2004)
Public and environmental health workers (number)	10,004 (2004)
Public and environmental health workers (density per 1 000 population)	0.14 (2004)
Community health workers (number)	25,242 (2004)
Community health workers (density per 1 000 population)	0.36 (2004)
Other health workers (number)	84,207 (2004)
Other health workers (density per 1 000 population)	1.21 (2004)
Health management and support workers (number)	72,905 (2004)
Health management and support workers (density per 1 000 population)	1.04 (2004)

Source: World health statistics, WHO, 2005.

2.5. Medical Education

After the Islamic Revolution of Iran great efforts were made to put forth social justice and provide needed trained manpower. To fulfill this need the MOH & ME was established through integration of medical education groups in the health care system.

High Council of Cultural Revolution was formed which had a major role in policymaking, planning and giving guidelines to provide manpower (14).

At present 6 medical schools and 33 universities of medical sciences and health services in 27 provinces have undertaken to provide health and medical training (14). The universities of medical sciences, at least one in each province, play an important role both in medical education and provision of health services. The chancellors of the universities are the executive directors of the provincial health services and in charge of all DHCs and hospitals (2). They in turn report to the MOH & ME in Teheran.

The creation of the private Islamic Azad University, which has also established several medical schools in Teheran and other provincial centres, as well as numerous training programs for nurses, laboratory technicians, environmental health specialists and other paramedical staff, has also contributed enormously to the preparation of medical and paramedical personnel (2). Increased production of university graduates in various fields by the latter institution is often blamed for the recent rise in the unemployment rate of physicians and other health professionals.

The following tables and charts show medical training status at the beginning of the Islamic Revolution (1978-1979), establishment of MOH & ME (1986-1987) and the academic year (1996-1997). Number of faculty members rose from 2552 in 1978 to 8316 in 1996. Number of physicians increased from 13000 in 1978 to 49000 in 1996.

Table 9: Medical Education

	1978-1979	1986-1987	1996-1997
Number of colleges and universities	11	24	38
Number of training programs	145	241	1157
Number of faculty members	3039	3145	8316
Number of students busy studying	25588	40571	86059
Number of graduates	3551	7507	14418
Admittance capacity	8897	17575	25042
physicians	13000	16000	49000

Source: Health & Medical Education in the Islamic Republic of Iran, General Department of Public Relations and International Affairs Ministry of Health & Medical Education, 1998.

One of the essential elements in promotion of medical education was formation of Community Oriented Medical Education Council and its secretariat in order to promote community – based attitude in medical education which was a positive change. The followings are a part of activities performed in this area:

- Reconsideration of training programs such as: pharmaceuticals, dentistry, nutrition, health, nursing and midwifery.
- Promoting medical training in all fields in order to train efficient manpower.
- Establishment of medical training promotion centres in 7 main universities of medical sciences and health care in order to pursue activities on: research, planning, execution and evaluation of training programs country-wide.
- Gradual shift from traditional training methods to modern ones in order to attain training quality objectives in manpower training so that Health for All goal can be achieved by the year 2000.
- Ratification of law on continued medical education and education courses throughout the country for years in order to promote professional efficiency of the manpower employed in health section.

2.6. Pharmaceutical industry and drugs

Since the 1979 revolution, following the revolution, almost all major drug companies were taken over by the Government. As they were mostly connected with the international pharmaceutical industry, the takeover led to imposition of restrictions on the import of many products. To deal with this limitation, as well as foreign exchange shortages, Iran has adopted a full generic-based National Drug Policy (NDP), with local production of essential drugs and vaccines as one of the main goals.

Currently 55 pharmaceutical companies in Iran produce more than 96 per cent (quantitatively) of medicines on the market, worth $1.2 billion annually (2005). The report expects the value of the drug market to reach US$1.93bn by 2010. Drug prices, which are still among the lowest in the region, are rising as domestic companies seek to boost revenue. Although over 85 per cent of the population uses an insurance system to reimburse their drug expenses, the government heavily subsidizes pharmaceutical production/importation in order to increase affordability of medicines.

The list has been expanded and currently includes some 1550 items. New and infrequently prescribed drugs are separately imported or manufactured and offered through special drugstores affiliated with the Red Crescent Society, private sector and/or voluntary associations formed to support people suffering from specific disorders.

The regulatory environment of the country is rather strict on the import of drugs and pharmaceuticals towards companies that intend to enter into the market for the first time. Over the past few years, the privatization policy has been extended to the pharmaceutical industry and almost all of the drug companies are now privately owned and managed.

Government support for privatization should also help the drug market improve, whilst making local manufacturers more efficient. All state-owned companies that import medicines are required to be privatized and terminate their activities by March 2007. In the past, all drug imports came through four state-owned companies, with local distribution undertaken by six government firms. At present, foreign drug makers can import drugs through local offices, although the government still greatly favors local producers. All drug imports have to be approved by the Ministry of Health (MoH).

Major Iranian Pharmaceutical Companies:

· Darupakhsh
· Pars Darou
· Iran Pharmaceutical Development & Investment Co. (IPDIC)
· Pharmieco
· CinnaGen

The government has however maintained overall control in the area of pricing and quality assurance. The distribution system which has traditionally consisted of individually owned facilities has remained intact over the years. However, the pharmaceutical industry is restricted by the price control strategy imposed by the MOHME to keep the cost of pharmaceuticals low and affordable. The substantially low prices of locally produced generic drugs encourage irrational use and smuggling of drugs to neighboring countries. The MOHME over the past few years has gradually withdrawn the access of the pharmaceutical industry to "subsidized hard currencies" and this has increased the price of pharmaceuticals. The pharmaceutical industry recently started joint projects with international companies for production of new drugs.

Iranian drug exports are growing, led by demand from close regional neighbors. Two markets that are increasing in importance are Iraq and Afghanistan as these countries' economies begin to slowly recover from the effects of war. Afghanistan is currently Iran's largest drug export partner. Local player **Iran Pharmaceutical Development and Investment Company** (IPDC) has yet to see sales return to pre-war levels. Future export growth will concentrate on the former Soviet sates in Central Asia, and the potentially lucrative African market. Meanwhile, Oman and Iran are planning to increase their co-operation in the field of healthcare, which could see a rise in exports from Iran to Oman.

2.7. Medical equipment

The Department of Medical Equipments in the Ministry of Health and Medical Education (MOHME) is responsible for supervising imports in this segment, but the import and distribution of such equipment is mostly handled by the private sector. Iran has undergone the primary stages of development in terms of industrialization and a rather strong indigenous manufacturing capability exists in the country. Therefore one can expect to find a handful of local producers for basic medical equipment, making it very hard to penetrate into the Iranian market for similar imported ones.

Iran is a mature market when it comes to medical equipment. Most of the major international players in this sector are present in the Iran market (American sanctions against Iran do not apply to medical equipment or pharmaceuticals).

Before the revolution only 4 producing units were active in the field. Production of medical equipment is indebted to imposed war period. At present there are 338 medical equipment and appliances producing units in the country (14). Only 75 million dollars is allocated to import of raw material every year, so some 500 million dollars is saved (14). At the recent international medical exhibition, more than 200 producing units put their products on show (14). These products meet 76 % of country's need. At present a great deal of disposable medical products such as 750 million syringes, 7 thousand tons of gausses and bandage, 2,500,000 m_2 of cast, 35 million IV injection sets and the like are expected to neighboring countries (14). Also medical equipment such as operation table, surgical cauterization, and dental units are also exported to neighboring countries. Most of the allocated hard currency to producing

units is spent on importing raw material and measures have been taken to produce raw materials such as poly-ethylene, propylene and packed films needed by the factories.

2.8. The private health sector

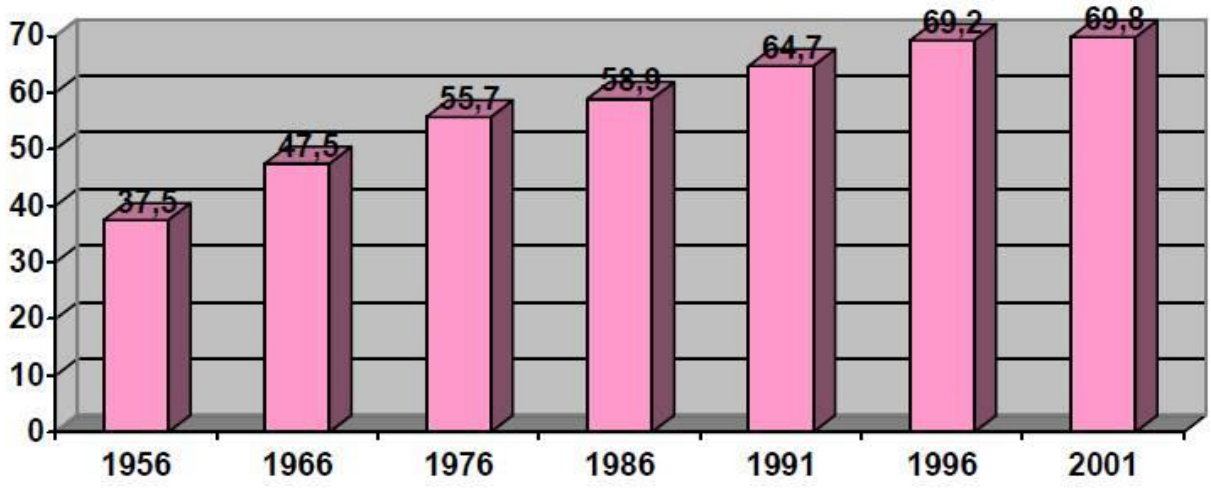
The Islamic Republic of Iran has a well developed and active private health sector, primarily concentrated in urban areas and playing a major role in the provision of secondary and tertiary care. It also controls almost the whole of pharmaceutical industry and drug distribution system and accounts for a large share of laboratory and diagnostic facilities. Further, the private sector covers most of the occupational health activities for workers in the country. In 2002, it controlled 7.4% of health care centres, 10.2% of hospital beds, 37.8% of medical laboratories, 27.5% of rehabilitation facilities and 90.6% of drugstores (Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006).

The sector is overseen and regulated through both professional bodies (e.g. the Iranian Medical Association) and the MOHME. It enjoys a good deal of prestige and attracts more than its numerical share of the health market. Despite occasional conflicts over pricing, the private sector works in close cooperation with the MOHME and other government agencies involved in the health sector.

3. Health status

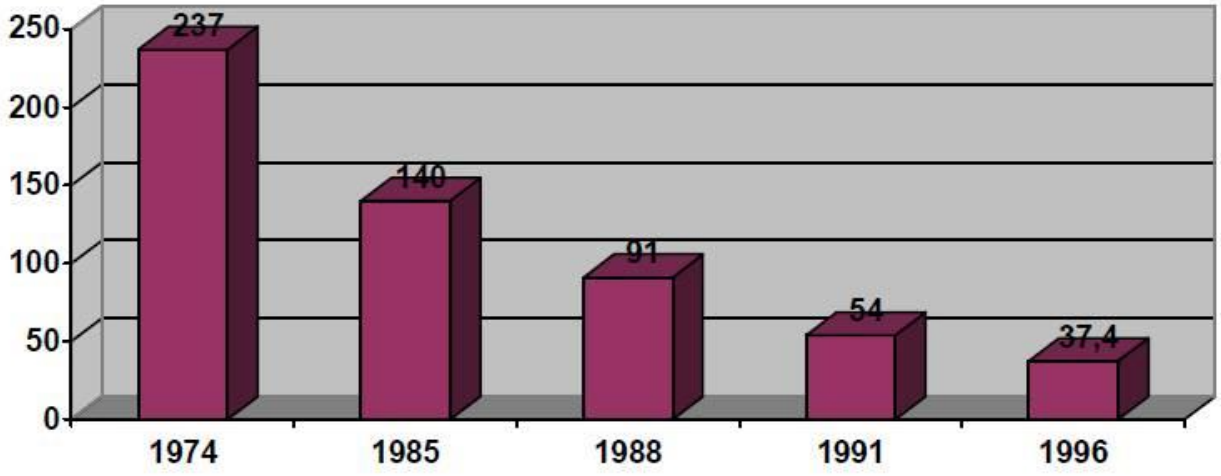
Over the past four decades, the Islamic Republic of Iran has made considerable progress in improving the health status of its population, as is evident from the considerable increase in life expectancy and the decrease in maternal and neonatal mortality rates (Figures 2, 3 and 4).

Figure 2. Life expectancy 1956–2001



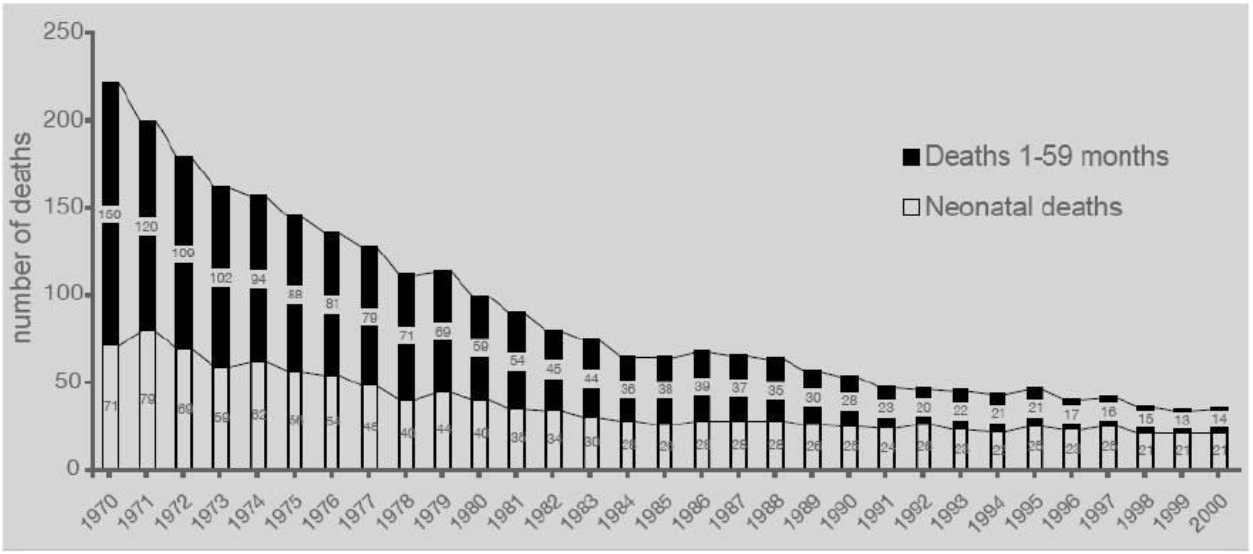
Source: Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006. Statistics Center of Iran and MOHME

Figure 3: Maternal mortality rate 1974–1996



Source: Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006. RAMOS

Figure 4. Child and neonatal mortality 1970–2000



Source: Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006. Naghavi M, 2004

Table 11 shows the progress for the selected indicators made over the years. Out of the many causes for this development, the creation of the PHC system and the expansion of opportunities for training medical and paramedical personnel have played a major role in these achievements. Despite the successes, however, there are still considerable disparities in the health status of different regions and provinces. In 1996, the average life expectancy in Teheran was 70.5 years while in Sistan and Baluchistan it was 61.1 years. Factoring disability into life expectancy (i.e. healthy life expectancy–HALE) can result in an even larger reduction of life expectancy for the low income provinces. The

average Iranian infant mortality rate was 31.7, while for Teheran it was 26.9, and Sistan and Baluchistan, 65.9, indicating a significant differential (19).

Malnutrition and low-weight births are higher than average in many parts of the country. Access to appropriate health care and real insurance coverage is nonexistent or very poor for 10%–15% of the population. Differences in urban and rural health costs and benefits are still significant, especially between the low and high-income deciles in the urban and rural regions. Food and nutrition had a similar trend during the last decade or so. Food security has improved in total, from 2612 calories per capita to 3415, with an increase in food selfsufficiency from 179.7 kilograms per capita of cereals to 220.9 kilograms in 1997 (20).

Table 11. Progress in health status indicators

Indicator	First date	Value	Second date	Value
Life expectancy at birth (years)	1970-1975	55.3	2000-2005	70.3
Infant mortality rate (per 1000 live births)	1970	122	2001	35
Under-5 mortality rate (per 1000 live births)	1970	191	2001	42
Maternal mortality ratio (per 100 000 live births)	1988	90	2001	37
One-year-olds immunized against tuberculosis (%)	1988	88	2001	93
Contraceptive prevalence rate (%)			2001	73
Total fertility rate (per woman)	1970-1975	6.4	2000-2005	2.3
One-year-olds immunized against measles (%)	1988	83	2001	96
Malaria cases per 100 000 population	1988	102.5	2000	27
Tuberculosis cases per 100 000 population	1988	15	2001	32
AIDS cases per 100 000 population	1988	0.006	1997	0.3

Source: United Nations. Human development report 2003. Millennium Development Goals: a compact among nations to end human poverty. New York, UNDP, 2003.

According to the latest information (March 2004) from the Department of Disease Control, MOHME, 6746 HIV-positive cases have been identified based on which the number of existing cases is estimated to be more than 30 000. The cumulative figure for AIDS patients is 700 cases on the same date. IV drug use and needle sharing accounts for 62% of transmissions while 8%–9% are infected through sexual contact; the remaining transmissions (30%) are unknown. With a very young population, high rate of drug use, and rapidly changing lifestyles, HIV/AIDS have the opportunity to multiply and spread quickly if appropriate preventive measures are not introduced at the policy and operational levels through an active partnership between all stakeholders.

Hepatitis B is of critical importance to the health care delivery system of the country due to its high fatality rate. According to the Department of Disease Control, the main route of transmission in Islamic Republic of Iran is mother to child. Three consecutive nationwide studies have shown that at present the prevalence of antigen-positive people is less than 3% with a rather constant trend.

Hepatitis C virus (HCV) is one to the most important causes of chronic liver disease. According to the Centre for Disease Control in Islamic Republic of Iran, 0.3% of blood donors in Teheran and less than 10% patients with chronic hepatitis or liver cirrhosis are HCV positive.

Among vulnerable special groups, such as hemophiliacs, thalassaemics and hemodialysis patients, the most common cause of chronic hepatitis is HCV infection. The average rate of HCV positives is between 0.1% and 0.3%. The most common cause of transmission is injecting drug use.

While there has been significant decrease in the morbidity and mortality due to communicable diseases, those due to noncommunicable diseases and accidents have risen significantly, accounting, respectively, for nearly 24% and 18% of all deaths. These conditions are closely linked to the demographic transition, urbanization, social change and consequent changes in individual behavior and

lifestyle, including physical inactivity, smoking, intake of salty and fatty foods, alcohol use, abuse of illicit substances, etc.

These are much more difficult to prevent or change and require rather expensive interventions. In fact, further rise in the cardiovascular, degenerative and stress related diseases would seem to be inevitable in view of the changing age structure and rising life expectancy of the population. While the proportion of cigarette smokers in the sample studied was 11.9%, with no sex or urban/rural difference, the prevalence of other major noncommunicable diseases is shown in Table 12. Another study revealed the contribution of different conditions to healthy life years lost (Table 13).

Evidently, accidents as a group were responsible for 14.85% of all cases of death and accounted for 26.13% of healthy life-years lost. Of the latter group, traffic accidents alone were responsible for 8.91% of all deaths and accounted for 15.84% of healthy life-years lost. In fact, 60% of all cases of death due to accidents belonged to traffic accidents. In 2002, accidents caused 4.18 cases of injury or death per 1000 population. Of these, 2.8 were due to traffic accidents.

Table 12: Prevalence of noncommunicable diseases (2002)

	Overall	Male	Female	Rural	Urban
Diabetes mellitus (%)	2.3	-	-	1.2	2.9
Hypertension (%)	11.5	11.1	11.9	11.3	11.7
Cholesterol above 240 mg/dl (%)	11.1	9.4	12.4	8.9	12.4

Sources: A study of health and illness in Iran: results of a national survey conducted by the Office of the Deputy Minister for Research in collaboration with the National Center for Medical Research of Iran. Teheran, MOHME, 2002.

Table 13: Contribution of conditions to healthy life-years lost (2004)

Condition	Cause of death (%)	Healthy life-years lost (%)
Cardiovascular diseases	45.72	27.13
Accidents (total)	14.85	26.13
Traffic accidents	8.91	15.84
Cancer	14.06	11.86
Endocrine and nutritional diseases	1.81	1.30

Sources: Naghavi M, 2004, personal communication.

4. Health Care Financing

The Islamic Republic of Iran's gross national income in 2002 was estimated to be US$ 112.1 billion with a per capita value of US$ 1710. In purchasing power parity (PPP) terms, this amounts to US$ 415 billion with a per capita value of US$ 6340 (18).

GDP grew at a rate of 5.9% during 2001–2002, with the per capita growth rate being 4.2%. The draft fourth Five Year Development Plan aims at an 8% growth rate (18) However, discussion with a number of stakeholders revealed serious doubts regarding the attainability of this goal in view of the country's past performance and ability to attract international capital for investment.

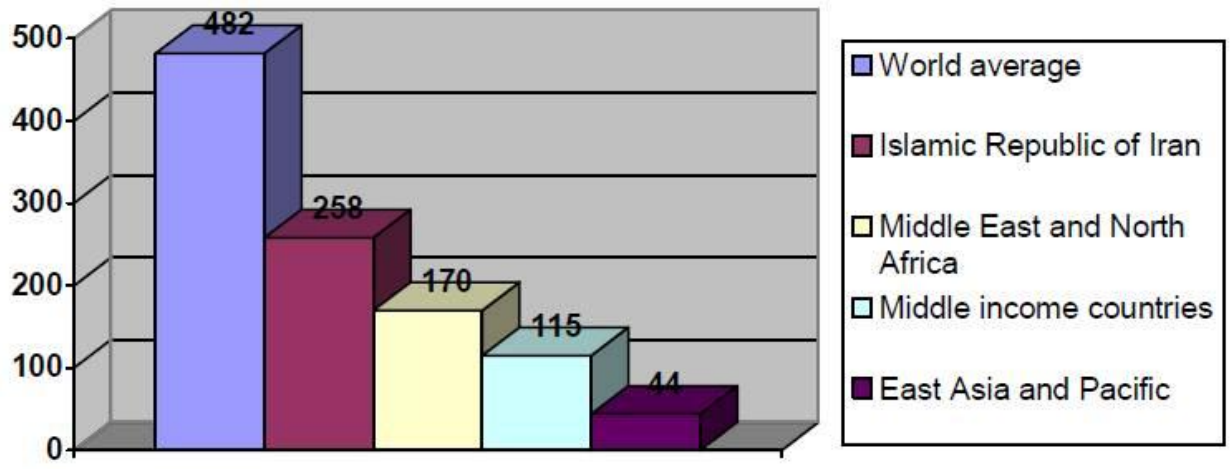
During the period from 1971 to 1999, the relative share of government expenditure on health varied from 1.66% (in 1971) to above 5% of GDP (in 1980, 1981, 1993 and 1997). It accounted for less than 3% of GDP during 1971–1977 but has not fallen below 4.2% since 1980. Its median value for the past 10 years was about 4.8%. According to the World Bank, in 2000 the share of health of GDP was 5.5%, of which 2.5% was paid by the public sector and 3% by the private sector. Table 2 gives details of investment in health against different variables. The total per capita expenditure on health during 1997–2000 compared to the world average and other regions is shown in Figure 2.

Table 14: Investment in health, 2001

Indicators	2002 (1)	2004 (2)
Per capita GDP in international dollars	6673	
Total expenditure on health as % of GDP	6.3	6.6
Per capita expenditure on health at average exchange rate (US$)	350	157.8
Per capita expenditure on health in international dollars	422	603.7
General government expenditure on health as % of total expenditure on health	43.5	47.8
General government expenditure on health as % of total general government expenditure	12.0	10.9
Per capita government expenditure on health at average exchange rate (US$)	152	75.4
Per capita government expenditure on health at international dollar rate	183	288.4
Social security expenditure on health as % of general government expenditure on health	40.8	38.4
External resources for health as % of total expenditure on health	0.1	0.2
Private expenditure on health as % of total expenditure on health	56.5	52.2
Prepaid plans as % of private expenditure on health	2.6	4.4
Out-of-pocket expenditure on health as % of private expenditure on health	94.2	94.8

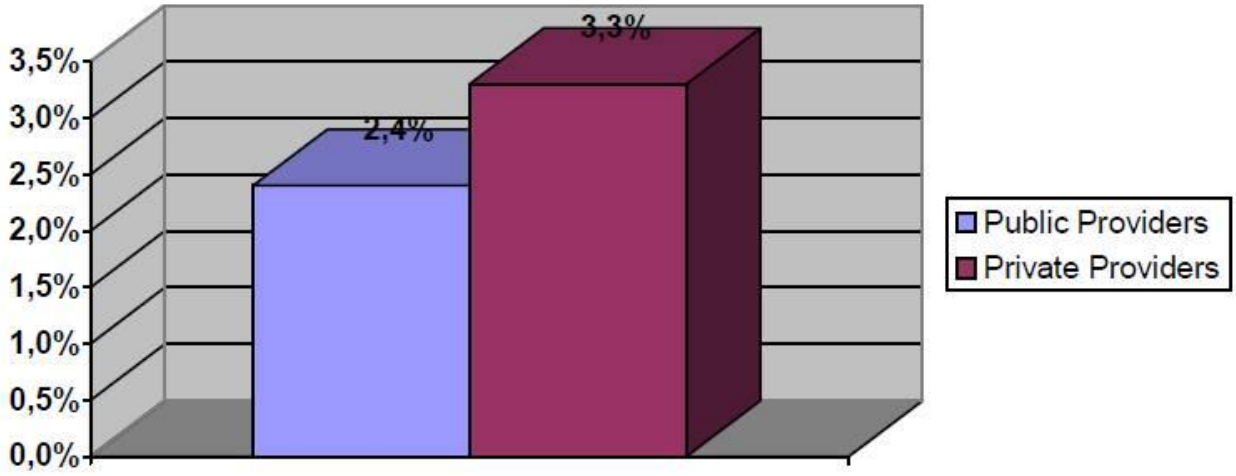
Source: 1. The world health report 2004: changing history. World Health Organization, Geneva, 2004
2. WHO data on National Health Accounts

Figure 5. Per capita expenditure on health (US$) 1997–2000



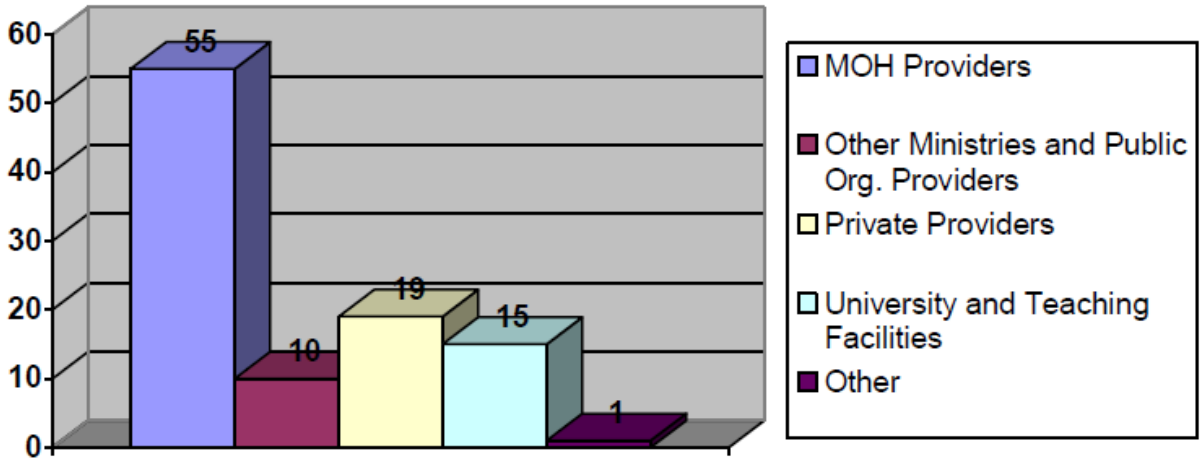
Source: World Bank. World development report 2004. Making services work for poor people. New York, Oxford University Press, 2004

Figure 6: Health Spending on Public and Private Providers as a proportion of the GDP 1997



Source: World Bank. World development report 1997.

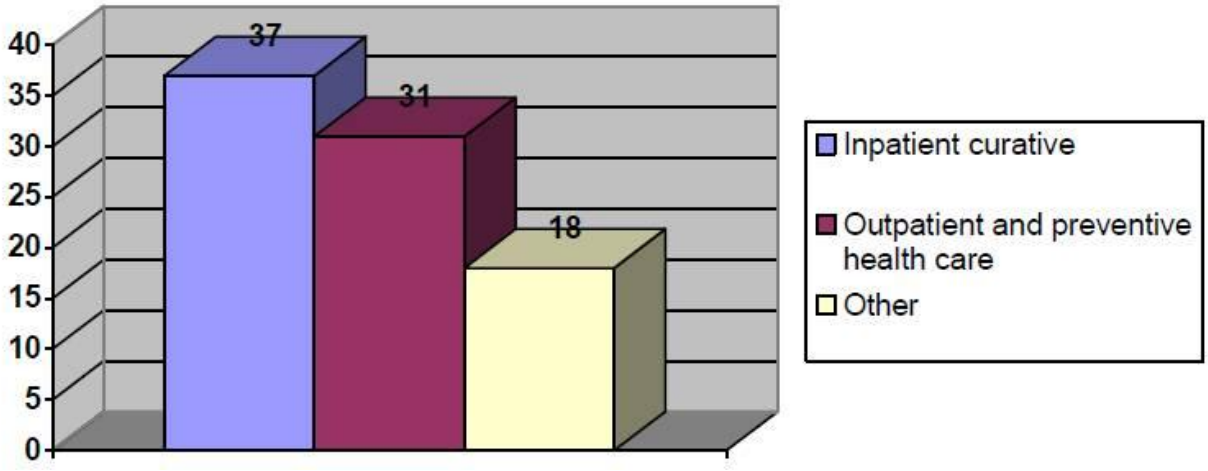
Figure 7: Distribution of Health Spending (%), by type of providers 1997



Source: World Bank. World development report 1997.

Iran spent more on inpatient curative services than on outpatient and preventive health care.

Figure 8: Functional Distribution of Health Expenditures 1997



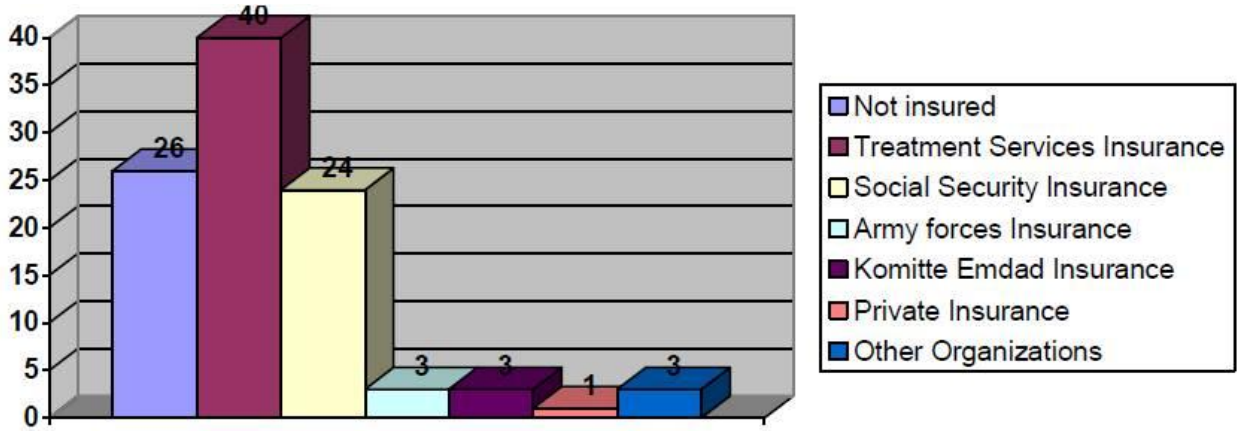
Source: World Bank. World development report 1997.

4.1. Health insurance system

The Ministry of Welfare and Social Security manages four major health insurance organizations:

- Social Security Organization (SSO) for formal sector employees and self-employed and their dependents;
- Armed Forces Medical Services Organization (AFMSO) for the members of the military and their dependents;
- Medical Service Insurance Organization (MSIO) for government employees, rural households, selfemployed, and others such as students;
- Emam Khomeini Relief Committee (EKRC) which covers the poor and destitute.

Figure 9: Percentage insurance coverage provided by different organizations (2004)



Source: Country Cooperation Strategy for WHO and the Islamic Republic of Iran 2005–2009, World Health Organization Regional Office for the Eastern Mediterranean, Cairo, 2006. Naghavi M, 2004 (unpublished data).

Figure indicates the percentage of insurance coverage provided by different organizations. Generally, it is believed that 92% of the country's population is covered by the health insurance system

(2). However, according to a recent access and utilization of health services survey, the number of those not covered is greater than these estimates. This discrepancy in coverage has been attributed to:

- people having more than one insurance plan;
- population figures held by the insurance organizations that are not derived from the population census, but calculated by number of principal insured times the household size;
- overestimation for the purpose of bargaining in terms of per capita premium.

Notwithstanding the extent of the coverage, the insurance system for financing health services through different organizations includes hospitalization, diagnostic tests and pharmaceuticals by varying schemes of cost sharing. It is estimated that over 8%–10% of the population is not covered by any insurance scheme and has to pay out of pocket (2). This situation is indicative of the inequitable distribution of health resources and the inability of the present arrangements to ensure provision of basic health care services to all citizens. Definition, organization and the provision of a free and comprehensive universal basic minimum health care package are currently being discussed as a major issue for the ongoing health sector reforms (2).

5. Health sector reforms

The MOHME has been introducing reforms in the health sector for the past few years. However, a more organized effort was launched recently, selecting four provinces as pilot areas as part of a larger World Bankassisted Second Primary Health Care and Nutrition Project. It is planned to design and test a set of interventions prior to countrywide replication. These interventions are aimed at:

- designing and testing a universal basic minimum health services package and strengthening the patient referral system, ensuring better quality health services that are responsive to the needs of the
- communities;
- assuring stewardship and good governance in the public sector health system and guaranteeing propoor · policies;
- improving health planning and management including decentralization in the health sector by delegating administrative and financial authority;
- reviewing the existing health financing options for introducing measures to assure fair financing, eliminating inefficiencies and bringing equity;
- making organizational arrangements for the conceptualizing, formulating and implementing of health sector reforms.

The WHO has been a partner in implementing reforms, for which a formal agreement was signed between WHO and the MOHME.

5.1. Current health and development challenges

1. At the macro level, improving economic performance remains a significant challenge. Recent growth has not been sufficient, either to create employment on the scale needed or to provide the tax base to finance necessary state efforts in health, education, welfare infrastructure and environmental protection.

2. The alarming rate of unemployment in the 15–24 year age group is a great cause of concern with its worrying implications for health and social unrest.

3. Policy-making needs to be institutionalized within the MOHME and based increasingly on evidence generated within the country. Skills and expertise required for policy analysis need to be strengthened.

4. Efforts to secure to additional resources for the health system should be coupled with: policies and actions to improve governance; improved fiscal controls; effective human resources development and

management based on current and projected needs; performance based performance based management; introduction of cost-effective health interventions; and establishing concrete accountability measures.

5. The need for intersectoral collaboration in dealing with many of the current and emerging health issues should be cultivated with a stronger political presence/lobby in the national decision-making process to assume the leadership in this vital area.

6. Public contribution to health financing is dependent on income and independent of risks and is thus not fair. Nearly 50% of health expenditure is out-of-pocket. Financing of health care needs to be based on pooling of and equitable management of resources.

7. Differences still exist in the availability and accessibility of 'health services leading to serious disparities among people in different social classes and in different parts of the country.

8. The current efforts at improving the effectiveness, efficiency and quality of care need to be systematically institutionalized in the system. Attempts should continue to examine how the referral system could be further improved.

9. Adequate efforts should be made to incorporate different data collection systems under the auspices of a comprehensive national health information system, the output of which should be used for policy-making and improved program management at all levels of the health system.

10. The role of the private sector in extending the provision of health services at the primary, secondary and tertiary levels at realistic cost should be explored.

11. Mobilizing the community for active involvement in health-related activities requires further consolidation with increased emphasis on capacity building and empowerment.

12. Greater cognizance to be taken of the impact of the demographic and epidemiological transition under way on the pattern of morbidity and mortality in the near and distant future, especially as it affects the emergence of chronic noncommunicable diseases and the special health problems of an aging population.

13. Communicable diseases remain a major public health problem, further complicated by increasing incidence of HIV/AIDS, hepatitis and other emerging diseases. Furthermore, the continuing problem of malaria and tuberculosis among underprivileged population groups and the areas bordering Pakistan and Afghanistan requires new and innovative approaches and sustained efforts. Apart from contributing to the global pool of knowledge, the work and knowledge of Iranian scientists/researchers should be harnessed for generating the evidence needed for policy-making and for improving management of the health system.

14. Indigenous pharmaceutical and biological production should be upgraded to ensure that the quality of these products meet international standards, particularly the requirements of the World Trade Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

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